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спеціальностей

ENGLISH FOR PHARMACISTS

АНГЛІЙСЬКА МОВА ДЛЯ ФАРМАЦЕВТІВ

Навчально-методичний посібник

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Навчально-методичний посібник “English for Pharmacists” («Англійська мова для фармацевтів») призначений для підготовки студентів 1-4 курсів спеціальності «Фармація. Промислова фармація», укладений відповідно до вимог нормативної освітньої компоненти «Іноземна мова за професійним спрямуванням». Основною метою даного посібника є формування професійної іншомовної комунікативної компетентності, засвоєння граматичних структур та збагачення словникового запасу, для якісної та ефективної підготовки студентів-фармацевтів до медичного ліцензійного іспиту «КРОК».

Посібник складається з семи розділів, добірки текстів для самостійної роботи, глосарію з фармацевтичної термінологією. Кожний модуль включає тексти фахового орієнтування та комплекс вправ лексико-граматичного характеру на закріплення фахової лексики. Навчально-методичний посібник доповнений граматичним довідником, в якому матеріал подається у зручному форматі, а саме: у вигляді таблиць та схем. Комплекс вправ до кожної граматичної теми містить лексику професійного спрямування, що також сприяє її кращому засвоєнню.

Матеріал підручника забезпечує професійну спрямованість студентів-фармацевтів у навчанні англійської мови, готує їх до іншомовної комунікації, читання спеціальної літератури.

Навчально-методичний посібник призначений для студентів фармацевтів закладів вищої освіти.

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UNIT 1 PHARMACEUTICAL EDUCATION

1.1 Pharmaceutical Education in Ukraine

Speaking

1. Are you a student of Lesya Ukrainka Volyn National University?
2. What department do you study at?
3. Why have you made up your mind to become a pharmacist?
4. What jobs do you know in the pharmaceutical industry?
5. What does the profession of a pharmacist deal with?
6. Is this profession well-paid?
7. What skills do you need to become a good pharmacist?

Active Vocabulary

1.to enter	вступати
2. course	курс
3.to last	тривати
4.property	властивість
5.internship	інтернатура
6.establishment	заклад, установа
7.master	магістр
8.abroad	за кордоном
9.evidence	доказ
10.standard	рівень
11.postgraduate	аспірант
12.applicant	абітурієнт
13.compulsory	обов'язковий
14.graduate	випускник
15.scientific	науковий

Exercise 1.1. Translate the following words into Ukrainian.

Institution, academy, examination, subject, physiology, chemistry, physics, laboratory, qualified, specialize, perfumery, cosmetic, assistant, faculty, specialist, problem, train, professional, pharmacognosy, pharmacokinetics, organize, doctor, professor, qualified, biology, botany, pharmacology, organic, toxicological, analytical, special, technology, pharmacy, management, marketing, department,

period, pathology, mechanism, molecular, radiation, clinic.

Exercise 1.2. Match the words with the definitions.

1. abroad	a) to continue for a particular period of time
2. property	b) to start working in a particular field or organization or to start studying at school or university
3. standard	c) the level that is considered acceptable, or the level that someone or something has achieved
4. to last	d) an organization or institution, especially a business, shop, etc.
5. to enter	e) someone who is studying at a university to get a Master's Degree or a PhD(Doctor of Philosophy) Degree
6. curriculum	f) someone who has formally asked, usually in writing, for a job, university place, etc.
7. course	g) a job that someone, who has almost finished training as a doctor, does in a hospital
8. establishment	h) a period of study in a particular subject, especially at university
9. postgraduate	i) a quality or power that a substance, plant, etc. has
10. internship	j) all the courses given in a school, college, etc., or a particular course of study in one subject
11. applicant	k) a detailed study of a subject, especially in order to discover (new) information or reach a (new) understanding
12. medicine	l) any of the divisions or parts of esp. a school, university, business, or government
13. research	m) a substance, especially in the form of a liquid or a pill, that is a treatment for illness or injury
14. department	n) in or to foreign country

Exercise 1.3. Complete the following sentences using words from exercise 2 and translate these sentences into Ukrainian.

1. The committee is assessing the _____ of care in local hospitals.
2. She works for international company and often goes _____ on business.

3. People know many herbs with healing _____.
4. Practical classes in laboratories usually lasts for 90 minutes.
5. He's worked hard _____ a university. His dream to become a pharmacist.
6. She was one of ten _____ for the position of manager assistant in the Pharmaceutical company.
7. Practical training at chemist's shops usually _____ for six months.
8. The _____ of compulsory education in Ukraine makes 9 years.
9. She knows a lot about herbal _____.
10. _____ students do research for their theses.
11. Students often conduct experiments to carry out their _____ .
12. There is an extramural _____ at our university.
13. Profession oriented English is an essential part of the University _____.
14. She seems to have spent all her life studying in educational _____.

Exercise 1.4. Read and translate the text.

Pharmaceutical Education in Ukraine

In our country there is a wide network of institutions of higher medical education, which train pharmacists.

To enter a pharmaceutical faculty students take written entrance examinations (**External Independent Assessment Exams**) in Chemistry, Biology and Ukrainian. The course of study lasts for five years. During the first two years pharmacy students study general subjects, such as Botany, Physiology, General Chemistry, Physics, etc. During the third, fourth, and fifth years they have classes in special sciences, like Pharmacology, Pharmacognosy, Pharmaceutical Chemistry, etc.

The students also have practical classes in laboratories, where they study physical and medical properties of medicines. Pharmaceutical students have practical training at chemist's shops, where they learn to work as pharmacists.

After graduation all pharmaceutical students have a period of internship, which lasts for one year. Here they specialize in the following pharmaceutical specialties: "pharmacy", "clinical pharmacy", "technology of pharmaceutical preparations", and "technology of perfumery and cosmetic preparations".

Today about eight thousand foreign students study medicine and pharmacy at higher medical educational establishments of Ukraine. It is half of all foreign students that study in our country. About one thousand and seven hundred applicants from abroad enter Ukrainian medical universities and academies each year. This is the evidence of a high standard of medical and pharmaceutical

education in our country.

At higher medical institutions of Ukraine there is also postgraduate study as a form of training scientific and teaching specialists. Postgraduate education is not compulsory. The students study and write thesis to get the Master's Degree or the Candidate of Science Degree.

After completing the course of study at the pharmaceutical faculty graduates can work as managers, assistants, dispensing pharmacists or chemists-analysts at chemist's shops, pharmaceutical plants or chemical laboratories.

Exercise 1.5. Fill in the gaps with the words and word combinations from the list.

the degree, take, specialize, higher medical institutions, completing, practical training, pharmaceutical plants, outlook, need, management, period of time, curriculum, influence

1. In our country there is a wide network of _____, which train pharmacists.
2. Pharmaceutical students have _____ at chemist's shops.
3. Students _____ in four pharmaceutical specialties.
4. Applicants _____ written entrance exams in Chemistry, Biology and Ukrainian.
5. Postgraduate students get _____ of the Candidate of Science.
6. After _____ the course of study graduates can work as managers, assistants or dispensing pharmacists.
7. The urgent _____ for pharmaceutical specialists led to the organization of the faculty.
8. The faculty trains professionals for chemist's shops and _____.
9. The _____ at the faculty consists of general and special subjects.
10. For a relatively short _____ all the necessary scientific and research facilities were created at the faculty.
11. The NMU trains a new generation of pharmacists, with wide university _____ and knowledge of clinical presentation and pathology of the human body.
12. They master the mechanisms of drug _____ on the body.
13. Senior students study _____ and marketing of pharmacy.

Exercise 1.6. Fill in prepositions where necessary.

1. Organization and economy ... pharmacy is one of the

subjects in the curriculum.

2. ... present there are nine chairs at the pharmaceutical faculty.
3. The course of study lasts ... five years.
4. The curriculum at the faculty consists ... many subjects.
5. The faculty trains students ... different countries of the world.
6. The students master the mechanisms of drug influence ... the body.
7. Radiation pharmacology is of primary significance ... our country today.
8. During the third, fourth, and fifth years students have classes ... special sciences.
9. ... graduation all pharmaceutical students have a period of internship, which lasts for one year.
10. Here students specialize ... several pharmaceutical specialties.
11. Half ... all the foreign students getting education in our country study medicine.
12. Nearly one thousand and seven hundred applicants ... abroad enter Ukrainian medical universities and academies each year.
13. This is the evidence ... a high standard of medical and pharmaceutical education in our country.
- 14.... higher medical institutions of Ukraine there is also postgraduate study as a form of training scientific and teaching specialists.

Exercise 1.7. Replace the underlined words with their synonyms.

various, broad, crucial, experts, continues, pharmacies, effect, opportunities, prepares, comparatively, medications, comprises, significant, views, learn, mandatory, establishments, drugs, level, finishing, directors, instruct, learn, qualities, training, drugstores, system, undergraduates, proof, pharmacutists

1. The urgent need for specialists, who can solve the most important social problems of providing the people of Ukraine with medicines, led to the organization of the pharmaceutical faculty at our university.
2. The faculty trains professionals for chemist's shops, and pharmaceutical plants as well as scientists of different branches.
3. The curriculum at the faculty consists of many subjects.
4. For a relatively, short period of time all the necessary scientific and research facilities were created at the faculty.
5. The course of study lasts for five years.

6. The NMU trains a new generation of pharmacists, with wide university outlook and knowledge of clinical presentation and pathologies of the human body.
7. The students master the mechanisms of drug influence on the body.
8. There is a wide network of medical institutions, which train pharmacists.
9. During the first two years students study general subjects.
10. Students study physical and medical properties of medicines.
11. It is the evidence of a high standard of medical and pharmaceutical education in our country.
12. After completing the course of study graduates work as managers, assistants, dispensing pharmacists.
13. Pharmaceutical students have practical training at chemist's shops.
14. Postgraduate study is not compulsory.

Exercise 1.8. Match each word from column A with its opposite from column B.

A	B
1. to create	a) untrained
2. to organize	b) ordinary
3. qualified	c) inferior
4. to last	d) to destroy
5. outstanding	e) narrow
6. necessary	f) to stop
7. wide	g) to disorganize
8. primary	h) nonessential
9. to complete	i) to begin
10. to enter	j) low
11. to last	k) elective
12. practical	l) in our country
13. abroad	m) to leave
14. high	n) theoretical
15. compulsory	o) to relax
16. to work	p) to cease

Exercise 1.9. Say whether these statements are true or false. Make any corrections if necessary:

1. To enter a pharmaceutical faculty students take written entrance

examinations (External Independent Assessment Exams) in English, Biology, and Ukrainian. (T/F)

2. During the first two years pharmacy students study special sciences, like Pharmacology, Pharmacognosy, Pharmaceutical Chemistry and others. (T/F)

3. The students have practical classes in laboratories, where they conduct experiments to study physical and medical properties of medicines. (T/F)

4. Pharmaceutical students often compound medicines at chemist's shops, where they learn to work as pharmacists. (T/F)

5. After graduation the most diligent pharmaceutical students have a period of internship, which lasts for one year. (T/F)

6. About two thousand foreign students study medicine and pharmacy at higher medical educational establishments of Ukraine. (T/F)

7. Postgraduate education is compulsory in Ukraine. Every student of pharmacy takes a postgraduate course to get the Master's Degree or the Candidate of Science Degree. (T/F)

8. After completing the course of study at the pharmaceutical faculty graduates can work only as dispensing pharmacists at chemist's shops. (T/F)

Exercise 1.10. Answer the following questions.

1. What higher medical institutions of our country train pharmacists?
2. What entrance exams do the applicants take?
3. Where do the students have practical training?
4. Where do the students have practical classes?
5. What is internship?
7. What pharmaceutical specialties do you know?
8. How many foreign students study medicine and pharmacy in Ukraine?
9. What is the evidence of a high standard of medical and pharmaceutical education in our country?
10. What is postgraduate study?
11. Where can graduates work after completing their study?

1.2 Pharmaceutical Education in Great Britain

Vocabulary

Exercise 1.11. Learn the following words:

to encompass	охоплювати
to undergo	переносити, зазнавати
apprenticeship	навчання (чомусь) у наставника

to extend	розширювати
arts	гуманітарні науки
obvious	очевидний
cognate	споріднений
advanced	поглиблений
to administer	приписувати (ліки)
to embrace	охоплювати
board	рада
to designate	призначати
to be engaged in	бути задіяним у
license	ліцензія
jurisprudence	юриспруденція
requirement	вимога; необхідна умова
dispensing	розповсюдження
merchandising	роздрібна торгівля
accounting	бухгалтерський облік
to permit	дозволяти

Exercise 1.12. Guess the meaning of the following words.

System, formal, college, instruction, leading, career, manufacturing, medication, effect, adequate, basic, specialized, business, profession, techniques, license, jurisprudence, practice, variation, specific, legal, registered.

Exercise 1.13. Match the words with the definitions.

1. apprenticeship	a) a group of people in an organization, who make rules and important decisions
2. to extend	b) to give someone a medicine or medical treatment
3. arts	c) studying a school subject at a difficult level
4. to administer	d) the subjects you can study that are not scientific, for example history, languages, etc.
5. to embrace	e) to continue for a longer period of time or to make something last longer
6. board	f) to choose someone or

	something for a particular job or purpose
7. to designate	g) work for an employer for a fixed period of time in order to learn a particular skill or job.
8. advanced learning	h) to include something as a part of a subject, discussion, etc.

Exercise 1.14. Read and translate the text.

Pharmaceutical Education in Great Britain

The history of pharmaceutical education has closely followed that of medical education. As the training of the physician underwent changes from the apprenticeship system to formal educational courses, so did the training of the pharmacist. The first pharmaceutical colleges in Great Britain were founded at the beginning of the nineteenth century.

The course of instruction leading to a degree in pharmacy was extended from four to five years in 1960. The first and frequently the second year of training, embracing general education subjects, are often provided by a school of arts and sciences. Many institutions, in addition, offer graduate courses in pharmacy and cognate sciences leading to the degrees of Master of Science and Doctor of Philosophy in pharmacy, pharmacology, or related disciplines. These advanced courses are intended especially for those, who are preparing for careers in research, manufacturing, or teaching in the field of pharmacy.

Several schools of pharmacy have now adopted a six-year professional course leading to the degree of Doctor of Pharmacy. This professional training includes many subjects common to the medical curriculum and involves training in hospital wards. In this service a professionally trained pharmacist is expected to give advice to the physician in the techniques of administering medication and possible interaction of drugs in the patient, along with expected side effects.

Since the treatment of the sick with drugs encompasses a wide field of knowledge in the biological and physical sciences, it is obvious that understanding of these sciences is necessary for adequate pharmaceutical training. The basic five-year curriculum in British colleges of pharmacy embraces physics, chemistry, biology, bacteriology, physiology, pharmacology, and many other specialized courses such as dispensing pharmacy. As the pharmacist is engaged in business as well, special training is provided in merchandising, accounting, computer techniques, and pharmaceutical jurisprudence. All other countries requiring licenses to practice offer the same basic curriculum with minor variations.

Before one is permitted to practice pharmacy in Great Britain as well as in

other countries, in which a license is required, an applicant must be qualified by graduation from a recognized college of pharmacy, meet specific requirements for experience, and pass an examination conducted by a board of pharmacy appointed by the government. The passing of this board examination carries with it the legal right to practice pharmacy. The holder is then designated a registered or licensed pharmacist.

Exercise 1.15. Fill in the gaps with the words and word combinations from the list.

<i>common,</i>	<i>teaching,</i>	<i>followed,</i>	<i>encompasses,</i>	<i>engaged,</i>
<i>carries,</i>	<i>Doctor of Philosophy,</i>	<i>provided</i>		

1. _____ The history of pharmaceutical education has closely _____ that of medical education.

2. Many institutions, in addition, offer graduate courses leading to the degrees of Master of Science and _____.

3. These advanced courses are intended especially for those, who are preparing for careers in research, manufacturing, or _____ in the field of pharmacy.

4. This professional training includes many subjects _____ to the medical curriculum.

5. The treatment of the sick with drugs _____ a wide field of knowledge in biological and physical sciences.

6. The pharmacist is _____ in business so special training is _____ in merchandising, accounting, computer techniques, and pharmaceutical jurisprudence.

7. The passing of the board examination _____ with it the legal right to practice pharmacy.

Exercise 1.16. Fill in prepositions where necessary.

1. The training ... the pharmacist underwent changes from the apprenticeship system to formal educational courses.

2. The first pharmaceutical colleges in Great Britain were founded ... the beginning of the nineteenth century.

3. The first and frequently the second year of training are often provided ... a school of arts and sciences.

4. The course of instruction leading ... a degree in pharmacy was extended from four to five years in 1960.

5. The professional training involves practice ... hospital wards.

6. Before an applicant is permitted to practice pharmacy in Great Britain he must be qualified ... graduation ... a recognized college of pharmacy.

7. An applicant must meet specific requirements ... experience to be allowed to practice pharmacy.

Exercise 1.17. Replace the underlined words with their synonyms.

<i>recommendation,</i>	<i>commonly,</i>	<i>including,</i>	<i>supplied,</i>	<i>prolonged,</i>
<i>similar,</i>	<i>required,</i>	<i>probable,</i>	<i>methods,</i>	<i>patients,</i>
<i>comprises,</i>	<i>evident,</i>	<i>satisfactory,</i>	<i>accepted</i>	

1. The course of instruction leading to a degree in pharmacy was extended from four to five years in 1960.

2. The first and frequently the second year of training, embracing general education subjects, are often provided by a school of arts and sciences.

3. Many institutions, in addition, offer graduate courses in pharmacy and cognate sciences leading to the degrees of Master of Science and Doctor of Philosophy in pharmacy, pharmacology, or related disciplines.

4. Several schools of pharmacy have now adopted a six-year professional course leading to the degree of Doctor of Pharmacy.

5. In this service the professionally trained pharmacist is expected to give advice to the physician in the techniques of administering medication and possible interaction of drugs in the patient, along with expected side effects.

6. Since the treatment of the sick with drugs encompasses a wide field of knowledge in the biological and physical sciences, it is obvious that understanding of these sciences is necessary for adequate pharmaceutical training.

Exercise 1.18. Match each word from column A with its opposite from column.

A	B
1. closely	a. unofficial
2. obvious	b. to deprive
3. formal	c. to reduce
4. to permit	d. unclear
5. to provide	e. remotely
6. to extend	f. general
7. to qualify	g. entrance
8. specific	h. to forbid
9. graduation	i. to disqualify

Exercise 1.19. Answer the following questions.

1. What changes did the training of the pharmacist undergo?
2. When were the first pharmaceutical colleges founded in Great Britain?
3. When was the course of instruction extended?
4. Which years of training are provided by a school of arts and sciences?
5. What additional graduate courses do many institutions offer?
6. What professional training includes medical subjects and training in hospital wards?
7. What is the professionally trained pharmacist expected to do?
8. What sciences does the basic five-year curriculum embrace?
9. What curriculum do other countries offer?
10. What is required to be permitted to practice pharmacy in Great Britain?

Exercise 1.20. Say whether these statements are true (T) or false (F).

Make any corrections if necessary:

1. The history of pharmaceutical education is not connected with the history of medical education. (T/F)
2. A four-year instruction course was adopted in 1960. (T/F)
3. All pharmaceutical institutions offer courses leading to the degrees of Master of Science and Doctor of Philosophy. (T/F)
4. The compulsory professional course in pharmacy is 6 years. (T/F)
5. Different countries offer different curricula in pharmaceutical education. (T/F)
6. Before one is permitted to practice pharmacy in Great Britain he must pass an examination conducted by a board of pharmacy appointed by his college. (T/F)

1.3 Pharmaceutical Education In the USA

Exercise 1.22. Read the words, then match them with their prefixes from the list below: nature and living things *physio-*; plant *phyto-*.

Phytochemistry, physical, phytobiology, physiology, phytochrome, phytogenesis, physiotherapy, phytogenetic, physics, phytogeography, phytohormone, physician, phytologist, physiopathology, phytoplank-ton, phytotoxic, physiognomy, phytopathology.

Exercise 1.23. Learn the following words:

to operate	діяти
accredited	акредитований

developed	розвинений
to grant	гарантувати
humanities	гуманітарні науки
bachelor	бакалавр
to seek	шукати
hemisphere	півкуля
emphasis	наголос
drugstore	аптека

Exercise 1.24. Match the words with the definitions.

a.to operate	1. to give something to someone or allow them to have something that they have asked for
b.accredited	2.subjectsof study such as literature, history or arts, rather than science or mathematics
c. developed	3.to work
d.to grant	4.having an official approval to do something, especially because of having reached an acceptable standard
e.humanities	5.(of a country) one of the rich countries of the world with many industries and comfortable living for most
f.bachelor	6.try to achieve or get something
g.drugstore	7. special attention or importance
h.to seek	8.a shop where you can buy medicines, cosmetics, etc.
i.emphasis	9.the first university degree in an arts subject, a science subject, etc.
j.hemispher e	10.a half of the earth, especially one of the halves above and below the equator

Exercise 1.25. Translate the following sentences into Ukrainian.

1. He is going to study at an accredited language school in Europe.
2. Charity works with children in less developed countries.
3. The council have granted him permission to practice here.
4. Do you think the president will seek re-election?
5. There is a change of emphasis in government policy.
6. The course places emphasis on practical work.

Exercise 1.26. Read and translate the text.

Pharmaceutical Education in the USA

The first college of pharmacy was founded in the United States in 1821 and is now known as the Philadelphia College of Pharmacy and Science. Other institutes and colleges were established soon after in the United States, Great Britain, and continental Europe. Later, many universities organized schools and colleges of pharmacy within their courses of instruction. Colleges of pharmacy as independent organizations or as schools of universities now operate in most developed countries of the world.

To become a pharmacist in the United States, a person must graduate from an accredited college of pharmacy. After finishing this five-or six-year program, graduates must complete one year of internship under the supervision of a practicing pharmacist. Each state requires graduates to pass a state board examination before granting them a license to practice in the state.

There are more than seventy accredited colleges of pharmacy in the United States. Most of these colleges are part of a large university. Pharmacy students must take courses in the biological sciences, chemistry, and mathematics, as well as in the humanities, to receive the bachelor's degree in pharmacy. They also must complete specialized professional courses. These courses include pharmacology, the study of the effects of drugs on living things, pharmaceuticals, physical chemistry of drugs, clinical pharmacy, and the application of pharmaceutical sciences to patient care. A Master's or Doctor's degree is required for work in certain fields. Pharmacists may work in clinics, drugstores, hospitals, industrial plants, or research laboratories. They may also work for the military or government.

The American Pharmaceutical Association is a national organization of pharmacists in the United States. It was founded in 1852. The Association seeks to maintain high standards of practice among its members. It also embraces all pharmaceutical interests.

There are also other international societies, in which history, teaching, and military aspects of pharmacy are given special emphasis. Among them is the Pan American Pharmaceutical and Biochemical Federation, which includes pharmaceutical societies in various countries in the Western Hemisphere.

Exercise 1.27. Fill in the gaps with the words from the list.

accredited, seeks, established, hemisphere, required, developed, complete

1. _____ Pharmaceutical institutes and colleges were _____ in the United States, Great Britain, and continental Europe in the 19th century.

2. _____Colleges of pharmacy now operate in most _____ countries of the world.
3. _____colleges of pharmacy train pharmacists in the United States.
4. Graduates are _____ to pass a state board examination to get a license to practice.
5. Students also must _____ specialized professional courses.
6. The American Pharmaceutical Association _____ to maintain high standards of practice among its members.
7. The Pan American Pharmaceutical and Biochemical Federation operates in the Western _____.

Exercise 1.28. Fill in prepositions where necessary.

1. Many universities have schools and colleges of pharmacy ... their courses of instruction.
2. To become a pharmacist in the United States, a person must graduate ... an accredited college of pharmacy.
3. ... finishing the program, graduates must complete one year of internship the supervision of a practicing pharmacist.
4. Canada has similar with the US training requirements ... pharmacists.
5. Students study the effects of drugs ... living things.
6. Pharmacists may work ... the military or government.
7. The Pan American Pharmaceutical and Biochemical Federation is ... international societies, in which history, teaching, and military aspects of pharmacy are given special emphasis.

Exercise 1.29. Replace the underlined words with their synonyms.

states, every, Junction, permission, authorized, section, use, tries, level, separate, giving, influence, treatment

1. Colleges of pharmacy as independent organizations or as schools of universities now operate in most developed countries of the world.
2. To become a pharmacist in the United States, a person must graduate from an accredited college of pharmacy.
3. Each state requires graduates to pass a state board examination before granting them a license to practice in the state.
4. Most of these colleges are part of a large university.

5. These courses include pharmacology, the study of the effects of drugs on living things, and the application of pharmaceutical sciences to patient care.

6. The Association seeks to maintain high standards of practice among its members.

Exercise 1.30. Match words from column A with its opposite from column B.

A	B
to finish	less
independent	to start
more	alike
to grant	indefinite
similar	different
certain	to refuse
various	controlled
living	dead

Exercise 1.31. Answer the following questions.

1. When was the first college of pharmacy founded in the United States?
2. What is its name today?
3. Where were other institutes and colleges established soon after?
4. What did many universities organize later?
5. What does each state require from graduates before granting them a license to practice in the state?
6. What specialized professional courses must the students complete?
7. Where may pharmacists work?
8. What is the American Pharmaceutical Association?
9. What other international societies do you know?

Exercise 1.32. Say whether these statements are true (T) or false (F). Make any corrections if necessary:

1. The first medical college was founded in the United States in 1821. (T/F)
2. Colleges of pharmacy as independent organizations or as schools of universities now operate in all developed countries of the world. (T/F)
3. To become a pharmacist in the United States, a person must graduate from an accredited medical college. (T/F)
4. Most colleges of pharmacy are independent institutions in the United States. (T/F)
5. Students are not required to complete specialized professional courses in pharmacology, pharmaceuticals, clinical pharmacy, and the application of

pharmaceutical sciences to patient care. (T/F)

6. The American Pharmaceutical Association is one of the international organizations of pharmacists. (T/F)

7. The Pan American Pharmaceutical and Biochemical Federation was founded in 1852. (T/F)

Exercise 1.33. Fill in the words from the list, then make sentences using the completed phrases.

(accredited, patient, continental, training, pharmaceutical, independent, western, developed, practicing)

1. _____ Europe
2. _____ countries
3. _____ organizations
4. _____ college
5. _____ requirements
6. _____ pharmacists
7. _____ care
8. _____ interests
9. _____ Hemisphere

Exercise 1.34. Give as much information as you can on the following items:

1. _____ Foundation of the first colleges of pharmacy in Ukraine and in the world.
2. _____ Training requirements for pharmacists.
3. _____ The courses taken by pharmacy students.
4. _____ Places of work for pharmacists.

UNIT 2 CAREERS IN THE PHARMACEUTICAL INDUSTRY

Speaking

1. Why do pharmaceutical students need extensive education?
2. How do pharmacists become qualified in their field?
3. What do pharmacists do? What are their responsibilities?
4. Describe your last visit to a pharmacy. Was the pharmacist useful?

Active Vocabulary:

1. Pharmacist (pharmaceutist, chemist, druggist)	аптекарь
2. pharmaceutical to work for Pharmaceutical company	фармацевтичний працювати в фармацевтичній компанії
3. pharmacy (drugstore; chemistry)	аптека
4. to dispense	видавати
5. to prescribe	виписувати
6. prescription on prescription	рецепт по рецепту
7. drugs (medicine; medication)	ліки
8. healthcare professional	медичний працівник
9. to explain to smb.	пояснювати комусь
10. over-the-counter products	ліки (продукція), що продаються без рецепту
11. illness (disease)	хвороба
12. to be successful at	бути успішним (в)
13. to avoid (interaction; overmedication)	уникати (взаємодії; передозування);
14. to earn a (Bachelor; Master; scientific) degree	здобувати (бакалавра; магістра; науковий) ступінь
15. earn money; to earn smb's life	заробляти гроші; заробляти на прожиття
16. requirements	вимоги
17. occupation (career; profession)	професія
18. to complete	завершувати
19. to employ; employer; employee	наймати на роботу; роботодавець; працівник
20. to distribute	поширювати, розповсюджувати
21. dosage	дозування
22. to ensure	забезпечувати, запевняти
23. side effect	побічний ефект
24. to deliver	доставляти
25. responsibility to be responsible for smth	відповідальність; бути відповідальним за

	ЩОСЬ
26. to increase to decrease	підвищувати; збільшувати; знижувати; зменшувати;
27. to improve	покращувати; полегшувати
28. to consult the doctor	звертатись до лікаря
29. to refer patient to doctor (physician)	відсилати пацієнта до лікаря
30. diagnosed undiagnosed	діагностований; не діагностований

Exercise 2. 1. Read and translate the text

Profession of the Pharmacist

Pharmacy is the science and the art concerned with collection, preparation, and standardization of drugs. Its scope includes cultivation of plants that are used as drugs, synthesis of chemical compounds of medicinal value, and analysis and standardization of medicinal agents. The science that embraces all available knowledge of drugs with special reference to the mechanism of their action in disease treatment is pharmacology. Obviously, this broad science has many subdivisions, such as toxicology (the study of poisons) and therapeutics (the use of drugs in disease treatment). According to the description, pharmacy is one of the subdivisions or specialties of pharmacology. Members of this profession are called pharmacists or druggists. They were once called apothecaries. The word "pharmacy" also refers to a place where drugs are prepared or sold. Most pharmacies, sometimes called drugstores, sell a variety of products in addition to drugs.

Historically, the fundamental role of pharmacists as a healthcare practitioner was to check and distribute drugs to doctors for medication that had been prescribed to patients. In more modern times, pharmacists advise patients and health care providers on the selection, dosages, interactions, and side effects of medications, and act as a learned intermediary between a prescriber and a patient. Pharmacists monitor the health and progress of patients to ensure the safe and effective use of medication. Pharmacists may practice compounding; however, many medicines are now produced by pharmaceutical companies in a standard dosage and drug delivery form.

Pharmacists dispense medications prescribed by doctors and other healthcare professionals and then explain to their patients how to use them correctly. They answer questions about both prescriptions and over-the-counter products, help

patients manage illnesses, and keep track of what drugs individuals are taking so they can avoid interactions. Pharmacists also advise doctors and other health practitioners about drug selection, dosages, and interactions.

Pharmacists fill prescriptions written by physicians or dentists and prepare labels for medicines. On the labels, pharmacists include directions for patients given in prescriptions. At one time, pharmacists compounded their own medicines. Today pharmaceutical manufacturers supply most drugs. But pharmacists must still compound some medicines and be able to prepare antiseptic solutions, ointments, and other common remedies. They also advise people on the selection of non-prescription drugs, such as cold tablets. In addition, pharmacists are responsible for the legal sale of narcotics and poisonous substances.

Pharmacists are often the first point-of-contact for patients with health inquiries. Thus pharmacists have a significant role in assessing medication management in patients, and in referring patients to physicians.

Professional pharmacy education will consist of the following coursework:

- Functional Human Anatomy and Histology
- Organic Chemistry
- Introduction to Clinical Pharmacy Skills
- Pharmacy Skills Lab
- Principles of Pharmacology and Medicinal Chemistry
- Immunizations
- Oncology

All students do internships as well. They work in community and hospital pharmacies and in other pharmacy practice settings to gain hands-on training from professional pharmacists.

After earning a Master degree it will be time to find your first professional pharmacy job. What qualities will prospective employers will be looking for in job candidates? While they will vary from employer to employer, here are specifications from job announcements:

- "Serve as patient advocate ..."
- "Excellent verbal and written communications skills and computer proficiency are essential"
- "Must possess good organizational and problem solving skills"
- "Uphold service standards for counseling, dispensing, pricing, licensing, managing, inventory and record keeping".

Pharmacy laws generally include regulations for pharmacy practice, poisons sale, narcotics dispensing, and labeling and sale of dangerous drugs. The pharmacist sells and dispenses drugs within the provisions of the food and drug

laws of the country in which he practices. These laws recognize the national pharmacopoeia (a treatise on products used in medicine, their purity, dosages, and other data) as the standard for drugs. The pharmacopoeias of different nations are compiled and published according to respective national legal procedures. The World Health Organization of the United Nations published the first volume of the Pharmacopoeia International in the early 1950s. Its purpose is to standardize, as far as possible, drugs throughout the world. There are two volumes and a supplement. This pharmacopoeia is intended to supply standards and nomenclature for those countries that have no national pharmacopoeia: Volume 1 contains monographs for basic chemicals and drugs of plant origin; Volume 2 contains monographs for medicinal agents and specifications for dosage forms.

Exercise 2.2. Translate the following words and word-combinations:

Pharmacy, pharmacist, pharmaceutical industry (education), to prescribe, prescription, to dispense medication, over-the-counter products, dosage, to take drugs (medicines), to avoid interaction (overmedication), drug selection, to do internship, side effect, compounding, responsibility, to be responsible (for), to decrease medication error, health inquiries, to provide information, treatment, to obtain degree in pharmacy (medicine).

Exercise 2.3. Find in the text English equivalents to the following words and word-combinations:

1) видавати ліки; 2)уникати взаємодії; 3)радити; 4)вибір ліків; 5)бути успішним(в); 6)ліки, що відпускаються без рецептів; 7)здобути ступінь бакалавра; 8)проходити інтернатуру; 9)здобути професійні навички; 10)роботодавець; 11)оголошення; 12)навички вирішення проблем; 13)ліцензування; 14)ціноутворення; 15)фармацевтичні компанії; 16)пряма відповідальність; 17)скарга пацієнтів; 18)виготовлення ліків; 19)лікування; 20)персонал; 21) по рецепту; 22)забезпечувати; 23)лабораторні тести; 24)проведення імунізації; 25)освітні вимоги.

Exercise 2.4. Choose the correct variant.

1. The science that includes all available knowledge of drugs and the mechanism of their action in disease treatment is *pharmacology* /*pharmacy*.

2. Pharmacy is one of the subdivisions or specialties of **pharmacology** / **toxicology**.

3. Pharmacists are responsible for the legal **sale** /**preparation** of narcotics and poisonous substances.

4. The **pharmacist** /**pharmacologist** sells and dispenses drugs within the

provisions of the food and drug laws of the country in which he practices.

5. The purpose of the Pharmacopoeia International is to **standardize /advertise**, as far as possible, drugs throughout the world.

Exercise 2.5. Say whether these statements are true or false. Make any corrections if necessary:

1. The only duty of pharmacists is to sell medications and other products. (T/F)

2. Pharmacists usually answer questions about both prescriptions and over-the-counter products. (T/F)

3. Pharmacists usually know little about drug selection, dosages and interaction of medicines. (T/F)

4. To become pharmacist you need to earn Bachelor or Master degree. (T/F)

5. Some students do their internship after the graduating from the university.

6. Excellent communicative skills are essential for pharmacists. (T/F)

7. Pharmacists usually practice compounding and they dispense only their own medicines. (T/F)

8. Pharmaceutical care has many benefits. (T/F)

Exercise 2.6. Make up sentences by combining the given words and phrases:

1. their illnesses/ help/ patients/ Pharmacists/ manage.

— 2. Pharmaceutical/ for/ direct/ responsibility/ care/ involves/ patients/ taking.

— 3. possess/ They/ and problem/ good/ skills/ organizational/must/ solving.

— 4. produce/ a great/ of medicines/ number/ companies/ Pharmaceutical.

— 5. problems/ Pharmacists/ with health/ patients/ are/ often/ point-of-contact/ the first.

— 6. answer/ about/ products/ both prescriptions and/ questions/ pharmacists/ Dispensing/ over-the-counting.

7. laws/ for/ generally/ pharmacy practice/ Pharmacy/ regulations/ include.

Exercise 2.7. Answer the following questions:

1. What responsibilities do pharmacists have?
2. What are the educational requirements for the career of pharmacist?
3. What degree do you need to become pharmacist?
4. What fields of Pharmacology do you know?
5. What personal qualities should a good pharmacist possess?
6. What embraces Pharmacy as a science?
7. What was the fundamental role of pharmacists?
8. Why do pharmacists monitor the health and progress of patients to ensure the safe and effective use of medications?
9. Do pharmacists usually compound medicines at the chemistry?
10. What is Pharmacopoeia? What is its purpose?

Exercise 2.8. Match the words with the definitions:

1.DOSAGE	a) a room or building that is used for scientific research, experiments
2. LABORATORY	b) a shop where medicines and drugs are prepared and sold.
3.PHARMACY	c) someone who is studying at a university
4. COURSE	d) a substance, especially a liquid, that you take in order to cure an illness.
5. MEDICINE	e)one of the subdivisions or specialties of pharmacology
6. STUDENT	f) the amount of a medicine you should take over a period of time.
7.PRESCRIPTION	g) a period of study in a particular subject, especially at a university
8. CHEMISTRY	h) an official piece of paper on which a doctor has written the name of the medicine that you need
9.NOMENCLATU RE	i) a list of drugs, together with information on their effects and instructions on how they should be

	used
10. COMPOUND	j) a system for naming things, especially in a particular area of science
11. TOXICOLOGY	k) an occasion when two or more things react to each other
12. TO ENSURE	l) too much of a drug taken or given at one time, either intentionally or by accident
13. INTERACTION	m) the scientific study of the characteristics and effects of poisons
14. OVERDOSE	n) to make something certain to happen
15. PHARMACOPO EIA	o) a chemical that combines two or more elements

Exercise 2.9. Complete the sentences using the words from exercise 8:

1. In most countries there is an official _____, and any dispensed drug must comply with its standards.
2. Take a spoonful of _____ at mealtimes.
3. Do not exceed the recommended _____.
4. We have very high safety standards in the _____.
5. A typical independent _____ gets 92% of its income from prescriptions.
6. _____ take special courses during the third and fourth years of study.
7. He always was good at _____, so he decided to become a pharmacist.
8. The systematic naming of drugs, especially pharmaceutical drugs is _____.
9. These drugs are only available on _____.
10. They have a legal obligation _____ patients receive a proper treatment.
11. Before taking any medicine, read the instruction carefully to avoid _____.
12. Salt is a _____ of sodium and chlorine.
13. The historical development of _____ began with early cave dwellers who recognized poisonous plants and animals and used their extracts for hunting.
14. When he was 17 he took an _____ of sleeping pills and nearly died.

Exercise 2.10. Match the words from two columns to form word combinations:

1. to be successful	a) for a job
2.to do	b)a patient to a doctor
3.to look	c)scientific degree
4.to avoid	d)at Organic Chemistry
5.to work	e)with information
6.to refer	f)coursework
7.to provide	g)on prescription
8. to earn	h)for the famous company
9. to dispense drugs	i)interactions
10.to complete	j)internship

1. ____; 2. ____; 3. ____; 4. ____; 5. ____; 6. ____; 7. ____; 8. ____; 9. ____; 10. ____.

Exercise 2.11. Choose the correct word in brackets:

1. In most work environments, pharmacists have a lot of autonomy to (*manage/ be managed*) their work and time.

2. For me, dealing with people makes being a pharmacist (*the best/ better*) profession of all.

3. The only person who determines whether you have a great job or a lame job is (*you/ yours*).

4. Pharmacy is the branch of science which (*deals / deal*) with the study of chemistry of drugs, their origin, procedures for drug development, their preparation, dispensing, their effects and eventual use for prevention and treatment of disease.

5. In medical retail stores, the pharmacist prepares and dispenses drugs (*by/ on*) prescription to the general consumer.

6. Industrial (*pharmacist/ pharmacists*) carry out clinical trials, where drugs are tested for safety and effectiveness.

7. In today's world pharmacy research (*is/ are becoming*) more and more IT oriented.

8. The field of pharmacy (*science/ scientific*) is broad, challenging and potentially lucrative.

Exercise 2.12. Match the words in A with their opposites in B:

A	B
1. to increase	1. to fail
2. correct	2. to lose
3. to fulfill	3. intolerant (impatient)
4. to enjoy	4. to decrease
5. to look for	5. harmful
6. patient (adj.)	6. to hate
7. significant	7. specific
8. common	8. incorrect
9. final	9. unimportant
10. useful	10. irresponsible
11. responsible	11. safe
12. dangerous	12. primary

1. ___; 2. ___; 3. ___; 4. ___; 5. ___; 6. ___; 7. ___; 8. ___;
9 ___; 10. ___; 11. ___; 12. ___.

Exercise 2.13. Write synonyms to the words given below:

1. Druggist - _____;
2. Chemistry - _____;
3. To appoint - _____;
4. Illness - _____;
5. Quantity - _____;
6. Choice - _____;
7. Charge - _____;
8. To guarantee - _____;
9. To raise - _____;
10. To investigate - _____;

Exercise 2.14. Translate into English:

1. Я навчаюсь на хімічному факультеті за спеціальністю «Фармація».
2. У нашому місті є багато мережєвих аптек. Інколи цінова політика різна на однакові препарати.
3. Ви не можете придбати ці ліки. Ми відпускаємо їх тільки по рецепту.
4. Досвідчені фармацевти працюють над створенням нових дієвих препаратів.
5. Чи можете ви пояснити спосіб застосування ліків?

6.Ви повинні приймати ліки за інструкцією, щоб уникнути передозування.

7.Пацієнти часто звертаються до фармацевтів за порадою щодо вибору ліків.

8.Перш ніж приймати ліки, вам слід було уважно прочитати інструкцію.

9.Для вашої аптечки вам доведеться купити деякі безрецептурні засоби..

10.Передозування ліками може спричинити серйозні наслідки або навіть смерть.

2.2At the Chemist's

Speaking

1. What is a chemistry? Describe what we can see there.
2. What can people buy there?
3. Do people buy all kinds of medicines without any restriction?
4. What medicines belong to over-the-counter medicines?

ACTIVE VOCABULARY

1.	order	замовляти
2.	cabinet	шафа
3.	properly	відповідним чином, відповідно
4.	moisture	волога
5.	lozenge	таблетка
6.	ointment	мазь
7.	drops	краплі
8.	syrup	сироп
9.	suppository	супозиторій
10.	powder	порошок
11.	topical	місцевий (для місцевого застосування)
12.	indication	показання
13.	contraindication	протипоказання
14.	side effect	побічний ефект
15.	expiration date	дата використання
16.	to be certain	бути впевненим

17.	ensure	запевняти, гарантувати
18.	pregnancy	вагітність
19.	breast feeding	грудне вигодовування
20.	medicine chest	аптечка

Exercise 2.15. Read and translate the following words and word-combinations into Ukrainian. Pay your attention to the pronunciation of the words:

Dosage; overdosage; to dose; correct dose; side effect; harmful effect; unwanted effect; lozenge; moisture; healthcare professionals; to indicate; indications; contraindications; to prescribe; prescription; nonprescription medicine; expiration; action; interaction; breast milk; breast feeding; safely; safety; safe; newborn child; unborn child.

Exercise 2.16. Match the words with the definitions:

1.	MOISTURE	a) the last day on which a medicine or a product can be used
2.	LOZENGE	b) very powerful, forceful, or effective
3.	NONPRESCRIPTION	c) department in the chemistry where medicines are ordered according to the prescription
4.	EXPIRATION DATE	d) not good enough or incorrect in amount or quality
5.	POTENT	e) specific situation in which a drug, procedure, or surgery should not be used because it may be harmful to the person
6.	STORAGE	f) drugs that are safe and effective for use by the general public without advice from a health professional
7.	NEWBORN	g) a small, flavored candy, often containing medicine, which dissolves when sucked in the mouth
8.	PRESCRIPTION DEPARTMENT	h) a liquid such as water in the form of very small drops, either in the

	air, in a substance, or on a surface
9. CONTRADICTIONS	i) recently born
10. INADEQUATE	j) the putting and keeping of medicines and other things in a special place for use in the future

Exercise 2.17. Complete the following sentences using terms from exercise 16.

1. Control the level of _____ in the room for adequate storage of medicines.
2. We have a wide range of cough _____, they make a cough and sore throat feel better. You may choose!
3. The prescription was given to the _____ to get compounded syrup with the adequate dosage of the active ingredient.
4. What is _____ of this ointment? We have already kept it for two years.
5. She is suffering from complications because of _____ treatment.
6. Patients are always warned about _____ drugs because they can have unpleasant side-effects.
7. _____ is the opposite of indication, which is a reason to use a certain treatment.
8. Aspirin belongs to _____ and you can buy it without doctor's prescription.
9. Breast-feeding is extremely beneficial to the health of _____ babies.
10. We follow very strict guidelines on the use and _____ of against Covid-19 vaccines.

Exercise 2.18. Read and translate the following text.

CHEMIST'S SHOP

The chemist's shop is one of the medical institutions supplying people with medicines and other medical items. It is place where a great number of articles is sold and prescriptions are made; drugs are composed, dispensed, stored and sold there. An ordinary chemist's shop has a chemist's department, a prescription one, proper working rooms and a hall for visitors.

The medicines are kept in drug cabinets, open shelves and refrigerators.

It is important to store all medicines properly, because heat or moisture may cause the medicine to break down. At the chemist's shop we can buy tablets (lozenges), capsules, ointments, drops, syrups, suppositories, powders, topical solutions, creams, gels, and drugs for intramuscular and intravenous injections.

At the chemist's department you can buy ready to use medicines or different things for medical care (hot water bottles, medicine droppers, mustard plasters, cupping glasses, thermometers and so on) and medical herbs. If you use an over-the-counter (non-prescription) medicine, follow the directions on the label. Every medicine has instruction for using where the indications, contraindications, dosage, side effects, expiration date and others are indicated. Poisonous, drustic, narcotic and psychotropic drugs can be sold by prescription only. These drugs are potent and can be dangerous if taken overdose so their use must be strictly controlled. All containers of dispensed medicimes should be clearly labeled with the following particulars: name of a patient, name of medicine, correct dosage instructions, date of dispensing, expiry date, contradictions, name and address of the pharmacy.

Before a patient leaves the chemist's shop with a medicine, the pharmacist must be certain that he/she has the right medication, correct dose, and directions for use. The pharmacist also has to provide information about how the drug works and side effects and ensure that there are no contraindications to the medicine and no harmful drug-drug, drug-food, or drug-disease interactions. The pharmacist is usually the last healthcare professional to have contact with patients before they receive their medicines. So, before you use any medicine, the pharmacist and the doctor have to know:

- if you have ever had an allergic or unusual reaction to any medicine, food, or other substances;
 - if you are on a low-salt, low-sugar, or any other special diet;
 - if you are pregnant or if you plan to become pregnant. Certain medicines may cause birth defects or other problems in the unborn child. The use of any medicine during pregnancy must be carefully considered;
 - if you are breast feeding. Some medicines may pass into the breast milk and cause unwanted effects in the baby;
 - if you have any medical problems;
 - if you are now taking or have taken any medicines in the past few weeks.
- Don't forget over-the-counter (non-prescription) medicines such as aspirin, laxatives, and antacids.

Exercise 2.19. Translate into English:

Зберігати медикаменти відповідним чином; рецептурний відділ; безрецептурний відділ; спричиняти небажаний ефект; мати алергію до

медикаментів; внутрішньовенна ін'єкція; внутрішньо м'язова ін'єкція; ефективно застосувати медикаменти; вказувати відповідне дозування; побічний ефект; медпрацівники; розчин для місцевого застосування; забезпечити відповідною інформацією.

Exercise 2.20. Arrange the words with opposite meaning into the pairs:

Harmful, indication, artificial feeding, final, correct, born, state-owned, breast feeding, incorrect, harmless, unborn, contraindication, private, primary.

1. _____ - _____;
2. _____ - _____;
3. _____ - _____;
4. _____ - _____;
5. _____ - _____;
6. _____ - _____;
7. _____ - _____;
8. _____ - _____.

Exercise 2.21. Choose correct option to complete the sentences and put questions to the sentences beginning with the given interrogative words:

1. Doctors write a ____ for medicine which chemists or pharmacists make up.
a) certification; b) prescription; c) receipt; d) recipe.

Who _____?

2. A chemist always puts a _____ on a bottle of medicine.

a) label; b) receipt; c) program; d) ticket).

What _____?

3. They keep medicines _____ of reach of children.

a) out; b) with; c) without; d) from.

Do _____ or _____?

4. It's time to take another _____ of medicine.

a) cup; b) dose; c) drink; d) spoon.

Is _____?

5. The medicine he takes only _____ the pain.

a) heals; b) remedy; c) relieves; d) solves.

What _____?

6. The medicine is so _____ that he can restore his health within a few days.

a) effective; b) efficient; c) influential; d) proficient.

_____, _____?

Exercise 2.22. Divide the following forms of drugs into the three groups.

Make up sentences of your own with the words.

(1. *taken by mouth*; 2. *injected into the body*; 3. *applied to the body surface*):

Capsules; cream; lotion; lozenge; pill; powder; tablet; vaccines; ointment.

Exercise 2.23. Answer the following questions:

1. How many departments are there in the state chemist's shop? What are they?
2. What are kept in drug cabinets?
3. What forms of medicine can you name?
4. What should you pay a special attention to if you use an over-the-counter (non-prescription) medicine?
5. Prove that the pharmacist is a rather responsible healthcare professional.
6. What are the main duties and responsibilities of a pharmacist?
7. Are there any relations between the diet and the intake of a certain drug?

Exercise 2.24. Fill in blanks with the prepositions:

1. All medicines we need are ordered or bought _ a chemist's shop.
2. Certain medicines may cause birth defects or other problems _ the unborn child.
3. If you use an over-the-counter (nonprescription) medicine, follow the directions _ the label.
4. The pharmacist is primarily responsible _ accurately filling prescriptions.
5. The pharmacist also has to provide information _ how the drug works and side effects.

Exercise 2.25. Choose the English equivalents to the Ukrainian ones. Make up the dialogue using the terms and expressions given in the table:

1. pharmacy on duty	1.Передозування цих ліків викликає несприятливий ефект.
2. well-equipped	2.Зберігайте ці ліки в прохолодному місці .
3. to write out the prescription	3.Чи ви добре переносите новокаїн?
4. Take this drug three times a day.	4. Необхідна доза вказана в рецепті.
5. This mixture is for the cough.	5. Приймайте ці ліки по чайній (столовій) ложці до (після) їжі.
6. These tablets are for the	6. ці ліки знижують кров'яний

headache.	тиск (полегшують зубний біль, відкладають ніс)
7. keep these medicines in cool place	7. Ця мікстура від кашлю.
8. The overdosage of this drug is causing an side effect	8. Ці пігулки від головного болю.
9. Are you sensitive to novocain?	9. Чергова аптека
10. This drug reduces blood pressure (relieves toothache, clears the nose).	10. добре укомплектована
11. The dose to be taken is indicated in the prescription.	11. Виписувати рецепт
12. Keep the drug in a cool place.	12. Ці ліки знижують кров'яний тиск (знімають зубний біль, зменшують нежить).
13. Take this drug a teaspoonful (tablespoonful) before (after) meals.	13. Приймайте ці ліки тричі на день.
14. Take these tablets one every three hours.	14. Не приймайте ліки без призначення лікаря.
15. Take the drug with milk.	15. Приймайте ці пігулки по одній кожні три години.

Exercise 2.26. Speak on the pharmaceutical provision and pharmaceutical products, the role of pharmacists.

Exercise 2.27. A) Read the following words and try to memorize them:

Confuse змішувати, переплутати;

doubt сумнів, сумніватись;

discard позбавлятися чогось, викидати;

ipercac іпекакуана, блювотний корінь;

adhesive липкий;

bandage бинт;

gauze марля;

pad прокладка; подушечка, валик;

rubbing натирання;
antacid засіб для зниження кислотності;
calamine каламін;
sunscreen сонцезахисний крем;
flush виливати, позбавлятися;
outdated застарілий;
deteriorate псувати(ся).

B) Make up sentences of your own with these words.

Exercise 2.28. A) Complete the text with the words from the list below.

B) Read the following text and comment upon it.

C) Try to retell the text.

D) Describe your home medicine chest.

Your home medicine chest

Keep _____ in their original containers, otherwise you or members of your family may get confused. Taking the wrong medicines or _____ combinations of medicines can be dangerous.

If the label gets separated from a medicine _____ and there is any doubt to its contents, discard the medicine immediately.

A well-equipped medicine _____ has the following:

- Pain _____: aspirin or, for children aspirin substitutes such as acetaminophen;
- Syrup of ipecac: a liquid used to promote _____ and used in certain kinds of poisoning emergencies;
- Bandages: adhesive strip bandages, adhesive tape and sterile _____ pads, elastic bandages, and _____ bandages;
- Tools, including _____ to cut bandages and tweezers to remove splinters;
- A thermometer including a rectal type _____ if you have an infant;
- Absorbent cotton and rubbing alcohol;
- Over-the-counter pharmaceuticals, antacids, _____ syrup, calamine or other mild lotion for itching, a sunscreen to prevent _____, and skin creams or lotions to treat sunburn.

All these things and many others you can buy at the chemist's shop. Remember: flush unused, outdated prescription drugs down the toilet. Medicine deteriorates over the time.

(container, inappropriate, cough, vomiting, scissors, sunburn, chest,

relievers, gauze, medicines, surgical, thermometer)

Exercise 2.29. Choose the correct answers:

Questions:

1. What must I do if I don't understand the information on the label?
2. Where can I find the information?
3. How long does it take to read the label?
4. Why is it important to read the label?
5. When I should read the label?

Answers:

- a) *Reading the label helps you take the medicine correctly.*
- b) *You should always read the label before you take the medicine.*
- c) *In the label of the medicine.*
- d) *It only takes a few minutes.*
- e) *If you don't understand the information on the label, do not take the medicine. Ask the doctor or pharmacist to help you.*

Exercise 2.30. Translate the following sentences into English:

1. Чітко дотримуйтесь інструкції, коли приймаєте ліки.
2. Ви отримаєте ці ліки наступного дня у рецептурному відділі, якщо замовите сьогодні.
3. Ваш дільничний лікар випише вам рецепт на необхідні ліки і пояснить дозування.
4. Ви можете лише деякі з цих медичних засобів взяти у закордонну туристичну подорож (for traveling abroad).
5. Вам слід порадитися з лікарем щодо вживання цих ліків та вашої дієти.
6. Для вашої аптечки вам доведеться купити бинт, вату, йод чи інший спиртовий розчин для дезінфекції, знеболююче та деякі інші ліки.
7. Вагітним жінкам небезпечно приймати ліки, особливо сильнодіючі без консультації лікаря.
9. Уважно прочитайте інформацію щодо протипоказань.

Exercise 2.31. A) Read the dialogue and try to act as a pharmacist and a customer:

Pharmacist: Can I help you?

Customer: Yes, please. My daughter was coughing the whole night

yesterday. Can you suggest anything?

Pharmacist: How old is your daughter?

Customer: She's four.

Pharmacist: Have you consulted your doctor?

Customer: Not yet. Could you recommend me any non-prescription cough mixture?

Pharmacist: Certainly! This is a good children's cough syrup. Give her two teaspoons before she goes to bed. If her cough doesn't clear up in a day or two, you should take her to the doctor.

Customer: I will. Thanks.

Pharmacist: And here's your prescription.

Customer: Are there any special instructions?

Pharmacist: They're on the bottle. You have to take it on an empty stomach.

Customer: OK. And thanks again.

B) Work in pairs. Reproduce a dialogue between a pharmacist and a customer.

2. 3 LABORATORY

Speaking

1. **What is laboratory?**
2. **Do you often have practical training in laboratory?**
3. **What do you usually do their?**
4. **What equipment do you use?**
5. **Do you use any special dressing?**

Active Vocabulary

.	To conduct	проводити
.	apparatus	прилад, інструмент, обладнання
.	elaboration	опрацювання, розробка
.	manufacture	виробляти
.	valuable reflection	цінне відображення

.	entity	сутність, реальність
.	to adopt	приймати
.	vantage	перевага, прибуток
.	to focus on	зосереджуватись
0.	to provide	забезпечувати
1.	to achieve a goal	досягати мети
2.	to verify	завіряти, підтверджувати
3.	inquiry	запит, вимога
4.	hands-on	практичний
5.	tools	інструмент, засіб
6.	glassware	посуд
7.	beaker	мензурка
8.	analytical device	аналітичний прилад
9.	editing	редагування
0.	to magnify	збільшувати
1.	accurate	точний
2.	reliable	надійний
3.	triple beam balance	потрійний променевий баланс
4.	invisible cells	невидима клітина

5.	volumetric flask	мірна колба
6.	precise	точний
7.	transparent	прозорий
8.	Bunsen burner	пальник Бунзена
9.	sterilizer	стерилізатор
0.	electrical circuits	електричні схеми
1.	beaker	мензурка
2.	to perform an experiment	виконувати експеримент
3.	dropper	крапельниця, піпетка
4.	stirring rod	стрижень для перемішування
5.	spring scales	пружинні ваги
6.	watch glass	годинникове скло
7.	wire gauze	сито
8.	tripod	штатив
9.	to grab	хапати, брати
0.	tongs	щипці
1.	funnel	воронка
2.	burette	бюретка
3.	stopcock	запірний кран

4.	to be adjusted	бути налагодженим (відкорегованим)
5.	inaccurate	неточний
6.	splash	сплеск
7.	spill	розлив
8.	goggles	захисні окуляри
9.	gear	механізм, пристрій

Exercise 2.32. Translate words and word-combinations into Ukrainian.

Conducting practical investigation; scientific observation; investigation focused primarily on; various items of apparatus; new scientific facts; the scientific method; safe environment; to verify principles and laws; the processes of scientific inquiry; observe chemical reactions; to see chemistry hands-on; to achieve various goals; laboratory glassware; analytical device.

Exercise 2.33. Read and translate the text.

Text Laboratory. Its Meaning in Science and Culture

The Oxford English Dictionary defines “laboratory” as “a building set upon for conducting practical investigation in natural science originally and especially in chemistry, and for the elaboration or manufacture of chemical, medical and like products.” The word was used as early as the 17th century. The laboratory was once written about as an “alchemist’s work-house”. In 1814, Sir Humphry Davy (1778 – 1829) used the word metaphorically, writing that “the soil is the laboratory in which the food is prepared.” A chemist who works in a laboratory became a laboratory assistant around 1860.

Laboratories are also, in a sense, cultural entities that possess a certain magic, secrecy, and particular symbolism for outsiders. Latour and Woolgar, in their seminal anthropological study of a research laboratory at the Salk Institute, adopted the vantage point of complete outsiders. They described “laboratory life” much in the way a scientist would report on any biological observation. For them, the laboratory was a dwelling place of a tribe that calls themselves scientists. Their investigation focused primarily on how new scientific facts were constructed. Latour and Woolgar also provided interesting comments on the nature of

laboratory spaces. They described a laboratory as a puzzling mix of spaces containing “various items of apparatus,” as well as a place where there are “only books, dictionaries and papers,” where – to their surprise “products” of the laboratory (scientific papers) are generated. For an insider, their comments on how the craft of laboratory assistants and raw data from the “inscription devices” were transformed into concepts and theories provided a valuable reflection on the practice of science.

The laboratory is a room or a place of experimentation and research. The laboratory is specially designed and equipped for science experiments, demonstrations and investigations in a safe environment. The laboratory in the learning process is used to achieve various goals, i.e. the cognitive objectives related to the concepts of scientific concepts, the process of developing skills and increasing understanding of the scientific method. Laboratory should not only be a place to demonstrate the phenomena described in the textbooks and to verify principles and laws, but it should also be a place where students are given the opportunities to go through the processes of scientific inquiry on their own. One of the common laboratories in school and university is chemistry laboratory. In the chemistry laboratory, students are able to see chemistry hands-on and they have the opportunity to act as scientists and observe chemical reactions taking place. It has long been a belief in chemistry education that the laboratory has the potential to be a place where theory and practice can coalesce for students. All the students' activities in chemistry laboratory always connected with chemical and also chemistry laboratory equipment. Chemistry laboratory equipment means the various tools and equipment used by scientists in the chemistry laboratory. Both of experiment and research in chemistry are used the laboratory equipment. Kinds of chemistry laboratory equipment are laboratory glassware (such as beaker, reagent bottle, etc.) and analytical device (pH meter, spectrophotometer, etc.) Managing laboratory equipment consists creating, editing, and organizing data on these equipment or laboratory tools, the actual, the specifications and the locations where they are stored. All of these activities are done by the head of laboratory. Laboratory equipment management is one of the essential elements of a quality management system in chemistry laboratory. Proper management of the equipment in the laboratory is necessary to ensure accurate, reliable, and timely testing. For a conventional system in laboratory equipment inventory, lots of forms and books were used to list out inventory and the data are written manually. The data can suddenly misplace or even lost. For future use, this conventional system should be replaced with a user friendly and more

systematically system. It means that a computer software or application is important in managing the chemical and equipment in chemistry laboratory.

Laboratory apparatus names and uses

It is impossible to imagine a laboratory (in pharmaceutical, medical or scientific institutions) without special equipment. What are the most common laboratory apparatus names and uses? We are sure that some of these things can even be found in your home. Superior gear that is designed for lab scientists, medical workers, students and school pupils can be used for different purposes. Some of the ordinary looking apparatus can magnify, weigh, and measure products and others can help us conduct various tests and essential experiments. What is a common laboratory apparatus. You have probably ever asked yourself, "What is the meaning of 'laboratory apparatus'". It can be any piece of equipment created for use in a workroom to perform tests and conduct studies in the relevant field. Some pieces of the typical laboratory kit are safe to use, while others require special attention and safety requirements. The common laboratory apparatus are the basic things that are applied everywhere, in physics and chemistry, in medical laboratories and educational institutions. Each piece has its unique name and is meant to be used in a particular way.

What laboratory apparatus is used for heating? Which one is used to measure mass? What are other types of practices designed for this or that piece? The answers are below.

1. A microscope Medical workers, chemists, biologists, and students like to use microscopes in their projects. This common piece of equipment is present in almost every laboratory. It is used to magnify anything that is tiny for our eyes to 1000 of times its normal size. It can also show the slightest details of a thing, even the invisible cells of plants and skin.

2. Triple beam balance What laboratory apparatus is used to measure mass? It is a triple beam balance. It is not a regular scale used in the shops or at home. It is capable of measuring the accurate weight of chemicals (1, 2, 20 grams, etc.) and other objects required for the project or laboratory test.

3. Volumetric flasks It is a popular type of laboratory apparatus used in chemistry. Whenever you have to measure a particular amount of liquid (and the volume matters a lot), you should choose the special volumetric flask that is designed to hold only a precise amount and no more. These glass flasks can be of different volume, for example, a 200-millilitre flagon, a 500-millilitre cup, etc.

4. A test tube These are famous glass tubes designed to hold liquid and chemicals. Most of these tubes are up to 15 cm long. They have no marks. But they are transparent and make it easy to view what you have poured into each one, transport liquids, and sometimes even measure chemicals.

5. A Bunsen burner What laboratory apparatus is used for heating? Bunsen burners are the most common equipment that performs multiple functions. It not only heats various chemicals to create a particular reaction, but also works as a sterilizer.

6. A voltmeter Students love this electronic meter. Voltmeters are used in electrical circuits. With their help, it is possible to measure the voltage between 2 points. It helps in scientific experiments, at schools and home.

7. Beakers When you need to measure liquid to perform an experiment or chemical reaction, you can use special containers called beakers. They are wider and bigger than regular test tubes, and they have a flat bottom.

8. A magnifying glass Microscopes can often be replaced with a magnifying glass. Such common laboratory apparatus are popular in many homes. The glass can be used for reading directions written in tiny letters, viewing the smallest objects, etc.

9. A dropper When you look at a dropper, you understand that each drop matters. This particular tool helps to add liquids or other solutions drop-wise, leaving no room for mistakes.

10. Pipette This small glassware with a rubber end is used in medicine and laboratories. It measures a liquid substance and allows one to transfer liquids from bottles with small necks into a new container.

11. Thermometer This common laboratory equipment is well-known in each household. However, thermometers that are used for conducting tests and experiments are not home-like pieces even though they are also used to measure temperature.

12. A stirring rod Liquids are often mixed in chemistry, but you cannot stir them with your finger. Special stirring rods can help with mixing several liquids or heating them in the classroom or a workroom.

13. Spring scales It is another laboratory apparatus used to measure the mass of objects. Unlike beam balances, spring scales do not measure the material against another mass. Instead, it measures the distance when the material gets displaced due to its weight.

14. A watch glass This is a piece of laboratory equipment which is used for chemical tests and in medical organizations. A watch glass is a square or circular surface that can hold samples of substance required for tests, weighing, heating, etc.

15. A wire gauze Made of thin metal and looking like a mesh, this equipment is designed to help to heat glassware that cannot be directly heated by the burner or flame. It protects the glass tubes from being shocked by the fire and broken into pieces.

16. A tripod Humans cannot carry the heated wire gauzes in hands. Thus, they need a piece of additional equipment that can perform this task. A tripod is a stand with three legs that can support the heating wire gauze during experiments.

17. Brushes for test tubes Every test tube needs to be cleaned after holding chemicals and substances. These tubes are thin so using a regular piece of cloth won't work. Test tube brushes are additional laboratory equipment that resolve cleaning problems.

18. Tongs When we talk about the 20 common laboratory apparatus and their uses, we have to remember that workhouses have to deal with dangerous substances and chemicals that cannot be touched by hand. Tongs can help to grab the tube or material and conduct a test. Many contemporary tongs can even hold beakers.

19. Lab funnels These are special funnels that can work with chemicals and make sure you spill nothing when pouring the substance into a test tube or a different container, separating liquids, filtering materials, etc.

20. A burette This common lab equipment is also very accurate when it adds liquid into the experiment. The tool comes with a stopcock which can be adjusted according to your task. It helps to slow down the amount of liquid that is released at a time and to make sure that the test will not fail due to the inaccurate addition of elements.

Every laboratory requires way more than 20 pieces of equipment. We have talked about the most common gear, but we haven't mentioned the most important things that should keep you safe during the dangerous tests. Firstly, you need to reread the safety protocol before working. Secondly, you have to dress correctly to prevent injuries from splashes and spills. Always wear an additional coat or apron, closed shoes, latex gloves, and special goggles that protect your eyes. Thirdly, keep all these tips in mind and remember the 20 common laboratory apparatus and their uses. Be safe while discovering new knowledge.

Exercise 2.34. Mark the following statements as true or false. If the statement is false, correct it.

1. Word “*laboratory*” was used as early as the 19th century. (T/F)
2. A chemist who works in a laboratory is a lecturer. (T/F)
3. The laboratory is a place of research and experiments. (T/F)
4. The laboratory is not specially designed and equipped. (T/F)
5. The head of a lab is responsible for all activities in the lab. (T/F)
6. Laboratory staff use only few tools in the chemistry lab. (T/F)
7. To avoid injuries researchers needn’t be careful conducting any experiments in the laboratory. (T/F)
8. Laboratory is a place where raw data from the “inscription devices” are transformed into concepts and theories. (T/F)
9. Students have no opportunities to conduct any experiments verifying scientific principles and laws. (T/F)
10. A computer software is important in managing the chemical and equipment in chemistry laboratory. (T/F)

Exercise 2.35. Combine the words of columns A and B, translate and use them in the sentences of your own.

A	B
1. graduated	a) cylinder
2. blank	b) point
3. stirring	c) volumetric
4. measuring	d) glass
5. analytical	e) weight
6. drying	f) cabinet
7. molecular	g) gauze
8. boiling	h) balance
9. wire	g) rod

Exercise 2.36. Make up sentences using all words from the line.

1. experiments / their / use / conducting / microscope / Scientist /often.

2. prevents / substances / special / splashes / of / dangerous / Wearing / dress / and spills / from / injuries.

3. is / functioning / Laboratory / elements / management / of / the essential / of effective / equipment / one.

4. A watch / required / samples / a square / is / surface / that holds /of substance / or circular / for tests / glass.

5. means / the various / their / equipment / and equipment / by scientists / used /conducting / research / tools / Laboratory.

Exercise 2.37. Complete the following sentences.

1. The laboratory is _____.

2. The first scientific laboratories focused primarily on _____.

3. In chemistry education the laboratory has the potential to be place _____.

4. Proper management of the equipment in the lab is necessary to ensure _____.

5. A chemical laboratory is usually equipped with _____.

6. Can you imagine chemical laboratory without _____ such as:
_____.

7. When you need to measure a particular amount of liquid (and the volume matters a lot), you should choose _____.

8. Pipette measures a liquid substance and allows _____.

9. Chemists use microscopes to _____.

10. Keep all safety rules in mind during _____.

Exercise 2.38. Match the words with their definitions:

1. observation	a) a place where experiments are conducted
2. Bunsen burner	b) a set of equipment or tools or a machine that is used for a particular purpose
3. investigate	c) the place where a person live

4. dwelling	d) the things that are needed to do a particular activity
5. equipment	e) glass objects, especially ones used for conducting experiments in the labs or for drinking and eating
6. concept	f) the process of watching something or someone carefully for a period of time
7. laboratory	g) the activity of controlling and organizing the work that a company or organization does
8. glassware	h) an idea of how something is, or how something should be done
9. management	i) to try to find all the facts about smth.
10. apparatus	j) a small device that burns gas to produce a flame, used to heat things in scientific work and experiments

1. ____; 2. ____; 3. ____; 4. ____; 5. ____; 6. ____; 7. ____; 8. ____; 9. ____; 10. ____.

Exercise 2.39. Put questions to the following sentences:

1. They described the laboratory as a puzzling mix of spaces.

1) *Who* _____?

2) *What* _____?

3) _____ *or* _____?

4) _____, _____?

5) *How* _____?

6) _____?

2. Scientists use a great number of tools and equipment in their work.

1) _____?

2) *Where* _____?

3) *What* _____?

4) *Who* _____?

5) _____ *or* _____?

6) _____, _____?

Exercise 2.40. A) Fill in the given below prepositions. Pay your attention that some prepositions may be used more than once.

B) Read and translate the text.

One Day in a Chemical Laboratory

The course of training 1) ___ any pharmaceutical institute is impossible without practical classes in chemistry. They are held in the chemical laboratories. Students of our National University of Pharmacy carry 2) ___ various experiments with different chemical substances there. All members 3) ___ my group prefer to attend practical classes. That's why we work in the chemical laboratory 4) ___ great pleasure. We try to improve our knowledge in practice. Our chemical laboratory occupies a large and light room. It is well-ventilated because chemists often use substances having strong odor. 5) _____ our practical classes in chemistry we study chemical and physical properties of inorganic substances. Our students carry out different experiments and carefully record all the findings. Usually they point 5) ___ the title of the experiment and the date, the substances, describe reagents and the results. The laboratory is equipped with special demonstration table. In our experiments we use laboratory vessels and glassware of different kinds. There are three groups of them in our laboratory: glassware 6) ___ general use, for special use and for measuring. We also have microscopes, analytical balances, distillators, burners to heat solutions and thermometers 7) ___ hand. The most widely available reagents at our laboratory are acids (nitric,), alkalis (potassium solution, sodium solution), oxides, organic salts, indicators (phenolphthalein, methylene orange). 8) _____ the subjects students study in the laboratory are density, viscosity, vapor pressure and others. There are a lot of laboratories in our university. The laboratory of inorganic chemistry is 9) ___ identifying the properties of elements and inorganic substances. The first-year students have their practical classes there. The qualitative and quantitative analysis of organic and inorganic substances can be obtained in the laboratory of analytical chemistry. The laboratory assistant carries out experiments in the laboratory of organic chemistry. Here we can study the properties of organic substances and ways of their synthesis. The findings obtained help people to keep their health and to increase their knowledge.

(out, at, among, of, during, with, for, at, out, for)

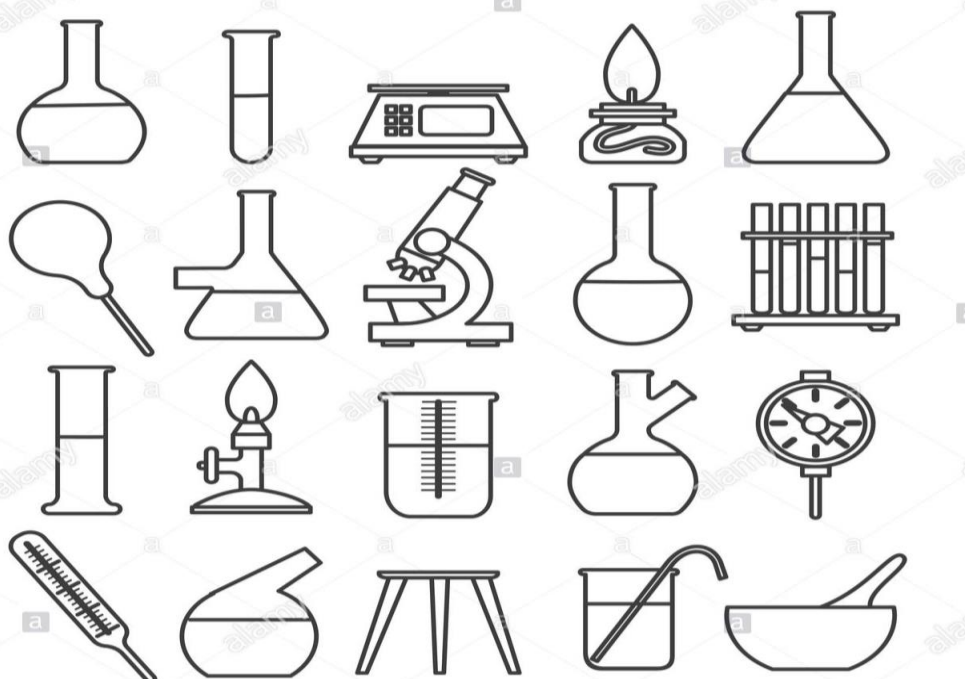
C) Answer the questions.

1. Where are the practical classes in chemistry held?

2. What do students do in the chemical laboratories?
3. How is the laboratory designed? Describe your chemical laboratory.
4. What do students study during their practical classes in Chemistry?
5. What is your chemical laboratory equipped with?
6. What groups of vessels and glassware do you know?
7. What reagents are the most widely used during experiments?
8. What laboratory can qualitative and quantitative analysis be obtained in?

Exercise 2.41. Name the basic lab equipment in the pictures below.

THIN LINE CHEMICAL LABORATORY EQUIPMENT SET



1. _____ 2. _____ 3. _____ 4. _____

5. _____ 6. _____ 7. _____ 8. _____

9. _____ 10. _____ 11. _____ 12. _____

13. _____ 14. _____ 15. _____ 16. _____

17. _____ 18. _____ 19. _____ 20. _____

Exercise 2.42. Look at the picture and write 5-7 sentences, describing what you usually use in the chemical lab conducting the experiments.

Exercise 2.43. Read and translate rules of safety behaving in the chemical laboratory. Mind them! Add two –three rules, which are not mentioned here. What rules are of vital importance? Give your reasons.

Safety rules

When you study chemistry, you would probably have to do experiments. It is important to know what you're doing as to avoid doing something silly like poisoning yourself or blowing up the lab! Therefore, you should first read and understand the below rules about working and behaving in the laboratory before doing any experiments.

1. Conduct yourself in a responsible manner at all times in the laboratory.
2. Follow all written and verbal instructions carefully.
3. Never work alone in the laboratory. No student may work in the science classroom without the presence of the teacher.
4. When first entering a science room, do not touch any equipment, chemicals, or other materials in the laboratory area until you are instructed to do so.
5. Perform only those experiments authorized by your teacher. Carefully follow all instructions, both written and oral. Unauthorized experiments are not allowed.
6. Prepare for your work in the laboratory. Read all procedures thoroughly before entering the laboratory.
7. Always work in a well-ventilated area.
8. Keep your working areas clean and tidy at all times.
9. Be alert and proceed with caution at all times in the laboratory. Notify the teacher immediately of any unsafe conditions you observe.
10. Dispose of all chemical waste properly. Never mix chemicals in sink drains. Sinks are to be used only for water.
11. Keep hands away from face, eyes, mouth, and body while using chemicals or lab equipment. Wash your hands with soap and water after performing all experiments.

12. Any time chemicals heat, or glassware are used, students will wear safety goggles. No exceptions to this rule!

13. Dress properly during a laboratory activity! Wear a lab coat or smock during experiments.

14. Do not panic in case of accident. Report immediately to the teacher.

15. All chemicals in the laboratory are to be considered dangerous. Avoid handling chemicals with fingers. Always use a tweezers.

16. Check the label on all chemical bottles twice before removing any of the contents. Take only as much chemical as you need.

17. Never look into a container that is being heated.

18. Do not place hot apparatus directly on the laboratory desk. Always use an insulated pad. Allow plenty of time for hot apparatus to cool before touching it.

19.

20.

Exercise 2.44. Read the situation and make up a dialogue between a student (students) and a teacher a) before practical lesson in the chemical lab; b) during the experiment; c) in case of accident. Use the following word-combinations.

To do experiments; to avoid poisoning yourself; to understand the below rules; to work alone in the laboratory; not touch any equipment; experiments authorized by your teacher; a well-ventilated area; pranks are dangerous; drink beverages; equipment instructions; chemical waste; after performing all experiments; no sandals; report any accident; to be considered dangerous; if a chemical may splash in your eye(s); check the label; use an insulated pad. Remember that temperature affects volume; therefore avoid using liquids that will fluctuate in temperature (hot water that will cool, for example).

Exercise 2.45. Prepare presentation and speak on the following items:

1. Chemical laboratory.
2. Safety rules.
3. Conducting experiments.

UNIT III PHARMACOLOGY

3.1 Classification of Drugs

Speaking

1. What types of drugs do you know?
2. Do you often take drugs?
3. Do you prefer natural drugs to synthesized in the laboratory?
4. What field of medicine studies drugs?

Active Vocabulary

1.	to obtain	отримувати
2.	to purify	очищати
3.	hormone	гормон
4.	gland	залоза
5.	synthesize	синтезувати
6.	anticancer	протиракові
7.	achievement	досягнення
8.	replacement therapy	замісна терапія
9.	thyroidism	щитовидна залоза
10.	diabetes mellitus	цукровий діабет
11.	adrenal cortex	кора надниркових залоз
12.	anterior pituitary	передня доля гіпофізу
13.	plant origin	рослинного походження
14.	Digitalis	наперстянка
15.	satisfactory substitutes	задовільні замінники
16.	ultimate	кінцевий
17.	alleviation	полегшення
18.	active ingredient	діюча речовина

19.	neuropharmacological	нейрофармакологічні
20.	cardiovascular	серцевосудинні
21.	gastrointestinal	шлунково-кишковий
22.	antimicrobials	протимікробний
23.	antihistamines	антигістамінні препарати
24.	blood clotting	згортання крові
25.	rate and forcefulness of the heartbeat	частота і сила серцебиття
26.	digitalis glycosides	глікозиди наперстянки
27.	heart failure	серцева недостатність
28.	blood pressure	кров'яний тиск
29.	vasodilators	судинорозширювальні засоби
30.	vasoconstrictors	судинозвужувальні засоби
31.	blood vessels	кров'яні судини
32.	neutralize acid	нейтралізувати кислоту
33.	multiplication of bacteria	розмноження бактерій
34.	disease-causing bacteria	хвороботворні бактерії
35.	allergic response	алергічна реакція
36.	allergy-causing	такий, що викликає алергію
37.	pain-relieving	знеболюючий
38.	indigestion	розлад травлення
39.	antifungals	протигрибкові засоби
40.	antihypertensives	антигіпертензивні засоби
41.	stimulate the arteries to enlarge	стимулювати розширення артерій

42.	inflammation	протизапальні
43.	hypothalamus	гіпоталамус
44.	fever-reducing	жаропонижуючі
45.	antiviral	протівірусні
46.	to suppress cough	пригнітити кашель
47.	constipation drugs	послаблюючі ліки (препарати від запору)
48.	angina pectoris	стенокардія
49.	laxative	проносні засоби
50.	to enlarge	розширюватись

Exercise3. 1. Guess the meaning of the following words and phrases.

Chemical substances; treatment of diseases; drugs obtained from; hormones secreted from glands; to be synthesized in the laboratory; in purified form; multivitamins; treatment of anemia; insulin extracted from the pancreas; the widest source of natural medicines; to be employed in medicine; fruitful source of drugs; drugs for prevention; despite the extensive development; outstanding example; immediate and amazing results; the chemical type of the active ingredient; drugs that affect blood pressure; relax the muscles of the vessel walls; constrict muscle fibers; to prevent the formation of clots in the blood vessels; viruses that infect the body; relieve disorders; to act against bacteria; remove an allergic response; allergy-causing substance.

Exercise 3. 2. Match the words with their definitions.

1. Bacteria	a) prepare and distribute medicines, to administer
2. treatment	b) room or building where scientific work and research is carried out
3. classification	c) amount of medicine, radiation, etc.
4. laboratory	d) the application of drugs to a patient
5. coagulate	e) abnormal and uncontrollable growth of

	the cells of living organisms, esp. a malignant tumor
6. dose	f) organization of knowledge into categories
7. cancer	g) change from a liquid to partially solid state, to clot
8. dispense	h) microscopic unicellular organism
9. blood	i) a serious illness in which one or both lungs become red and swollen and filled with liquid:
10. pneumonia	j) the red liquid that is sent around the body by the heart, and carries oxygen and important substances to organs and tissue, and removes waste products

Exercise 3.3. Translate the following sentences into Ukrainian.

1. People have used plants and minerals to relieve or cure diseases since ancient times.
2. They always keep the basic safety rules in the laboratory to prevent any accidents.
3. People knew the healing function of plants many years ago.
4. The scientists are conducting the significant research in the field of vaccination this year.
5. These days medicines are becoming more and more expensive.
6. Many people often buy multivitamins for proper body functioning.
7. Vegetable drugs derived from plants represent the widest source of natural medicines.

Exercise 3.4. Read and translate the text.

DRUGS

A drug is a substance which may have medicinal, intoxicating, performance enhancing or other effects when taken or put into a human body and is not considered a food or exclusively a food. What is considered a drug rather than a food varies between cultures. In pharmacology, a drug is "a chemical substance used in the treatment, cure, prevention, or diagnosis of disease or used to otherwise enhance physical or mental well-being." Drugs may be prescribed for a limited

duration, or on a regular basis for chronic disorders. Drugs are usually distinguished from endogenous biochemicals by being introduced from outside the organism. For example, insulin is a hormone that is synthesized in the body; it is called a hormone when it is synthesized by the pancreas inside the body, but if it is introduced into the body from outside, it is called a drug. Many natural substances, such as beers, wines, and psychoactive mushrooms, blur the line between food and recreational drugs, as when ingested they affect the functioning of both mind and body.

A pharmaceutical drug, also referred to as a medicine or medication, can be loosely defined as any chemical substance - or product comprising such - intended for use in the medical diagnosis, cure, treatment, or prevention of disease. A medication or medicine is a drug taken to cure and/or ameliorate any symptoms of an illness or medical condition, or may be used as preventive medicine that has future benefits but does not treat any existing or pre-existing diseases or symptoms. Dispensing of medication is often regulated by governments into three categories—over-the-counter (OTC) medications (Synonym: nonprescription medication), which are available in pharmacies and supermarkets without special restrictions; behind-the-counter (BTC), which are dispensed by a pharmacist without needing a doctor's prescription, and prescription only medicines (POM), which must be prescribed by a licensed medical professional, usually a physician.

Medications are typically produced by pharmaceutical companies and are often patented to give the developer exclusive rights to produce them. Those that are not patented (or with expired patents) are called generic drugs since they can be produced by other companies without restrictions or licenses from the patent holder.

Exercise 3.5 Are these statements true or false? Correct false ones.

1. A drug with performance enhancing effect when taken or put into a human body is considered a food. **T / F**
2. Drugs may be prescribed only for a limited duration. **T / F**
3. Insulin which is introduced into the body from outside is called a drug. **T / F**
4. OTC must be prescribed by a licensed medical professional, usually a physician. **T / F**
5. POM are available in pharmacies and supermarkets without special restrictions. **T / F**

Exercise 3.6 Answer the following questions.

1. What is a drug?

2. What is a pharmaceutical drug?
3. What is an insulin?
4. What natural substances when ingested can affect the functioning of both mind and body?
5. What is a medication?
6. What is OTC?
7. What is BTC?
8. What is POM

Exercise 3.7. Complete the sentences with the words in the box.

<i>benefits BTC insulin substance mind patented chronic</i>

1. Drugs are usually prescribed on a regular basis in case of _____ disorders.
2. Sometimes drugs are used as preventive medicine that has future _____ but does not treat any existing symptoms.
3. _____ is a hormone that is synthesized by the pancreas inside the body.
4. Medications are usually _____ and produced by pharmaceutical companies.
5. _____ are dispensed by a pharmacist without needing a doctor's prescription.
6. Many natural substances may affect the functioning of both _____ and body.
7. Drug is a _____ used to enhance physical or mental well-being.

Exercise 3.8. Read and translate the text.

Drug Classification

Drugs Sources Drugs are chemical substances used in medicine in the treatment of diseases. These chemical substances can come from many different sources. Drugs are obtained from mineral, various parts of plants (roots, leaves, fruit), from animals (hormones secreted from glands). Also they can be made from chemical substances which are synthesized in the laboratory. Anticancer drugs, such as methotrexate and prednisone, are examples of laboratory-synthesized drugs.

Mineral drugs received from crude natural minerals have been used throughout the centuries and are still used today in purified form. Such minerals as iodine, copper, manganese, cobalt and others are employed in the treatment of many diseases. They are contained in various multivitamins. Such wide-spread mineral as iron oxide was used by the ancient Greek physicians in the treatment of anemia. Today iron in purified form constitutes specific therapy for certain types of anemia.

Since the earliest records of **medicine the organs of animals** have been used in the treatment of diseases. Originally this treatment was entirely empirical. Today, it represents one of the greatest achievements of modern medicine. Extracts or whole organs are employed therapeutically in replacement therapy. Desiccated thyroid gland is used in treatment of thyrodisim. Insulin extracted from the pancreas – in the treatment of diabetes mellitus. A purified extract of the anterior pituitary can be used to stimulate production of hormones by the adrenal cortex.

Vegetable drugs derived from plants represent the widest source of natural medicines. The roots, leaves, flowers, seeds and other parts of plants were the principal sources of drugs used by a primitive man. Nowadays a wide variety of substances of plant origin are employed in medicine. Some vegetable drugs, such as belladonna, opium, digitalis have no satisfactory substitutes. Despite the extensive development of drug synthesis in chemical laboratories and pharmaceutical plants, medicine is still dependent upon nature for many important drugs.

Currently the most fruitful source of drugs is the **organic chemistry** laboratory. Many drugs are produced there in a more pure state. The use of pure drugs is the ultimate objective of the pharmacologist. In recent years pharmacologists and chemists have been very successful in producing drugs for prevention, treatment and alleviation of diseases. An outstanding example is sulfonamides. These medicines were first produced in 1935 exclusively in a chemical laboratory. They became “miracle” drugs which gave immediate and amazing results in the treatment of many infectious diseases including pneumonia.

Due to discovery of effective and pure drugs people today can live longer.

There are many drug **classifications** in the modern pharmacology. Each drug can be classified into one or more drug classes. Moreover, drugs may be grouped by the chemical type of the active ingredient or by the way it is used to treat a particular condition. According to the most general classification, drugs can be divided into such groups: neuropharmacological, cardiovascular, and gastrointestinal drugs, antimicrobials, antihistamines and vitamins.

Neuropharmacological drugs are the drugs acting on the human nervous system.

The drugs that affect the heart, blood pressure and prevent blood clotting are known as **cardiovascular drugs**. The most common drugs used to change the rate and forcefulness of the heartbeat are digitalis glycosides. These drugs are used to treat patients with heart failure. The drugs that affect blood pressure are vasodilators and vasoconstrictors. **Vasodilators** relax the muscles of the vessel walls; **vasoconstrictors** constrict muscle fibers around the blood vessel opening. **Anticoagulants** are used to prevent the formation of clots in the blood vessels. Aspirin is the widely used anticoagulant.

Gastrointestinal drugs relieve disorders of the gastrointestinal tract. For example, antacids (aluminum hydroxide, sodium bicarbonate) neutralize acid in the digestive system. Drugs that kill or help to prevent multiplication of bacteria or viruses that infect the body are called **antimicrobials**. Antimicrobials that act against bacteria include antibiotics and sulfonamides (sulfa drugs).

Antibiotics are obtained from naturally occurring microorganisms. **Sulfa drugs** are prepared synthetically. A large dose of penicillin or certain other antibiotics kills disease-causing bacteria. A smaller dose of such an antibiotic as well as of a sulfonamide keeps bacteria from multiplying. Antimicrobials that act against viruses are known as antiviral drugs. For example, the antiviral drug zidovudine is used in the treatment of AIDS.

Antihistamines block the action of histamine and remove an allergic response to the allergy-causing substance.

Vitamins are necessary for proper body functioning.

Analgetics: pain-relieving drugs.

Antacids (Antiacids): drugs used for relief of symptoms of indigestion or disorders caused by excess acid. These medications work to neutralizing stomach acids.

Antiarrhythmics: medications used to control unwanted variations in heart rhythms.

Antidepressants: mood-lifting drugs.

Antidiabetic agents: drugs used in the treatment of diabetes. Antidiabetic drugs are used to restore the body's ability to use sugar normally.

Antifungals: drugs used to treat infections caused by fungi.

Antihypertensives: medications prescribed to reduce high blood pressure.

Anti-inflammatory agents: drugs used to reduce inflammation.

Antipyretics: fever-reducing drugs. These drugs directly affect the temperature-regulating centre in the brain and the hypothalamus.

Antivirals: drugs used to treat viral infections.

Bronchodilators: drugs that open (dilate) the main airways (bronchi) in the lungs. They are primarily used to treat asthma.

Corticosteroids are used principally as anti-inflammatory drugs.

Cough suppressants: they are used to suppress cough.

Diuretics: these drugs increase the volume of urine and salt released by the kidneys.

Hypnotics: sleeping medications.

Laxatives: constipation drugs.

Nitrates: heart drugs. They may increase blood flow through the coronary arteries and often are used in patients with angina pectoris.

Vasodilators: heart drugs. These medications stimulate the arteries of the heart to enlarge. They are used to treat angina pectoris or lower blood pressure.

Medications are divided into **over-the-counter drugs** (OTC) which are available without special restrictions, and **prescription only medicines** (POM), which must be prescribed by a licensed medical practitioner. Drugs are dispensed and stored in an area known as a pharmacy. Some drugs are potent and can be dangerous if taken in an overdose. In fact, any medicine can cause mild or severe side effects. Therefore, its use must be strictly controlled.

Exercise 3.9. Complete the sentences with the words in the box.

<i>treatment</i>	<i>classified</i>	<i>prevent</i>	<i>pharmacy</i>	<i>antacids</i>
<i>drug</i>	<i>synthesized</i>	<i>active</i>	<i>potent</i>	<i>antihistamines</i>

1. Drugs may be classified by the chemical type of the _____ ingredient or by the way it is used to treat a particular condition.
2. _____ block the action of histamine.
3. For example, _____ (aluminum hydroxide, sodium bicarbonate) neutralize acid in digestive system.
4. Drugs are chemical substances used in medicine in the _____ of diseases.
5. There are many _____ classifications in the modern pharmacology.
6. Drugs that affect the heart, blood pressure and _____ blood clotting are known as cardiovascular drugs.
7. Drugs can be made from chemical substances which are _____ in the laboratory.
8. Each drug can be _____ into one or more drug classes.
9. Drugs are dispensed and stored in an area known as a _____.
10. Some drugs are _____ and can be dangerous if taken in an overdose.

Exercise 3.10. Fill in prepositions where necessary.

1. Antiarrhythmic control unwanted variations ___ heart rhythms.
2. Iron oxide was used ___ the ancient Greek physicians ___ the treatment of anemia.
3. Drugs can be made ___ chemical substances.
4. Medicine is still dependent ___ nature for many important drugs.
5. Insulin is extracted ___ the pancreas.
6. Vasoconstrictors constrict muscle fibers ___ the blood vessel opening.
7. Diuretics increase the volume of urine and salt released ___ the kidneys.
8. OTC drugs which are available _____ special restrictions.
9. Antimicrobials act ___ bacteria.
10. Prescription only medicines (POM) must be prescribed ___ a licensed medical practitioner.
11. Even a small dose of antibiotic keeps bacteria _____multiplying.
12. Neuropharmacological drugs act ___ the human nervous system.

Exercise 3.11. Are these statements true or false? Correct false ones.

1. Drugs are dispensed and stored in a pharmacy. **(T/F)**
2. Drugs are made from chemical substances synthesized only in the laboratory. **(T/F)**
3. Neuropharmacological drugs act on the digestive system. **(T/F)**
4. Antimicrobials that act against bacteria include antibiotics and diuretics. **(T/F)**
5. Drugs are chemical substances used in medicine in the treatment of diseases. **(T/F)**
6. All drugs must be prescribed by a licensed medical practitioner. **(T/F)**
7. Anticancer drugs (methotrexate and prednisone) are laboratory-synthesized drugs. **(T/F)**
8. A small dose of penicillin kills disease-causing bacteria. **(T/F)**
9. Antidiabetics drugs restore the body's ability to use vitamins and multivitamins normally. **(T/F)**
10. The antiviral drug zidovudine is used in the treatment of angina pectoris. **(T/F)**
11. Vasodilators stimulate the arteries of the heart to narrow. **(T/F)**
12. Nitrates increase blood flow through the coronary arteries and often are used in case of heart failure. **(T/F)**

Exercise 3.12. Read the text again and answer the questions.

1. What is drug?
2. How are drugs classified?
3. What can be drugs obtained from?
4. What drugs are used to kill or help to prevent multiplication of bacteria or viruses that infect the body?
5. Which way are sulfa drugs prepared?
6. What drugs can produce a positive effect on the heart?
7. How do antibiotics act?
8. What change do vasodilators trigger in the human blood pressure?
9. What are OTC drugs and POM?
10. When do the doctors prescribe antibiotics?
11. What are antifungals drugs used for?
12. What is the function of Nitrates and in what cases are they used?
13. What drugs are used to treat asthma?
14. What do people take vitamins? Are they always useful?
15. What drugs affect the temperature-regulating centre in the brain and the hypothalamus and reduce fever?

Exercise 3.13 Read and translate the text.

DRUG NAMES

Vocabulary

brand name торговельна назва

generic name офіційна (фармакопейна) назва

provide забезпечувати

refer to відноситись до

significance значення

Drug nomenclature is the act of creating names for a drug or other pharmaceutical substance. Drugs, in the majority of circumstances, have **three names: the chemical name, the International Nonproprietary Name (INN, also known as the generic or nonproprietary name), and the brand name.**

Sample of different drug names

Chemical Name	Generic Name	Brand Name
N-acetyl-p-aminophenol	Acetaminophen	Tylenol

The chemical name is the scientific name, based on the molecular structure of the drug. These names are typically very long and too complex to be commonly used in referring to a drug. Generic names and affixes. The generic name is constructed out of affixes that classify the drugs into different categories and also

separate drugs within categories. A marketed drug might also have a company code or compound code. Internationally, generic names, known as the International Nonproprietary Name, are issued by the World Health Organization (WHO) in several languages, including English. Generic names are used for a variety of reasons. They provide a clear and unique identifier for active chemical substances, appearing on all drug labels, advertising and other information about the substance. The prefixes and infixes have no pharmacological significance and are used to separate the drug from others in the same class. Suffixes or stems may be found in the middle or more often the end of the drug name, and normally suggest the action of the drug. Generic names often have suffixes that define what class the drug is. Brand is the "name, term, design, symbol, or any other feature that identifies one seller's product distinct from those of other sellers." In pharmacy, the brand name (trade name) is a commercial name for a drug, normally the property of the drug manufacturer.

Exercise 3.14. Answer the questions.

1. What is drug nomenclature?
2. How many different names can a drug have?
3. What is the chemical name?
4. How is the generic name constructed?
5. What is the International Nonproprietary Name?
6. What are generic names used for?
7. What is trade name?

Exercise 3.15. Fill in the gaps using the words from the box.

advertising antibiotics brand actions generic

Each medicine (drug) has an approved name called the _____ name. A group of medicines that have similar _____ often have similar-sounding generic names. For example, penicillin, ampicillin, amoxicillin and flucloxacillin are in one group of _____. Many medicines also have one or more _____ names. This is chosen by the company that makes it. Several companies may make the same generic medicine, each with their own brand name. The name is often chosen to be memorable for _____, or to be easier to say or spell than some long generic name! For example, paracetamol is a generic name. There are several companies that make this with brand names such as Panadol®, Calpol®, etc.

Exercise 3.16. Read and translate the text.

DRUG CLASSES

A drug class is a group of medications that may work in the same way, have a similar chemical structure, or are used to treat the same health condition. A drug may be classified by the chemical type of the active ingredient or by the way it is used to treat a particular condition. Each drug can be classified into one or more drug classes. Drugs are classified according to their effect on particular body systems, their therapeutic uses, and their chemical characteristics. A class of drugs is a group of drugs that have similar characteristics; they may cure the same diseases, have similar chemical structures or work in the same way. Example: morphine can be classified as a central nervous system depressant and a narcotic or opioid analgesic. The names of therapeutic classifications usually reflect the condition for which the drugs are used (e.g., antidepressants, antihypertensive). Sometimes, the names of many drug groups reflect their chemical characteristics rather than their therapeutic uses (e.g., adrenergics, benzodiazepines). Many drugs fit into multiple groups because they have wide-ranging effects on the human body. There are several cases where a drug can have multiple classes, either by indication, mechanism of action, or route of administration. Additionally, drugs can also be classified 3 different ways: – By body system – By the action of the agents – By the drug's mechanism of action. It is important to keep in mind that the effects produced by any drug can vary significantly and is largely dependent on the dose and way that it is administered. Concurrent use of other drugs can enhance or block an effect and substance abusers often take more than one drug to boost the desired effects or counter unwanted side effects. This means that the risks involved with drug abuse cannot be accurately predicted because each user has his or her-own unique sensitivity to a drug.

Exercise 3.17. Answer the questions.

1. What is a drug class?
2. How many classes of drugs are there?
3. Do all controlled substance have common traits?
4. Do controlled substances produce dependence?
5. What is drug abuse?
6. What is drug dependence?

Exercise 3.18. Fill in the gaps using the words from the box.

duration function dependence drug prevent symptoms abuse reasons

Most controlled substances can produce dependence, either physically or psychologically, which increases potential for their _____. Physical

_____ is what happens when changes that have occurred in the body after repeated use of a drug make it necessary to continue the use of the drug to prevent a withdrawal syndrome. The _____ can range from mildly unpleasant to life-threatening and depend on a number of factors. The type of withdrawal experienced is related to the drug being used; the dose and way that it's administered; multiple drugs being taken at the same time; frequency and _____ of drug use; and the age, sex, health, and genetic makeup of the user. Psychological dependence refers to the "need" or "craving" for a _____. People who are psychologically dependent on a particular substance often feel like they can't _____ without continued use of that substance. While physical dependence goes away within days or weeks after drug use stops, psychological dependence can last much longer and is one of the primary _____ for relapse. Again, the best way to _____ relapse is through completing a drug treatment program.

Exercise 3.19. Read and translate the text

VITAMINS

Vitamins are substances that are essential in certain chemical transformations in the human body. They help the body process proteins, carbohydrates, and fats. Certain vitamins also contribute to the production of blood cells, hormones, genetic material, and chemicals of the nervous system.

Vitamins exist in minute quantities in food. Most vitamins cannot be produced by the body and must be obtained through the diet. Since no single food item or nutrient class provides all the essential vitamins, it is necessary to eat a variety of foods. For example, vitamin A is needed for the eyes and to keep the linings of the bronchial, urinary, and intestinal tracts healthy; vitamin C is needed for the development of bones, teeth, blood vessels, and other tissues; vitamin K is necessary for blood clotting; and vitamin D is also needed for the development of bones and teeth.

The principal vitamins are: vitamin A, vitamin B1, vitamin B2, pantothenic acid (part of the B2 complex), vitamin B3, vitamin B6, folic acid, vitamin B12, vitamin C, vitamin D, vitamin E, vitamin H (often considered part of the B-vitamin group), and vitamin K.

Some vitamins (e.g., vitamin K) are produced by intestinal bacteria, and a few can be formed by the body from substances called provitamins (portions of vitamins that can be assembled or modified by the body into functional vitamins). Carotene is an example of a provitamin that can be modified by the body to form vitamin A. Vitamins are used by the body in their original or slightly modified forms. Once the chemical structure of a vitamin is destroyed, its function is usually

lost. The chemical structure of many vitamins is destroyed by heat (e.g., when food is overcooked).

There are two major classes of vitamins: fat soluble and water soluble. Fat-soluble vitamins such as vitamins A, D, E, and K are absorbed from the intestine along with lipids, and some of them can be stored in the body for a long period of time. Because they can be stored, it is possible to accumulate an overdose of these vitamins in the body (hypervitaminosis) to the point of toxicity. Water-soluble vitamins such as the B complex and C are absorbed with water from the intestinal tract and remain in the body only a short time before excreted.

The absence of a specific vitamin in the diet can result in a specific deficiency disease.

Vitamins are compounds that you must have to growth and health. They are needed in small amounts only and are usually available in the foods that you eat. Vitamin A is necessary for normal growth and health and for healthy eyes and skin. Lack of vitamin A may lead to a rare condition called night blindness (problems seeing in the dark), as well as dry eyes, eye infections, skin problems, and slowed growth. Your physician may treat these problems by prescribing vitamin A for you. Vitamin A is found in various foods including yellow-orange fruits and vegetables; dark green, leafy vegetables; whole milk; and margarine. Vitamin A comes in different forms. The form of vitamin A found in plants is called beta-carotene. Food processing may destroy some of the vitamins. For example freezing may reduce the amount of vitamin A in foods. Vitamin A is stored in the body and taking too much over a period of time can cause poisoning. Vitamin B2 (riboflavin) is necessary for normal metabolism. Lack of vitamin B2 may lead to itching and burning eyes, sensitivity of eyes to light, sore tongue, itching skin on the nose, and sores in the mouth. Vitamin B2 is found in various foods, including milk and dairy products, fish, meat, green leafy vegetables, and whole grain and enriched cereals and bread.

Vitamin B12 is necessary for healthy blood. Cyanocobalamin and hydroxocobalamin are man-made forms of vitamin B12. Lack of vitamin B12 may lead to anemia, stomach problems, and nerve damage. Vitamin B12 is found in various foods, including fish, egg yolk, milk, and fermented cheeses. It is not found in any vegetables.

Vitamin E prevents a chemical reaction called oxidation, which can sometimes result in harmful effects in the human body. Lack of vitamin E is extremely rare, except in people who have a disease in which it is not absorbed into the body. Vitamin E is found in various foods including vegetable oils (corn, soybean), wheat germ, whole-grain cereals, and green leafy vegetables. Vitamin E

is stored in the body and taking too much over a period of time may cause harmful effects. Vitamin K is necessary for normal clotting of the blood.

Vitamin K is found in various foods including green leafy vegetables, meat, and dairy products. If you eat a balanced diet containing these foods, you should be getting all the vitamin K you need. Little vitamin K is lost from foods with ordinary cooking. Lack of vitamin K is rare but may lead to problems with blood clotting and increased bleeding. Vitamin K is routinely given to newborn infants to prevent bleeding problems. It is found in spinach, vegetable oils, and cabbage.

Vitamin D is necessary for strong bones and teeth. Lack of vitamin D may lead to a condition called rickets, especially in children, in which bones and teeth are weak. In adults it may cause a condition called osteomalacia, in which calcium is lost from bones so that they become weak. Vitamin D is sometimes used to treat other diseases in which calcium is not used properly by the body. Vitamin D is found naturally only in fish and fish-liver oils. However, it is also found in other foods such as milk and bread to which it has been added. Cooking does not affect the vitamin D in foods. Vitamin D is sometimes called the “sunshine vitamin” since it is made in the skin when the human is exposed to sunlight. If you eat a balanced diet and get outside in the sunshine, you should be getting all the vitamin D you need.

Exercise 3.20. Try to organize obtained information in the form of the following table:

Name of vitamin	Conditions caused by lack of vitamin	Products containing vitamin	Functions of vitamin
Vitamin A			
Vitamin B2			
Vitamin B12			
Vitamin E			
Vitamin K			

Vitamin D			

Exercise 3.21. Make up the dialogue using the obtained information from exercise above.

Exercise 3.22. Read and translate the following text:

IMPORTANCE OF VITAMIN D

Calcium is essential for strong bones, but to enhance the amount of calcium that ultimately reaches your bones you also need vitamin D.

Your body makes vitamin D from two sources – sunlight and food. Most of the vitamin D the body makes starts with the sun. When you are exposed to ultraviolet (UV) light rays, a chemical in the skin is changed into an inactive form of vitamin D.

Butter, eggs, and fatty fish such as herring, mackerel, and salmon naturally contain vitamin D. Other food sources are foods fortified with vitamin D such as milk, margarine, and some breakfast cereals.

The liver and kidneys work to change vitamin D into the active form the body can use.

Despite the availability of the sun and vitamin D-rich foods, several factors can interfere with obtaining enough of this essential nutrient:

Age. As you get older, your body turns UV rays into vitamin D less efficiently. If you spend limited time outdoors exposed to the sun and don't drink 2 or more cups of milk a day, you may want to consider a supplement. Don't take more than 400 IU (units) of vitamin D a day unless prescribed by your physician.

Illness. Kidney or liver disease reduces the ability to change vitamin D into its usable form.

Medications such as phenytoin, prescribed for seizure disorders, can also lead to vitamin D deficiency.

Vitamin D is like no other nutrient in that one of the best ways to obtain it has nothing to do with food. Although excessive sun exposure isn't healthful for your skin, a little bit of sun good for your bones.

Exercise 3.23. Speak on the importance of vitamin D.

Exercise 3.24. Read the following abstract and memorize it:

Myth: Vitamins provide energy.

Fact: Calories from fat, carbohydrate, and protein provide energy. Vitamins don't have calories, so they can't give energy. The myth likely stems from the action of B vitamins. They don't actually provide energy. Yet each of the eight B vitamins plays a critical role in the chemical reactions that release energy from foods.

Exercise 3.25. What facts can you present to your group about:

1. Natural and synthesized drugs: which are safer?
2. Drug classification.
3. Over-the-counter medications.
4. Prescribed medicines.
5. Drug addiction.
6. Self-medication.
7. The role of vitamins for our health.

3.2 FORMS OF DRUGS

Speaking

1. What forms of drugs do you know?
2. Are they used for the same purpose?
3. Why are there different forms of drugs?

FORMS OF DRUGS

Vocabulary

peroral	пероральний
sublingual	Під'язиковий
injectable solution	розчин для ін'єкцій
aggregation	маса
grinding	подріблення
trituration	розтирання (в порошок)
waxen paper	вощений папір
alimentary canal	травний канал
medicated confection	медикаментозні солодощі (цукерки)
diluted form	розведена форма
to be coated with	бути покритим (оболонкою)
compound powder	складний порошок
divided powder	дозований (розділений)

	порошок
depurated lard	очищений жир
viscous	в'язкий, тягучий
sticky consistency	клейкої консистенції
adhesive	липкий, клейкий
mucilage	слиз
enema	клізма
irrigation	промивання, спринцювання
cord-liver oil	риб'ячий жир
to disguise the taste	маскувати (приховати) смак
to promulgate official standards	встановлювати офіційні стандарти
impermeable	непроникний

Exercise 3.26 Read and translate the following text.

Forms of Drugs

Drugs fall into three main forms: solids, semisolids and liquids. In each particular case doctor decides what form of medication must be administered. For example, a patient cannot swallow tablets, especially small children. In this case they always receive medications in a liquid form. Sometimes multiple diseases complicate the picture. For instance, a patient with peptic ulcer cannot take a cough syrup containing the irritating ammonium chloride. If he has to take something for cough it should be an alternative drug without bad influence on his stomach.

Solid forms of medications include tablets, pills, powders, dragee, capsules and species. Tablet is a solid dosage form, of varying weight, size and shape, which may be molded or compressed. It contains a medical substance in pure or diluted form. According to the way of their use the tablets are divided into: peroral, sublingual, tablets for injectable solutions, tablets used to prepare solutions for gargling and irritation. Tablets may be coated with sugar, gelatin, chocolate, suitably colored and flavored. They are produced by pharmaceutical plants and dispensed in boxes or bottles of 20 to 100.

Pills are small balls of variable size, shape and color, coated with sugar. They contain one or more medical substances in a solid form. They are taken by mouth.

Powder is a substance made up of an aggregation of small particles by means of grinding or trituration of a solid drug. According to the number of ingredients the powders are divided into simple or compound. There are powders for external and internal use. They may be divided and undivided. Divided powders are given in coated capsules or in waxen or paraffin paper.

Capsule is a structure in which medication is enclosed. It is soluble container of a suitable substance: gelatin or starch. Usually capsules enclose a dose of medication which has a bad taste, smell or can irritate the mucous membrane of the oral cavity, digestive track or the teeth. Capsules dissolve quickly in the stomach or small intestine. It is necessary to indicate the kind of capsules in prescription because different capsules deliver medications to different parts of alimentary canal.

Dragee is a sugar-coated pill, or medicated confection. Vitamins are usually prescribed in the form of dragee. **Species** is the mixture of some dried medicinal herbs or their parts (flowers, leaves, berries, roots, etc.) which are used to prepare drug preparation.

Exercise 3.27. Find in the text corresponding English equivalents to the following words and word-combinations.

1) Полегшення симптомів; 2) виготовляти з лікарських рослин; 3) консерванти; 4) забарвлюючий матеріал; 5) спричиняти медикаментозну залежність; 6) звичний прийом ліків; 7) шкірна висипка; 8) тверді лікарські форми; 9) ковтати ліки; 10) дозована форма; 11) розведена форма; 12) складний порошок; 13) стискувати, здавлювати; 14) бути покритим оболонкою; 15) нероздільний (недозований) порошок; 16) розчинний контейнер; 17) подразнювати слизову оболонку; 18) надавати смаку; 19) висушені лікарські рослини; 20) бути покритим оболонкою.

Exercise 3.28. Are these statements true or false?

1. Drugs fall into two main forms. (T/F)
2. Tablet is a semisolid dosage form, of varying weight, size and shape, which may be molded or compressed. (T/F)
3. Capsules are small balls of variable size, shape and color, coated with sugar. (T/F)
4. Capsules usually dissolve quickly in the patient's mouth. (T/F)
5. Powder is a structure in which medication is enclosed. (T/F)
6. Pills are small balls of a standard size, shape and color. (T/F)
7. Powder is usually used internally. (T/F)

Exercise 3.29. Answer the following questions:

1. What solid forms of medications do you know?
2. What is a tablet?
3. What are pills?
4. What is the difference between tablets and pills?

5. What is powder? What is divided powder?
6. What are capsules?
7. What is usually prescribed in the form of dragee?

Exercise 3.30. Paraphrase the underlined elements in the sentences using the words and word-combinations from the box in the correct form.

To be covered with; preparations; to be used orally; to make; to point out; to have bad influence on; to put in; the amount of constituents.

1. Solid forms of medications include tablets, pills, powders, dragee, capsules and others.
2. Tablets may be used to prepare solutions.
3. The kind of capsules should be indicated in the prescription.
4. Powder may contain different number of ingredients.
5. Pills are taken by mouth.
6. Tablets may be coated with sugar, gelatin, etc.
7. Some drugs can irritate the mucous membrane.
8. Capsule is a structure in which medication is enclosed.

Exercise 3.31. Put questions to the following sentences.

1. Tablets are made by means of molding or compressing.
How _____?
2. Tablets contain medical substances in pure or diluted form.
What _____?
3. Pharmaceutical plants produce tablets of different dosages.
Where _____?
4. According to the number of ingredients the powders are simple and compound.
_____, _____?
5. Capsules dissolve quickly in the stomach.
How _____?
6. Vitamins are usually prescribed in the form of dragee.
What form _____?

Exercise 3.32. Prepare your report about forms of drugs and solids.

Exercise 3.33. Read and translate the text.

Semisolids

Semisolids forms of medications include ointments, liniments, pastes, suppositories and plasters. Semisolids are greasy by touch. Ointment is a semisolid preparation, which may or may not contain medication, for external application to the body. Ointments are made on a special base. Vaseline, lanolin, depurated pork lard are common bases for ointment. Some ointments may be applied on the mucous membranes or eyes.

Liniments are also semisolids, but they contain more liquid preparation. They are rubbed onto the skin or applied on a surgical dressing. Liniments often contain vegetable oils or camphor as a basis.

Paste is a semisolid preparation, generally for external use, of a fatty, viscous base. It has a soft sticky consistency. Thus, a paste consists of no less than 25% of different powders (talc, starch, or zinc oxide). It is a preparation similar to an ointment, but thicker and stiffer. That's why it penetrates the skin less than an ointment.

Suppository is a medicated mass adapted for insertion into the rectum or vagina. Suppositories are solid at room temperature but melt at body temperature. Common bases for them are cocoa butter, vegetable oils, lanolin. They may contain drugs that act locally.

Plaster is a paste like mixture spread over the adhesive tape. Plasters are applied to the skin. They may be used in shaped pieces or as a bandage to keep a dressing in a place.

Exercise Find in the text corresponding English equivalents to the following words and word-combinations.

1) жирний на дотик; 2) основа для мазі; 3) містити лікувальний засіб; 4) зменшити випаровування; 5) втирати в шкіру; 6) формувати; 7) танути при температурі тіла; 8) липка стрічка; 9) прикладати на шкіру; 10) клейка консистенція; 11) непроникний шар; 12) хірургічна пов'язка; 13) введення в порожнину; 14) діяти локально; 15) густіший та твердіший.

Exercise 3.34. Are these statements true or false?

1. Semisolids are hard by touch. (T/F)
2. Ointments are made on vaseline, lanolin, depurated pork lard. (T/F)
3. Liniments are rubbed onto the skin or applied on a surgical dressing. (T/F)
4. A paste consists of 10- 15% of different powders (talc, starch, or zinc oxide). (T/F)
5. Plaster is a medicated mass adapted for insertion into the rectum or vagina. (T/F)

Exercise 2.35. Answer the following questions:

1. What are semisolids? What medications belong to this form of drugs?
2. What is ointment? Are ointments or creams more effective? What is the difference between them?
3. What are liniments? How are they used?
4. What is the difference between liniments and paste?
5. What is suppository? What is used as a base for suppository ?
6. What semisolid medication is a paste like mixture spread over the adhesive tape?

Exercise 3.36. Paraphrase the underlined elements in the sentences using the words and word-combinations from the box in the correct form.

forms of drugs use impermeable coat mainly resembling remedy to contain to run through topically

1. Ointment is a semisolid form of a medication.
2. You need ointment for external application.
3. Paste generally consists of no less than 25% of a powder.
4. Ointments form impermeable layer on the skin.
5. Suppository usually consist of base and some kind of medication.
6. An ointment is a preparation similar to a paste.
7. Suppositories contain drugs which act locally.
8. A paste penetrates the skin less than ointment.

Exercise 3.37. Put questions to the following sentences.

1. Semisolids forms of medications include ointments, liniments, pastes, suppositories and plasters.

What _____ ?

2. A nurse applied some liniment on surgical dressing.

Where _____ ?

3. Ointments are usually compounded on a special base.

What _____ ?

4. They apply some ointment on the mucous membrane.

Where _____ ?

5. This ointment is made on the base of cocoa butter.

_____ **or** _____ ?

6. Vaginal suppositories are used in the treatment of some gynecological disorders.

What _____ ?

7. Mustard plasters are used in the treatment of various respiratory diseases.

What diseases _____?

Exercise 3.38. Prepare your report about semisolids.

Liquid Forms

Liquid forms of medications include a great number of various drugs. They are: solutions, emulsions, infusions, decoctions, tinctures, extracts, mucilages, mixtures and syrups.

Solutions make up a big class of liquid preparations. They may contain one or several soluble chemical substances dissolved in water or other solvents. Due to the type of solvent all solutions are divided into water, spirituous and oil ones. They are administered for internal and external use. According to the purpose of use solutions are divided into solutions for injections, gargling, lotions, enemas, irrigation etc. Solutions are given in ampules or bottles.

Emulsion is a preparation in which fine droplets of one liquid (such as oil) are dispersed in another liquid (such as water). In pharmacy medicines are prepared in the form of emulsions to disguise the taste of an oil, which is dispersed in a flavored liquid. Pharmaceutical emulsion for which official standards have been promulgated is, for example, cod-liver oil emulsion. There false (oil) emulsions and true (seminal) emulsions prepared of seeds.

Infusions and decoctions are prepared on the basis of raw plant materials. They differ in the way of extraction of active principles. In the infusions they are extracted from soft plant material (flowers, leaves, stems etc.) by steeping it in water that has been heated to boiling point (as in the making of tea) Decoctions are prepared by boiling hard parts of plants such as cortex, roots, seeds etc. Infusions and decoctions may be taken inside or used externally for various lotions, rinsing, gargling, washing and compresses.

Extract is a concentrated preparation of a vegetable or animal origin obtained by removing the pharmacologically active constituents by means of evaporating a solution of the drug in water, spirit or ether. All extracts are divided into: water, oil, spirituous or alcoholic, ethereal extracts. As to their consistency extracts are divided into: fluid, thickened and dry.

Tinctures present alcoholic extracts of drugs derived from plants or chemical substances. Tinctures usually have the color of their constituents. They are officinal drug forms.

Mucilage is a thick aqueous solution or naturally formed viscid principle in a plant, consisting of a gum dissolved in the juice of the plant. The most important p

are of Arabic gum, gum of the apricot, starch, seeds of the flax, root of marshmallow. Mucilage are usually prescribed in mixtures, that is 25% of mucilages are added to the mixtures.

Syrups are thickened, transparent liquids for internal use which have the taste and smell of their constituents. Syrups are flavoring and medicinal. Flavoring syrups such as simple syrup made of sugar, syrup of raspberry, cherry and other fruit are used for improvement of the taste or smell of certain drugs. Medicinal syrups are used as medicines themselves. They are the syrups of rhubarb, licorice, marshmallow, dog-rose etc.

Exercise 3.39. Find in the text corresponding English equivalents to the following words and word-combinations.

1)Розчинне середовище; 2)розчинні хімічні речовини; 3)призначатись для; 4)розсіювати; 5)маленькі крапельки; 6)маскувати смак; 7)олійний розчин; 8)рослинна сировина; 9)настій; 10)відвар; 11)витяжка; 12)спиртовий розчин; 13)корінь; 14)фармакологічно активні складові частини; 15)випаровування розчину; 16)солодка; 17)насіння льону; 18)корінь алтеї; 19)шипшина; 20)ревінь.

Exercise 3.40. Are these statements true (T), false (F)? Give true sentences.

1. Liquid forms of medications include solutions, pastes, infusions, extracts mixtures, syrups and others. (T/F)
2. Syrups make up a big class of liquid preparations. (T/F)
3. Due to the type of active ingredient all solutions are divided into two types: spirituous and oil ones. (T/F)
4. Extract is a concentrated preparation of a vegetable or animal origin. (T/F)
5. Solutions are given in ampules and packages. (T/F)
6. Infusions are taken inside or used internally for various lotions, gargling, washing and compress. (T/F)
7. Syrups are thickened, transparent liquids for external use which have the taste and smell of their constituents. (T/F)

Exercise 3.41. Answer the following questions:

1. What kind of liquids do you know? What is their common characteristic?
2. What is the main division of liquids?
3. How are solutions used?

4. What is emulsion? How is it prepared?
5. Infusions and decoctions are prepared on the base of raw plant materials. What is the difference between them?
6. What is extract? How are extracts divided?
7. What are medicinal syrups used for?

Exercise 3.42. Paraphrase the underlined elements in the sentences using the words and word-combinations from the box in the correct form.

*to prescribe small drops solvent proper quantity to hide to get
to take out to scatter to set norms to vary in the method*

1. All liquid preparations always contain certain amount of dissolving medium.
2. Extracts are obtained by removing active constituents from plants.
3. Solutions are administered for internal and external use.
4. Flavored substances are used to disguise a bad taste.
5. Fine droplets of various liquids are dispersed in emulsions.
6. Infusions and decoctions differ in the way of extraction.
7. For some emulsions official standard have been promulgated.

Exercise 3.43. Put questions to the following sentences.

1. Liquid preparations usually contain certain amount of a dissolving medium.

What _____?

2. Solutions are administered for internal or external use.

How _____?

3. According to the purpose of use solutions are divided into solutions for injections, gargling, lotions etc.

How _____?

4. Cord-liver oil is a pharmaceutical emulsion.

What kind _____?

5. Extracts are concentrated preparations of a vegetable or animal origin.

What _____?

6. Tinctures are official drug form.

What _____?

7. Medicinal syrups are made of rhubarb, licorice, marshmallow, dog-rose etc.

What _____ **of**?

Exercise 3.44. Read the dialogue between two girl-friends Julia (J) and Ann (A) and answer 5 questions below.

- (J) Last week I felt myself terrible. I even had to call a doctor.

- (A) Oh, really? What happened?

- (J) I had a very high temperature, fever they called it. And also these dark spot round my eyes... I can hardly stayed on feet.

- (A) Did you called the doctor? Did he come?

- (J) Sure he came. He examined me: took my temperature, blood pressure and performed some tests I can't explain to you.

- (A) And what is the diagnosis?

- (J) Still unknown. I have to wait for the analyses he took. But now I'm taking some drugs, and a nurse comes twice a day to give me intravenous injections. It's quite painful, I must say.

- (A) Well, wait a little. Wish you to recover soon.

1. *What happened with Julia?*
2. *What symptoms did she have?*
3. *Did she call a doctor?*
4. *Did doctor examine Julia? What did he do?*
5. *What treatment did doctor prescribe to the girl?*

Exercise 3.45. Make up dialogues using the following words and word combinations:

1. Heart attack, terrible pain in the chest, sublingual, ambulance, examine, take blood pressure, make an injection, insist on hospitalization.

2. Raw eggs, vomiting, nausea, headache, acute form, poisoning, drugs, useless, cleanse the stomach, absorbing drugs, drink a lot of liquid.

3. Acute toothache, teeth extracted, local anesthesia, syringe, intradermal injection, normal reaction, successfully.

4. Catch a cold, high temperature, fever, bad headache, cough, improve, shortness of breath, sore throat, running nose.

Exercise 3.46. Prepare presentation and speak on the following item:

1. Forms of drugs.

Exercise 3.47. Read and translate text "Medicinal Herbs" into Ukrainian.

MEDICINAL HERBS



Medicinal herbs have been used for centuries to treat everything from depression to high blood pressure and cancer. Herbs have been the principals if not the only medicines used in many countries. Recently doctors and other medical professionals have started realizing the importance of these medicinal herbs and their potential for treating and curing a wide variety of ailments as an alternative to pharmaceutical drugs and medications.

Medicinal herbs covering a wide range of types of plants are well known to everybody. The parts of the plants used for medicine may be their leaves, flowers, roots, seeds or bark.

Herbs are the source of pharmacologically active substances that effect the living organism.

Dr. Varro Tyler, Professor of Pharmacognosy at the Purdue University School of Pharmacy and Pharmacological Sciences, defines herbs as “crude drugs of vegetable origin utilized for treatment of states, Medicinal Herbs often of chronic nature, or to maintain a condition of improved health.”

The early Romans and ancient Egyptians and Indians used herbs for many medicinal purposes. Modern medicine investigates the benefits of herbs through Pharmacognosy – a study of crude forms of plant, animal and mineral medicines. Medicinal herbs strengthen an organ so that it can heal itself. Some medicinal herbs purge the body of toxins and illnesses, while others build up the immune system, which will help in retarding illness. There are many ways in which herbs can be prepared to be used to medicinal purposes:

Compress Soak a cloth in a cool herb solution, then apply directly to the injured area.

Decoction Make a tea from the root, seed, berry, or bark of the herb plant. Simmer the tea, do not boil.

Essential Oils Oils are distilled from plants. Usually they are mixed with vegetable oil or water and used as an inhalant or tea. Also, they may be used as

eyewash, earwash, mouthwash, or used externally for massage, and to treat cuts and abrasions.

Extracts Place the herbs in a solvent and soak, allowing the solution to evaporate. This solution is the most effective form of using herbs. The herb extracts are very beneficial in healing. They may be added to juices.

Ointment It is a powdered form of an herb added to a salve.

Powder The useful part of a herb is ground into a powder and is also used in capsule or tablet form. Capsules and tablets are generally used for certain disorders and should be used no longer than six months.

Syrup A herb or herbs are added to a form of sugar and then boiled.

Tincture Usually, most tinctures contain about 20-50% alcohol. Powdered herbs are added to a water/alcohol solution. Tinctures keep for a long period of time and should only be used if severely ill.

Tea To prepare herb tea, use approximately one to three teaspoons of herbs per cup of boiling water.

Leave herbs to steep for at least five minutes, but don't leave for longer than ten minutes. The potency of the herb is destroyed by light. Mild teas may be used daily as tonics and for general health and well-being. Herb teas, usually, may be used over long periods of time.

Before starting any course of medicinal herbs, notify your doctor because they may interact with any medicines you are currently taking.

Exercise 3.48. Translate the following words and word-combinations into English:

Мазь; лікарська сировина; насіння; уповільнювати, затримувати; кора; використовувати, вживати; очищати; лікувальний відвар, відвар з лікарських рослин, декокт; варити, не доводячи до кипіння; випаровуватися; порошкоподібний; цілюща мазь; молоти(ся), розтирати (у порошок); затримувати; зараз, в даний час.

Exercise 3.49. Insert the missing words:

1. Medicinal _ have been used for centuries to treat different diseases. 2. Herbs have been the principal _ used in many countries. 3. The parts of the plants used for medicine may be their leaves, flowers, roots, _ or _. 4. Herbs are the source of pharmacologically active substances that effect the _ organism. 5. There are many ways in which herbs can be prepared to be used to medicinal purposes: compress, _, essential oil, extract, __, powder, syrup, _, and tea.

Exercise 3.50. Answer the following questions:

1. How long have medicinal herbs been used?
2. What parts of the plants are used for medicine?
3. What is medicinal herb?
4. In what cases are medicinal herbs used?
5. What are the ways in which medicinal herbs can be prepared?
6. Do you use any medical herbs?
7. What medical herbs are popular in our country?
8. What medical herbs do you use?

Exercise 3.51. Write out key words of the text “Medicinal Herbs”. Speak on the medicinal herbs, their healing properties and the ways in which they can be prepared.

Exercise 3.52. Prepare presentation about medicinal herbs and their properties.

3.3 ADMINISTRATION OF DRUG

Speaking

1. What ways of drug administration do you know?
2. Is the way of drug administration important? Why?
3. What is the most effective way of drug administration?
4. Give examples of drugs you know and the ways they are used?

Active Vocabulary

1. Absorption	поглинання
2. application	застосування
3. bloodstream	потік крові
4. completeness	повнота
5. dissolve	розчиняти
6. cone-shaped	конусоподібний

7. injection	ін'єкція
8. insert	вставити
9. intracavitary	внутрішньопорожнинний
10. lesion	ураження
11. nitroglycerin	нітрогліцерин
12. parenteral	парентеральний
13. route	спосіб, маршрут
14. rectal	ректальний
15. sublingual	сублінгвальний
16. suppository	супозиторій
17. syringe	шприц
18. vomiting	блювота

Exercise 3.53. Translate into Ukrainian:

Completeness of medicine absorption; speed and duration of the drug's action; to administer drugs; to absorb through the intestinal wall; to be destroyed in the digestive tract by digestive juices; through the intestinal mucosa; sublingual administration; to place under the tongue; to dilate coronary arteries; to increase blood flow; to present difficulties; injection through a syringe; to irritate the skin; a large volume of a long-acting drug.

Exercise 3.54. Match the words with their definitions

1. administration	a) the thin skin that covers the inside surface of parts of the body such as the nose and mouth and produces mucus to protect them
2. orally	b) relating to treatment that does not come through the digestive system, for example drugs that are injected into the veins or muscles
3. mucosa	c) inside a muscle, or put into a muscle
4. parenteral	d) entering the body through the mouth
5. sublingual	e) the acids in your stomach that break food into smaller parts
6. intramuscular	f) a medical condition in which

	you have bad pains in your chest because your heart is weak
7. digestive juices	g) under the tongue
8. angina	h) the act of giving someone something

Exercise 3.55. Complete the following sentences using words from 2.

1. There are strict controls on the _____ of drugs.
2. The drug is designed to be taken _____.
3. Indeed that smell did stimulate the _____.
4. The _____ tablets relax the arteries of the heart.
5. If possible, this should be given as a course of daily _____ injections.

Exercise 3.56. Read and translate the text.

ADMINISTRATION OF DRUGS

The route of administration of a drug is very important in determining the rate and completeness of its absorption into the bloodstream and speed and duration of the drug's action in the body. Different methods are used to administer drugs.

Oral administration is a route of administration where a substance is taken through the mouth. Oral administration is a part of enteral administration. Drugs given orally must pass into the stomach and be absorbed into the bloodstream through the intestinal wall. This method may have several disadvantages. If the drug is destroyed in the digestive tract by digestive juices or if the drug cannot pass through the intestinal mucosa, it will be ineffective. Oral administration is slower than other methods and disadvantageous if time is a factor in therapy.

In **sublingual administration** drugs are not swallowed. They are placed under the tongue and allowed to dissolve in the saliva. Absorption is rapid for some agents. Nitroglycerin is taken this way to treat attacks of chest pain (angina pectoris) in order to be rapidly absorbed into the bloodstream and dilate coronary arteries to increase blood flow to the heart muscle.

Suppositories and water solutions are supposed to be inserted into the rectum. This type of drug use is known as **rectal administration** and indicated when oral administration presents difficulties (patient is nauseated and vomiting).

Parenteral administration is accomplished by injection through a syringe under the skin, into a muscle, into a vein, or into a body cavity. In this type of administration gastrointestinal tract is omitted. There are several types of parenteral injections:

Subcutaneous injection. This injection is sometimes called a hypodermic injection and is given just under the several layers of the skin. The outer surface of the arm and the anterior surface of the skin are usual locations for subcutaneous injections.

Intradermal injection. This shallow injection is made into the upper layers of the skin. It is used chiefly in skin testing for allergic reactions. Short needles are used, and an elevation appears on the skin when an intradermal injection is given properly.

Intramuscular injection. This injection is given into the muscle, usually into the buttocks. When drugs are irritating to the skin or when a large volume of a long-acting drug is to be given, intramuscular injections are advisable.

Intravenous injection. This injection is given directly into the vein. It is given when an immediate effect from the drug is desired or when the drug cannot be given into other tissues. Good technical skill is needed in administering this injection as leakage of drugs into surrounding tissues may result in damage to tissues. Besides, entering air into a vein can lead to immediate death.

Intrathecal injection. This injection is made into the sheath of membranes (meninges) which surround the spinal cord and brain. The effects of the drug so administered are usually limited to the central nervous system, and intrathecal injections are often used to produce anesthesia.

Intracavitary injection. This injection is made into a body cavity, as, for example, into the peritoneal or pleural cavity.

Inhalation. In this method of administration, vapors or gases, are taken into the nose or mouth and are absorbed into the bloodstream through the thin walls of the air sacs in the lungs. Aerosols can be administered by inhalation. This way is the only one possible when patient has asthma attack.

Topical application. This is the local external application of drugs on skin or mucous membranes of the mouth or other surface. Topical application may also include administration of drugs into the eyes, ears, nose, and vagina. It is commonly used to accelerate the healing of abrasions, for antiseptic treatment of a wound, and as an antipruritic (against itching). Lotions are used most often when the skin is moist, or "weeping," and ointments and creams are used when the lesions are dry.

Exercise 3.57. Put the sentences in the order they appear in the text.

.	Drugs given orally must pass into the stomach and be absorbed into the bloodstream through the intestinal wall.	
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.	The nitroglycerin is rapidly absorbed into the bloodstream and opens coronary arteries to increase blood flow to the heart muscle.	
.	This injection is given into the muscle, usually into the buttocks.	
.	Good technical skill is needed in administering this injection as leakage of drugs into surrounding tissues may result in damage to tissues.	
.	At times, drugs are given by rectum when oral administration presents difficulties, such as when the patient is nauseated and vomiting.	
.	If the drug is destroyed in the digestive tract by digestive juices or if the drug cannot pass through the intestinal mucosa, it will be ineffective.	
.	Short needles are used, and an elevation appears on the skin when an intradermal injection is given properly.	
.	This injection is made into a body cavity, as, for example, into the peritoneal or pleural cavity.	
.	The outer surface of the arm and the anterior surface of the skin are usual locations for subcutaneous injections.	
0.	This type of administration is accomplished by injection through a syringe under the skin, into muscle, into a vein, or into a body cavity.	

Exercise 3.58. Match the words (1-8) from the text with their definitions (a-h).

1. syringe	a) eject matter from the stomach through the mouth
2. absorption	b) the action of breathing in
3. wound	c) medical device that is used to inject fluid into, or withdraw fluid from, the body
4. injection	d) empty space within a solid object
5. skin	e) an injury to living tissue caused by a cut, blow, or other impact, typically one in which the skin is cut or broken
6. cavity	f) thin layer of tissue forming the natural outer covering of the body of a person or animal
7. vomit	g) method of putting fluid into the body, usually with a syringe

8. inhalation	h) process by which one thing absorbs or is absorbed by another
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Exercise 3.59. Complete the sentences with the words from the box.

*skill subcutaneous aerosols produce volume application
cavity meninges moist allergic*

1. This injection is made into a body _____, as, for example, into the peritoneal or pleural cavity.
2. Lotions are used most often when the skin is _____, or "weeping," and ointments and creams are used when the lesions are dry.
3. The outer surface of the arm and the anterior surface of the skin are usual locations for _____ injections.
4. This injection is made into the sheath of membranes _____ which surround the spinal cord and brain.
5. The effects of the drug so administered are usually limited to the central nervous system, and intrathecal injections are often used to _____ anesthesia.
6. Topical _____ may also include administration of drugs into the eyes, ears, nose, and vagina.
7. _____ can be administered by inhalation.
8. It is used chiefly in skin testing for _____ reactions
9. Good technical _____ is needed in administering this injection as leakage of drugs into surrounding tissues may result in damage to tissues.
10. When drugs are irritating to the skin or when a large _____ of a long-acting drug is to be given, intramuscular injections are advisable.

Exercise 3.60. Are these statements true (T), false (F)? Give true sentences.

1. The route of administration of a drug is very important in determining the rate and completeness of its absorption into the bloodstream and speed and duration of the drug's action in the body. **(T/F)**
2. When an intradermal injection is given properly short needles are used and an elevation does not appear on the skin. **(T/F)**
3. Lotions are used most often when the skin is dry, or "weeping," and ointments and creams are used when the lesions are moist. **(T/F)**

4. Drugs given orally must pass into the stomach and be absorbed into the bloodstream through the intestinal wall. (T/F)

5. Intramuscular injection is given into the muscle, sometimes into the buttocks. (T/F)

6. Intrathecal injection is made into the sheath of membranes (meninges) which surround the spinal cord and brain. (T/F)

7. Drugs can't be given when oral administration presents difficulties, such as when the patient is nauseated and vomiting. (T/F).

8. Oral administration is quicker than other methods of drug administration. (T/F)

Exercise 3.61. Read the text again. Answer these questions.

1. What ways are drugs usually administered?
2. What does the way of drug administration depend on?
3. When is the sublingual way indicated?
4. What types of parenteral injections are the most frequently used in medicine?
5. What factors predetermine a choice of the type of a parenteral injection?
6. When must the rectal administration be prescribed?
7. What way is a nitroglycerin tablet taken?
8. When should a physician prescribe the topical application of drugs?
9. What way of drug administration, oral or rectal, provides slower action of a medication?
10. What conditions can be relieved by inhalation?

Exercise 3.62. What facts can you present to your group about:

1. Ways of drug administration;
2. Mechanism of drug action.
3. The poisonous effects of some drugs: when can a doctor prescribe such drugs?
4. Can people live without drugs?

Exercise 3.63. Fill in the gaps using the words from the box.

<p><i>eliminated flow fat distribution depends water-soluble tissue kidney remain absorption easily</i></p>

Once a drug enters into systemic circulation by _____ or direct administration, it must be distributed into interstitial and intracellular fluids. Each organ or _____ can receive different doses of the drug and the drug can _____ in the different organs or tissues for a varying amount of time. The _____ of a drug between tissues is dependent on vascular permeability, regional blood _____, cardiac output and perfusion rate of the tissue and the ability of the drug to bind tissue and plasma proteins and its lipid solubility. pH partition plays a major role as well. The drug is _____ distributed in highly perfused organs such as the liver, heart and _____. It is distributed in small quantities through less perfused tissues like muscle, _____ and peripheral organs. All drugs are eventually _____ from the body. They may be eliminated after being chemically altered (metabolized), or they may be eliminated intact. Most drugs, particularly _____ drugs and their metabolites, are eliminated largely by the kidneys in urine. Therefore, drug dosing _____ largely on kidney function.

Exercise 3.64. A) Complete the text with the words given below.

Mechanism of drug action

Drugs used in therapy act upon the body by the following way: stimulation, depression, irritation, replacement therapy and chemotherapy. But a drug may possess more than one activity and that is why it may fit in more than one category.

_____ means increasing the activity of specialized cells. For example, caffeine stimulates or _____ the reflex activity of the spinal cord.

Drug _____ decreases the activity of specialized cells. Depressive action of drugs is quite selective for special cells. The barbiturates depress the central _____ system. Codeine depresses the cough center in the medulla.

Drug _____ refers to the action of a drug on the nourishment, growth, and morphology of the cell. Irritation may be of various degrees. Mild irritation may be used to stimulate activity of tissues.

Replacement therapy refers to the use of extracts of organs, dried organ tissue, or their synthetic substitutes in the treatment of a deficiency state. The use of insulin in the treatment of _____ mellitus is an example of replacement therapy.

Chemotherapy is administered to attenuate or _____ pathogenic organisms without toxicity to the host. The main task in using chemotherapy is _____ a wide safety and general therapeutic value with the minimal to the patient. Not all drugs are directed at the cause of disease. Much therapy is only symptomatic. It may _____ the symptoms but doesn't remove etiologic factor. Thus,

morphine doesn't assist in wound healing or cancer treatment, but allows the patient to sleep and rest.

(Stimulation, irritation, nervous, increases, depression, relieve, to achieve, diabetes, kill, toxicity)

B) Give English equivalents to the following words and phrases and make up your own sentences with underlined ones:

1) Нервова система, 2) подразнення, 3) досягати безпеки, 4) помірне подразнення, 5) полегшувати симптоми, 6) кашльовий центр, 7) вбивати патогенні організми, 8) токсичність, 9) терапевтична цінність, 10) етимологічний фактор, 11) замінна терапія, 12) хіміотерапія.

C) Answer the following questions:

1. How do drugs act upon the body?
2. What does stimulation mean?
3. How does drug depression act?
4. What does replacement therapy mean?
5. What is the main task in using chemotherapy?
6. What is the characteristic of therapy?
7. Why is the relief of symptoms important?

D) Ask questions to which the following could be answers. Start your questions with the words in brackets.

1. A drug may possess more than one activity?
How many _____?
2. Caffeine stimulates cortical activity.
What _____?
3. Replacement therapy refers to the use of extracts of organs.
Where _____ to?
4. They use insulin in the treatment of diabetes mellitus.
When _____?
5. Chemotherapy kills pathogenic organisms.
What _____?
6. Morphine allows the patient to sleep and rest.
What _____?

Exercise 3.65. Read and translate the text.

Drug Interaction

A drug interaction is a situation in which a substance (usually another drug) affects the activity of a drug when both are administered together. This action can be synergistic (when the drug's effect is increased) or antagonistic (when the drug's effect is decreased) or a new effect can be produced that neither produces on its own. Typically, interactions between drugs come to mind (drug-drug interaction). However, interactions may also exist between drugs and foods (drug-food interactions), as well as drugs and medicinal plants or herbs (drug-plant interactions). People taking antidepressant drugs such as monoamine oxidase inhibitors should not take food containing tyramine as hypertensive crisis may occur (an example of a drug-food interaction). These interactions may occur out of accidental misuse or due to lack of knowledge about the active ingredients involved in the relevant substances. It is therefore easy to see the importance of these pharmacological interactions in the practice of medicine. If a patient is taking two drugs and one of them increases the effect of the other it is possible that an overdose may occur. The interaction of the two drugs may also increase the risk that side effects will occur. On the other hand, if the action of a drug is reduced it may cease to have any therapeutic use because of under dosage. The pharmaceutical interactions that are of special interest to the practice of medicine are primarily those that have negative effects for an organism. The risk that a pharmacological interaction will appear increases as a function of the number of drugs administered to a patient at the same time. It is also possible for interactions to occur outside an organism before administration of the drugs has taken place. This can occur when two drugs are mixed, for example, in a saline solution prior to intravenous injection. Drug interactions may be the result of various processes. These processes may include alterations in the pharmacokinetics of the drug, such as alterations in the absorption, distribution, metabolism, and excretion (ADME) of a drug. Alternatively, drug interactions may be the result of the pharmacodynamic properties of the drug, e.g. the co-administration of a receptor antagonist and an agonist for the same receptor.

Exercise 3.66. Answer the questions.

1. What is a drug interaction?
2. What is synergistic action?
3. What is a drug-food interaction?
4. What is a drug-plant interaction?
5. What is antagonistic action?
6. What may occur if a patient is taking two drugs and one of them increases the effect of the other?
7. What interactions are of special interest to the practice of medicine?

8. Is it possible for interactions to occur outside an organism?

Exercise 3.67. Fill in the gaps using the words from the box.

allergic drug toxic drowsiness weight occurs side-effects

Therapeutic benefits of a _____ on the market far outweighs its risks. All drugs are likely to have some _____ – unwanted action of a drug, e.g. _____ from an antihistamine given to relieve _____ symptoms, or acceleration of the heart by a drug given for asthma. The term is not usually applied to the _____ effects of an overdose, but to an effect of a standard therapeutic dose. A side effect is usually regarded as an undesirable secondary effect which _____ in addition to the desired therapeutic effect of a drug or medication. Side effects may vary for each individual depending on the person's disease state, age, _____, gender, ethnicity and general health.

Exercise 3.68. Read and translate the text.

DRUG TOXICITY

Vocabulary

adverse несприятливий

erroneous помилковий

homicide вбивство

intended навмисний, передбачуваний

pronounced очевидний, виразний, явний

severe важкий, тяжкий

severity суворість

suicide самогубство

In the context of pharmacology, toxicity occurs when a person has accumulated too much of a drug in his bloodstream, leading to adverse effects within the body. Drug toxicity is the critical or lethal reaction to an erroneous dosage of a medication. It may occur due to human error or intentional overdose in the case of suicide or homicide. The effects of the medication are more pronounced at toxic levels, and side effects may be severe. The reasons for toxicity vary depending on the mixture of drugs. Toxicity may result when the dose is too high, or it may result when the liver or kidneys are unable to remove the drug from the bloodstream. Many commonly prescribed medications can accumulate in the bloodstream and result in toxicity. Symptoms of drug toxicity depend on the drug taken. Treatment for drug toxicity also depends on the drug taken and the blood level of the drug. All drugs have both primary intended effects and secondary

unintended effects, the latter known as side effects or adverse effects. Although side effects can be neutral or even beneficial, side effects are typically undesirable. Adverse effects can range in severity from nuisance to life threatening. These effects make many patients unwilling to take drugs on a regular basis, and this lack of compliance represents a major practical limitation of pharmacotherapy. Drug toxicity, also called adverse drug reaction (ADR) or adverse drug event (ADE), is defined as the "manifestations of the adverse effects of drugs administered therapeutically or in the course of diagnostic techniques. It does not include accidental or intentional poisoning..." The meaning of this expression differs from the meaning of "side effect", as this last expression might also imply that the effects can be beneficial.

Exercise 3.69. Answer the following questions.

1. When does toxicity occur in the context of pharmacology?
2. What is drug toxicity?
3. Where can many commonly prescribed medications accumulate?
4. What does symptoms of drug toxicity depend on?
5. How can adverse effects range?

Exercise 3.70. Match words from column A with their antonyms from column B.

Column A	Column B
1) minority	a) unimportant
2) accidental	b) unpredictable
3) outpatients	c) malignant
4) important	d) unexpected
5) predictable	e) inpatients
6) hyposensitivity	f) intentional
7) benign	g) hypersensitivity
8) expected	h) majority

Exercise 3.71. Prepare brief retelling of the text about toxicity.

Exercise 3.72. Complete the following text with the corresponding prepositions:

Toxicology (from the Greek words τοξικός- toxicos "poisonous" and logos) is the study 1) ___ poisons, an extension of pharmacology. It is concerned 2) ___ the study of the adverse effects 3) ___ chemicals 4) ___ living organisms. It studies

symptoms, mechanisms, treatments and detection of poisoning, especially the poisoning of people. Its functions have expanded 5) ___ identifying poisons and searching 6) ___ treatments to include forensic toxicology (forensic medicine) and testing and detection 7) ___ a fast-growing number of new potentially toxic substances used 8) ___ workplaces, in agriculture (e.g., insecticides, other pesticides, fertilizers), in cosmetics, as food additives, and as drugs (see drug poisoning). Perhaps the area 9) ___ largest expansion is the study 10) ___ toxic waste in the air, water, and soil, including chlorofluorocarbons, acid rain, dioxin, and radioactive isotopes.

Exercise 3.73. Fill in the gaps using the words from the box.

<i>clinical volunteers review additional investigations</i> <i>years</i>

After laboratory screening, firms conduct clinical _____, or "trials," of the drug on human patients. Human _____ trials normally take place in three phases. First, medical scientists administer the drug to a small group of healthy _____ in order to determine and adjust dosage levels, and monitor for side effects. If a drug appears useful and safe, _____ tests are conducted in two more phases, each phase using a successively larger group of volunteers or carefully selected patients. Once a drug has successfully passed animal and clinical tests, the Food and Drug Administration (FDA) must _____ the drug's performance on human patients, the results of which have been carefully documented, before approving the substance for commercial use. The entire process, from the first discovery of a promising new compound to FDA approval, can take up to 15 _____, but scientific and information technology advances will shorten that process considerably for many drugs. After FDA approval, problems of production methods and costs must be worked out before manufacturing begins.

Exercise 3.74. What facts can you present to your group about:

1. Drug administration.
2. Drug addiction.
3. Drug – drug interaction.
4. Drug- food interaction.
5. Drug toxicity.

UNIT IV.

STRUCTURAL ORGANIZATION OF THE BODY

Speaking:

1. What are the main levels of structural organization of the human body?
2. What is the smallest independently functioning unit of a living organism?
3. What does a human cell typically consist of?
4. What is a tissue? What types of tissues do you know?
5. What is metabolism?
6. How many body systems have been stated? What are the main systems of the human body?
7. What are the major parts of a skeleton?
8. What internal organs do you know?

ACTIVE VOCABULARY

1. cell	клітина
2. tissue	тканина
3. organ	орган
4. system	система
5. metabolism	метаболізм
6. anabolism	анаболізм
7. catabolism	катаболізм
8. nutrients	поживні речовини
9. vital activities	життєдіяльність
10. excretory organs	органи виділення
11. to affect	впливати
12. substance	речовина
13. protein	білок
14. acid	кислота
15. fats	жири
16. chromosomes	хромосоми

17. gene	ген
18. DNA	ДНК
19. a karyotype	каріотип
20. amniocentesis	амніоцентез
21. abnormality	аномалія
22. obstetrician	акушер
23. cytoplasm	цитоплазма
24. nucleus	ядро
25. cell membrane	клітинна мембрана
26. mitochondria	мітохондрії
27. endoplasmic reticulum	ендоплазматичний ретикулум
28. fiber	волокна
29. fibrous extensions	волокнисті (фіброзні) розширення
30. integumentary	покривний
31. cardiovascular	серцево-судинний
32. respiratory	дихальний
33. digestive	травний
34, urinary	сечовий, сечовивідний
35. sweat	потовий
36. posture	постава
37. heat	тепло, жар
38. participate	брати участь
39. nutrient	поживна речовина
40. hormone	гормон
41. combat	боротися
42. oxygen	кисень
43. carbon dioxide	вуглекислий газ
44. elimination	видалення, виведення

45. wastes products	продукти відходів
46. ion	іон
47. nervous	нервовий
48. receptor	рецептор
49. major	головний
50. endocrine	ендокринний
51. balance	рівновага
52. gonad	статева залоза
53. genitals	статеві органи
54. passage	прохід, протока
55. accessory	додатковий, допоміжний

Exercise 4.1. Translate the words and word-combinations into Ukrainian.

A complex organism, intercellular substance, tissues, closely interconnected, affect each other, vital activities, nutritive substances, decomposition of organic substances, waste products renewed from other substances, muscular contraction, blood vessels, excretory organs, pathologic changes, morbid state.

Exercise 4.2. Read and translate the text. Summarize it.

ORGANISM AS A WHOLE

The organism is a single system. In a complex organism cells and intercellular substance form tissues, tissues make up organs, and organs unite in systems. All the cells, tissues, organs and systems of organs are closely interconnected and affect each other.

The vital activities of the cells, tissues, organs and the whole organism are based on metabolism, which consists of two interconnected processes: assimilation of nutritive substances (anabolism) and decomposition of organic substances (catabolism).

The complex substances of the cells and tissues continuously split into simpler ones: at the same time, they are renewed from other substances delivered to the cells and tissues from outside. The catabolism in the cells and tissues is accompanied by liberation of energy which operates all the processes in the organs

and tissues (muscular contraction, heart action, cerebral activity, etc.) including anabolism.

During the vital activities of the organism, which are based on metabolism, various organs and systems of organs establish close connections and interactions. This may be readily demonstrated on a skeletal muscle. Metabolism takes place in the muscle, as it does in other organs. This naturally requires a continuous supply of nutrients and oxygen which are delivered by the blood through the blood vessels. The nutrients enter the blood from the digestive system, and the oxygen from the respiratory system (through the lungs). The waste products formed in the process of metabolism pass from the muscles into the blood and are transported to the excretory organs and eliminated. The blood flows through the blood vessels because of the contractions of the heart whose work, like that of other organs, is regulated by the nervous system.

The regulations between the various systems of organs can also be demonstrated by coordinated changes in their activities. Intensification of the activity of one organ or system of organs is accompanied by changes in the other system. For example, physical work causes metabolism to increase sharply in the muscles.

This leads to a coordinated change in the activity of the cardiovascular, respiratory, excretory and other systems.

The interdependence between the various organs and the entire organism manifests itself a disease. Pathologic changes in one particular organ affect other systems of organs. The principle of integrity of the organism implies that the disease of any organ must not be regarded a purely local disturbance, but as a morbid state of the entire organism.

Exercise 4.3. Answer the following questions.

1. How are the cells, tissues, organs and systems of organs interconnected and affect each other?
2. What processes are the vital activities of the cells, tissues, organs and the whole organism based on?

3. What two interconnected processes does metabolism consist of?
4. What is the catabolism in the cells and tissues accompanied by?
5. How do various organs and systems of organs establish close connections and interactions during the vital activities of the organism?
6. How do pathologic changes in one particular organ affect other systems of organs? Can you give the examples?
7. What does the principle of integrity of the organism imply?

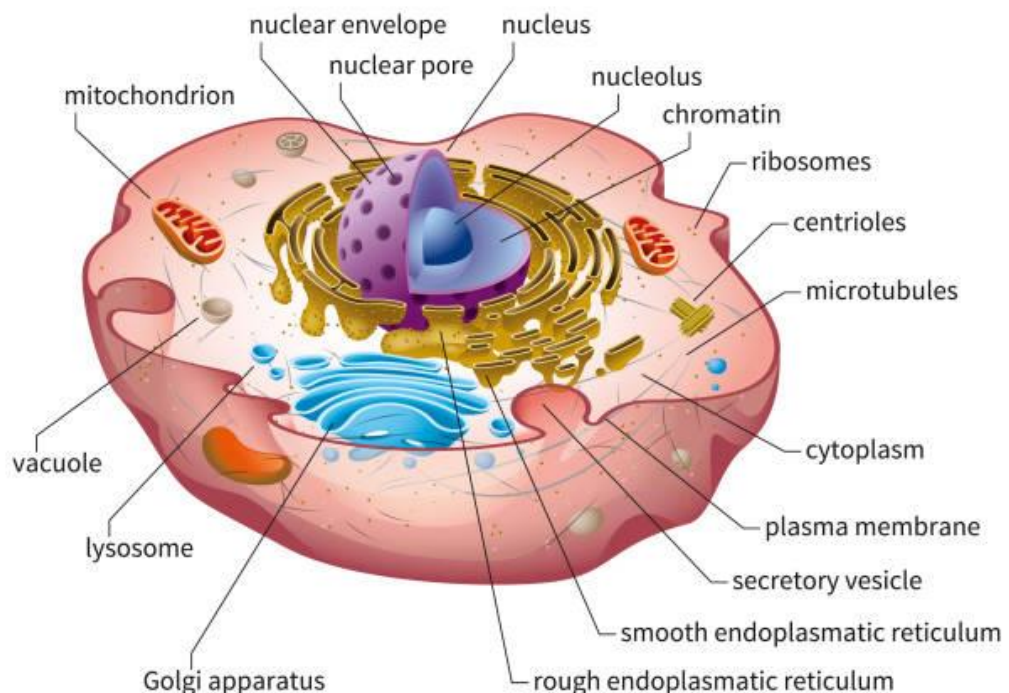
Exercise 4.4. Read and translate the text. Study the picture and the main terms. Make a plan of the text and put 10-15 questions about the text.

CELLS

The cell is the fundamental unit of all living things (animal or plant). Cells are everywhere in the human body – every tissue, every organ is made up of these individual units. All cells are similar in that they contain a gelatinous substance composed of water, protein, sugar, acids, fats, and various minerals.

The cell membrane not only surrounds and protects the cell but also regulates what passes into and out of the cell. The nucleus controls the operations of the cell.

It directs cell division and determines the structure and function of the cell.



Chromosomes are rod-like structures within the nucleus. All human body cells, except for the sex cells, the egg and the sperm (short for spermatozoon), contain 23 pairs of chromosomes. Each sperm and each egg cell have only 23 unpaired chromosomes. After an egg and a sperm cell unite to form the embryo, each cell of the embryo then has 46 chromosomes (23 pairs).

Chromosomes contain regions called genes. There are several thousand genes, in an orderly sequence, on every chromosome. Each gene contains a chemical called DNA (deoxyribonucleic acid). DNA regulates the activities of the cell according to its sequence (arrangement into genes) on each chromosome. The DNA sequence resembles a series of recipes in code. This code, when passed out of the nucleus to the rest of the cell, directs the activities of the cell, such as cell division and synthesis of proteins.

A karyotype is a photograph of an individual's chromosomes, arranged by size, shape, and number. Karyotyping can determine whether chromosomes are normal. For example, an obstetrician may recommend amniocentesis (puncture of the sac around the fetus for removal of fluid and cells) for a pregnant woman so that the karyotype of the baby can be examined.

If a baby is born with a chromosomal abnormality, serious problems can result. In Down syndrome, the karyotype shows 47 chromosomes instead of the normal number, 46. The extra chromosome 21 results in the development of a child with Down syndrome (also called trisomy 21 syndrome). Its incidence is about 1 in every 750 live births, but as the mother's age increases, the presence of the chromosomal abnormality increases.

The cytoplasm (cyt/o = cell, -plasm = formation) includes all of the material outside the nucleus and enclosed by the cell membrane. It carries on the work of the cell (e.g., in a muscle cell, it does the contracting; in a nerve cell, it transmits impulses). The cytoplasm contains specialized apparatus to supply the chemical needs of the cell.

Mitochondria are small sausage-shaped bodies that provide the principal source of energy for the cell. They use nutrients and oxygen to release energy that is stored in food. During the chemical process called catabolism, complex foods such as sugar and fat are

broken down (cata-means down) into simpler substances and energy is released by the mitochondria. Thus, catabolism provides the energy for cells to do the work of the body.

The endoplasmic reticulum is a network (reticulum) of canals within the cell. These canals are cellular tunnel systems that manufacture proteins for the cell. Attached to the endoplasmic reticulum are ribosomes, which build long chains of proteins. Anabolism, occurring on the endoplasmic reticulum, is the process of building up (ana- means up) large proteins from small protein pieces called amino acids. Examples of important proteins for cell growth are hormones and enzymes.

Together, these two processes – anabolism and catabolism make up the cell's metabolism. Metabolism, then, is the total of the chemical processes occurring in a cell. If a person has a “fast metabolism,” foods such as sugar and fat are used up very quickly, and energy is released. If a person has a “slow metabolism,” foods are burned slowly, and fat accumulates in cells.

Exercise 4.5. Study the table with the terms.

anabolism	Process of building up large proteins from small protein pieces called amino acids. Ana- means up, bol means to cast, and -ism is a process.
catabolism	Process whereby complex nutrients are broken down to simpler substances and energy is released. Cata- means down, bol means to cast, and -ism is a process.
cell membrane	Structure surrounding and protecting the cell. It determines what enters and leaves the cell.
chromosomes	Rod-shaped structures in the nucleus that contain regions of DNA called genes. There are 46 chromosomes (23 pairs) in every cell except for the egg and sperm cells, which contain only 23 individual, unpaired chromosomes.
cytoplasm	All of the material that is outside the nucleus

	and yet contained within the cell membrane.
DNA	Chemical found within each chromosome. Arranged like a sequence of recipes in code, it directs the activities of the cell.
cytoplasm (cyt/o = cell, -plasm = formation) includes all of the material outside the nucleus and enclosed by the cell membrane.	Network of canals within the cytoplasm of the cell. Here, large proteins are made from smaller protein pieces.
genes	Regions of DNA within each chromosome.
karyotype	Picture (classification) of chromosomes in the nucleus of a cell. The chromosomes are arranged in numerical order to determine their number and structure.
metabolism	Total of the chemical processes in a cell. It includes catabolism and anabolism. Meta- means change, bol means to cast, and -ism means a process.
mitochondria	Rod-shaped structures in the cytoplasm that provide the principal source of energy (miniature “power plants”) for the cell.
catabolism	The process that occurs in mitochondria. (From the Greek mitos meaning thread and chondrion meaning granule.) HINT: Think of “mighty” mitochondria! nucleus Control center of the cell. It contains chromosomes and directs the activities of the cell.

Exercise 4. 6. Give Ukrainian equivalents for the following words and word-combinations.

Tissue, histologist, regions of the body, epithelial tissue, linings of internal organs, exocrine and endocrine glands, responsible for the secretions, muscle tissue, voluntary muscle, involuntary muscle, under conscious control, muscle contractions, connective tissue, cartilage, adipose tissue, nerve tissue, glandular epithelial tissue, viscera, bloodstream,

Exercise 4. 7. Read and translate the text. Put 10 -12 questions about the text.

Four Types of Tissues



Connective tissue



Epithelial tissue



Muscle tissue



Nervous tissue

Tissues

A tissue is a group of similar cells working together to do a specific job. A histologist (hist/o = tissue) is a scientist who specializes in the study of tissues. Several different types of tissue are recognized. Tissues of the same type may be located in various regions of the body. There are four

types of tissues.

Epithelial Tissue

Epithelial tissue, located all over the body, forms the linings of internal organs, and the outer surface of the skin covering the body. It also lines exocrine and endocrine glands and is responsible for the secretions that the glands produce. The term epithelial originally referred to the tissue on (epi-) the breast nipple (thel/o). Now it describes all tissue that covers the outside of the body and lines the inner surface of internal organs.

Muscle Tissue

Voluntary muscle is found in arms and legs and parts of the body where movement is under conscious control. Involuntary muscle, found in the heart and digestive system, as well as other organs, allows movement that is not under conscious control. Cardiac muscle is a specialized type of muscle found only in the

heart. Contractions of this muscle type can be seen as a beating heart in an ultrasound scan of a 6-week-old fetus.

Connective Tissue

Examples are adipose (fat) tissue, cartilage (elastic, fibrous tissue attached to bones), bones and blood.

Nerve Tissue

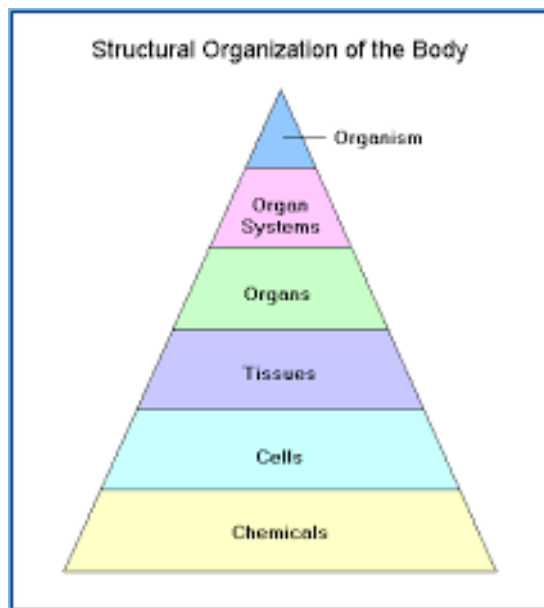
Nervous tissue is the main component of the two parts of the nervous system; the brain and spinal cord of the central nervous system (CNS), and the branching peripheral nerves of the peripheral nervous system (PNS), which regulates and controls bodily functions and activity.

Organs

Different types of tissue combine to form an organ. For example, an organ such as the stomach is composed of muscle tissue, nerve tissue, and glandular epithelial tissue. The medical term for internal organs is viscera (singular: viscus). Examples of abdominal viscera (organs located in the abdomen) are the liver, stomach, intestines, pancreas, spleen, and gallbladder.

Systems

Systems are groups of organs working together to perform complex functions. For example, the mouth, esophagus, stomach, and small and large intestines are organs that do the work of the digestive system to digest food and absorb it into the bloodstream.



Exercise 4.8. Translate the following words and word-combinations into Ukrainian:

Combine; subdivide; peripheral nervous system; major organ systems; respiratory; digestive; integumentary; sweat gland; protect; gonad; circulatory system; kidney; urinary bladder; urine; remove; esophagus; stomach; small and large intestines; digestion; nutrient; foreign substances; sensory receptors; allow body movements.

Exercise 4. 9. Read and translate the following words and word-combinations:

Regulate temperature; prevent; cartilage; muscle; maintain posture; body heat; spinal cord; receive; metabolism; reproduction; pump; blood; throughout; remove; balance; respiratory passage; carbon dioxide; stomach; chemical process.

Exercise 4. 10. Read the following text and translate into Ukrainian:

ORGAN SYSTEMS

The body systems have been variously stated to be nine, ten or eleven in number, depending on how much detail one wishes to include.

An organ system is a group of organs classified as a unit because of a common function or set of functions. The classification of organ systems is somewhat arbitrary. For example, the muscular and skeletal systems can be combined as the musculoskeletal system, or the nervous system can be subdivided into the peripheral and central nervous systems.

The human organism is divided into the following major organ systems: the integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems.

The integumentary system consists of skin, hair, nails, and sweat glands. This system protects, regulates temperature, and prevents water loss.

The skeletal system includes bones, ligaments, cartilages, and joints. It protects internal organs, supports, and allows body movement, produces blood cells, and stores minerals.

The muscular system consists of muscles attached to the skeleton. This system allows body movement, maintains posture, and produces body heat.

The nervous system includes brain, spinal cord, nerves, and sensory receptors. It is a complex information system. It receives, processes and communicates information.

The endocrine system consists of endocrine glands. This system participates in the regulation of metabolism, reproduction, and controlling a large number of activities.

The cardiovascular system includes heart, blood vessels, and blood, which is pumped through the blood vessels by the heart. It transports nutrients, waste products, gases, and hormones throughout the body; plays a role in the regulation of body temperature.

The lymphatic system consists of lymph vessels, lymph nodes, and other lymph organs. This system removes foreign substances from the blood and lymph, maintains tissue fluid balance, and absorbs fats.

The respiratory system includes lungs and respiratory passages. It exchanges gases (oxygen and carbon dioxide) between the blood and the air and regulates blood pH.

The digestive system consists of mouth, esophagus, stomach, intestines, and accessory structures. This system performs the mechanical and chemical processes of digestion, absorption of nutrients, and elimination of wastes.

The urinary system includes kidneys, urinary bladder, and ducts that carry urine. It removes waste products from the circulatory system; regulates blood pH, ion balance, and water balance.

The reproductive system consists of gonads, accessory structures, and genitals of males and females. This system performs the processes of reproduction and controls sexual functions.

Exercise 4. 11. Translate the following words and word-combinations into English:

Додатковий, допоміжний; покривний; нервовий; серцево-судинний; дихальний; травний; м'язовий; скелетний; сечовий; потовий; шкіра; запобігати втраті води; головний; кістка; суглоб; хрящ; зв'язка; розумовий; ендокринний; підтримувати поставу; мозок; чутливий рецептор; спинний мозок; брати участь; поживна речовина; серце; кров'яні судини; качати (кров); гормон; боротися; стороння речовина; нирки; сечовий міхур; протока; кисень; вуглекислий газ; видалення.

Exercise 4. 12. Study the table with the main organ systems and organs that these systems consist of.

SYSTEM	ORGANS
Digestive	Mouth, pharynx (throat), esophagus (tube from the throat to the stomach), stomach, intestines (small and large), liver, gallbladder, pancreas
Urinary or excretory	Kidneys, ureters (tubes from the kidneys to the urinary bladder), urinary bladder, urethra (tube from the bladder to the outside of the body)

Respiratory	Nose, pharynx, larynx (voice box), trachea (windpipe), bronchial tubes, lungs (where the exchange of gases takes place)
Reproductive Female: Male:	Ovaries, fallopian tubes, uterus (womb), vagina, mammary glands Testes and associated tubes, urethra, penis, prostate gland
Endocrine	Thyroid gland (in the neck), pituitary gland (at the base of the brain), sex glands (ovaries and testes), adrenal glands, pancreas (islets of Langerhans), parathyroid glands
Nervous	Brain, spinal cord, nerves, and collections of nerves
Circulatory	Heart, blood vessels (arteries, veins, and capillaries), lymphatic vessels and nodes, spleen, thymus gland
Musculoskeletal	Muscles, bones, and joints
Skin and sense organs	Skin, hair, nails, sweat glands, and sebaceous (oil) glands; eye, ear, nose, and tongue

Exercise 4. 13. Answer the following questions:

1. What systems does the human body consist of?
2. What are the major components of the integumentary system?
3. What are the major components of the skeletal system?
4. What does the muscular system consist of?
5. What are the major components of the nervous system?
6. What does the endocrine system consist of?
7. What are the major components of the cardiovascular system?
8. What does the lymphatic system consist of?
9. What are the major components of

the respiratory system? 10. What are the major components of the digestive system? 11. What are the major components of the urinary system? 12. What does the reproductive system consist of? 13. What is the function of the integumentary system? 14. What is the function of the skeletal-muscular system? 15. What is the function of the cardiovascular system? 16. What is the function of the respiratory system? 17. What is the function of the digestive system? 18. What is the function of the endocrine system? 19. What is the function of the urinary system? 20. What is the function of the reproductive system?

Exercise 4. 14. Insert the missing words:

1. The body is divided into 11 major organ systems: integumentary, _____, muscular, nervous, endocrine, _____, lymphatic, respiratory, _____, urinary, and reproductive systems.
2. The skeletal system includes bones, associated _____, and joints.
3. It protects, _____, and allows body movement.
4. The muscular system consists of _____.
5. This system allows body _____.
6. The cardiovascular system includes heart, blood _____, and blood.
7. It transports _____.

Exercise 4. 15. Make up the sentences using the following words and word-combinations:

1. The nervous system / brain / and / includes / spinal cord / nerves.
2. It / physiological / intellectual functions / controls / and.
3. Includes / respiratory passages / the respiratory system / lungs / and.
4. Between / it / exchanges / the blood / gases / and / the air.
5. Intestines / the digestive / mouth / system / consists of / esophagus / and / stomach.
6. Chemical / this / system / digestion / the mechanical / and / performs / processes / of.

Exercise 4. 16. Speak on the systems of the human body.

Exercise 17. Translate the following sentences into English:

1. Покривна система складається зі шкіри, волосся, нігтів та потових залоз. 2. Ця система регулює температуру тіла та запобігає зневоднюванню. 3. Скелетна система складається кісток, хрящів та суглобів. 4. М'язова система складається із м'язів, дозволяючи людині пересуватися. 5. Серцево-судинна система складається з серця, кров'яних судин та крові, що транспортує поживні речовини до всіх частин організму. 6. Дихальна система сформована легеньми. 7. Травна система виконує хімічні та механічні процеси травлення.

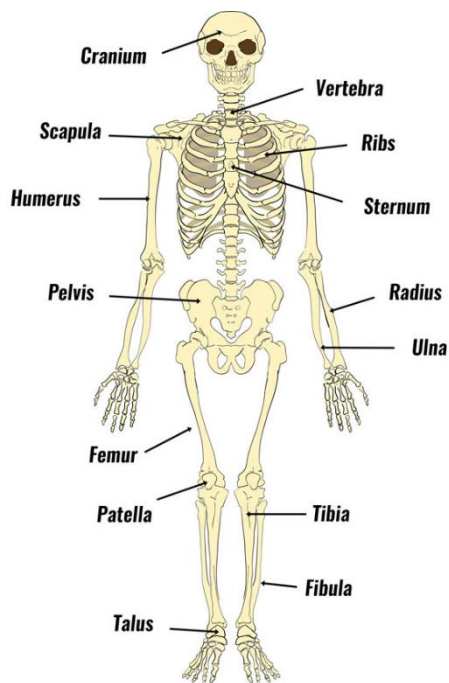
4.2. SKELETON AS A FRAMEWORK OF THE BODY

Vocabulary

1. skeleton	скелет
2. framework	каркас
3. bone	кістка
4. skull	череп
5. clavicle	ключиця
6. scapula	лопатка
7. rib	ребро
8. breastbone	грудина
9. pelvis	таз
10. spine	спинний хребет
11. vertebra	хребець
12. radius	променева кістка
13. humerus	плечова кістка
14. ulna	ліктьова кістка

15. femur	СТЕГНОВА КІСТКА
16. tibia	ГОМІЛКОВА КІСТКА
17. joint	СУГЛОБ
18. fibula	МАЛА ГОМІЛКОВА КІСТКА
19. patella	КОЛІННА ЧАШЕЧКА
20. extremity (limb)	КІНЦІВКА

Exercise 18. Look at the picture of the skeleton and try to memorize the location of the bones.



Exercise 4. 19. Read the text and translate it. Describe the human skeleton.

SKELETON

The skeleton is the framework of the body. The skeleton supports the soft parts and protects the internal organs from injury. There are more than two hundred bones of different sizes and shapes in the skeleton.

The skeleton may be divided into three main groups of bones: the bones of the head, trunk and extremities. The bones are connected together by joints, cartilages and ligaments. The joints allow the bones to move. Ligaments connect one bone to

another. Tendons attach bones to muscles. Muscles contract and move skeleton parts.

The head bones are called the skull. The skull consists of many cranial bones. The upper part of the trunk is formed by the ribs and breastbone in front and the vertebrae in the spine. The lower part is the pelvis.

The bones of the trunk are connected with the upper extremities by the clavicles and scapulas. The upper extremity consists of the humerus, the radius with the ulna and the hand bones. The lower extremity has the femur, the tibia with the fibula and the foot bones.

We do all kinds of work with our upper extremities. And we can walk, run and jump with our lower extremities.

Exercise 4. 20. What words are defined below?

1. The framework of bones.
2. The human body apart from the head and extremities.
3. The upper part of the trunk.
4. The lower part of the trunk.
5. The part of the head which contains the brain.
6. The upper extremities.
7. The lower extremities.
8. The end of the arm.
9. The part of the leg on which we walk.
10. The part of the upper extremity from the shoulder to the hand.

Exercise 4. 21. Ask questions on the text “Skeleton” and retell the text.

Exercise 4. 22. Communicative situation. Try to explain to your younger brother how we can move, make things, do different types of work, run, jump, walk.

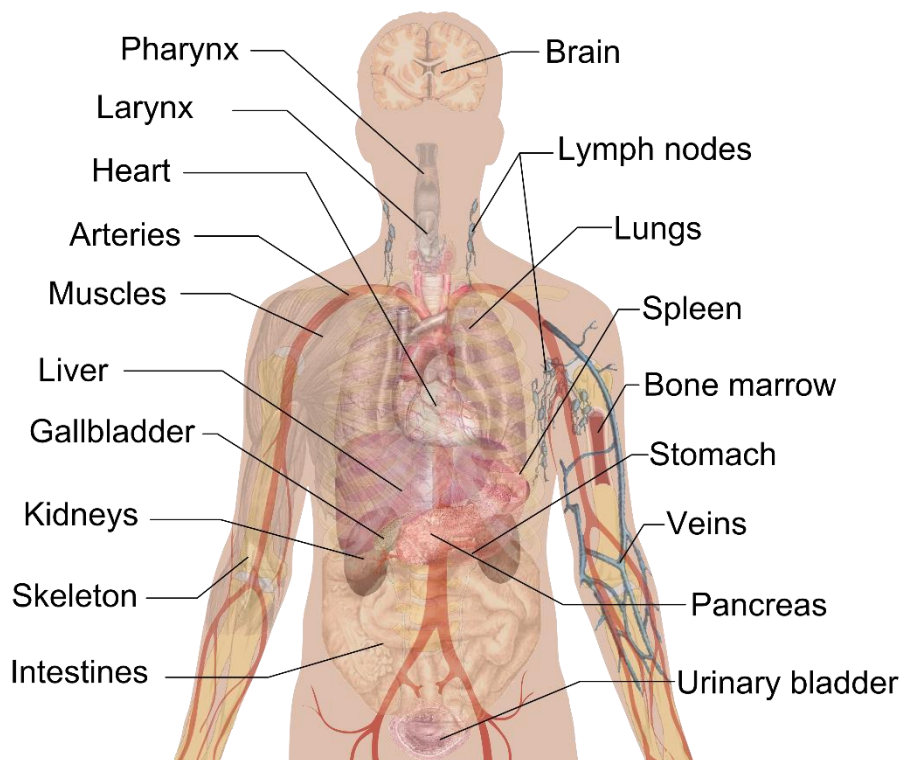
4.3 INTERNAL ORGANS

Exercise 4. 23. Read the words and remember them.

internal organ	внутрішній орган
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lung	легеня
heart	серце
pharynx	глотка
sternum	грудина
blood	кров
esophagus	стравохід
diaphragm	діафрагма
tomach	шлунок
liver	печінка
poison	отрута
gall bladder	жовчний міхур
bacterium	мікроб, бактерія
digestion	травлення
pancreas	підшлункова залоза
spleen	селезінка
kidney	нирка
intestine	кишка, кишечник
bladder	сечовий) міхур
to differ	відрізнитись
to destroy	руйнувати
abdominal cavity	черевна порожнина
large intestine	товста кишка
small intestine	тонка кишка
sex gland	статева залоза

Internal organs



Exercise 4. 24. Read and translate the following words.

Human body, trunk, limb, extremity, upper, lower, to consist of, to contain the brain, skull, forehead, mouth, lip, cheek, chin, external, internal, gum, tooth (teeth), tongue, palate, to connect, neck, chest, abdomen, lung, heart, gullet, to breathe, beat, abdominal, cavity, stomach, liver, spleen, intestine, kidney, gallbladder, bladder, bone, skeleton, to support, soft, to protect, injury, muscle, shoulder, forearm, elbow, wrist, thumb, hip, thigh, knee, calf, ankle, skin.

Exercise 4. 25. Read the text. Name the internal organs. Retell the text.

INTERNAL ORGANS

All internal organs are situated in the chest and abdomen. The chest is separated from abdomen by the diaphragm. The principal organs of the chest are the gullet, the heart at lungs. The gullet connects the pharynx and the stomach.

There are two lungs – one in each half of the chest. They differ in size. The right lung is larger than the left one. There is the heart between the lungs behind the breastbone. The heart pumps the blood to the whole body.

The lower part of the trunk is the abdominal cavity. The principal organs here are the stomach, the liver, two kidneys, the gallbladder, the pancreas, the spleen, the small and large intestines, the bladder and internal sex glands.

There is the liver with the gallbladder in the right upper abdominal part. The liver is the largest and heaviest organ in the body. It works over all the products of digestion. The liver destroys poisons and bacteria which get into the blood. There is the stomach, the pancreas, the spleen in the left upper part of the abdominal cavity. Behind them there are the right and left kidneys at the back.

The small and large intestines occupy all the lower abdomen. Here is also the bladder and sex glands.

Each internal organ of the body plays a specific role in the organism.

The branch of medicine which studies internal organ diseases is called internal medicine.

Exercise 4. 26. Answer the following questions.

- 1) Where is the chest?
- 2) What is the lower part of the trunk?
- 3) What is there between the chest and abdomen?
- 4) What are the principal organs of the chest?
- 5) What are the principal organs of the abdominal cavity?
- 6) What can you say about the lungs?
- 7) What is the function of the heart?
- 8) What is the function of the liver?
- 9) Does each organ have its specific role?
- 10) What is the name of the branch of medicine which deals with internal organ diseases?

Exercise 4. 27. Complete the sentences.

1. The external organs are _____.
1. The internal organs are _____.
2. The organs of the chest are _____.
3. The organs of the abdominal cavity are _____.

4. The organs of the head are _____.

Exercise 4. 28. Put the following parts of the body into the appropriate column.

<i>heart</i>	<i>skull</i>	<i>ribs</i>	<i>spine</i>	<i>lungs</i>	<i>pelvis</i>	<i>liver</i>	<i>kidneys</i>
<i>bladder</i>	<i>scapula</i>	<i>spleen</i>	<i>thorax</i>	<i>intestine</i>	<i>stomach</i>	<i>pancreas</i>	
<i>patella</i>	<i>gallbladder</i>	<i>tibia</i>	<i>vertebra</i>	<i>larynx</i>	<i>brain</i>	<i>fibula</i>	

Bones	Internal organs

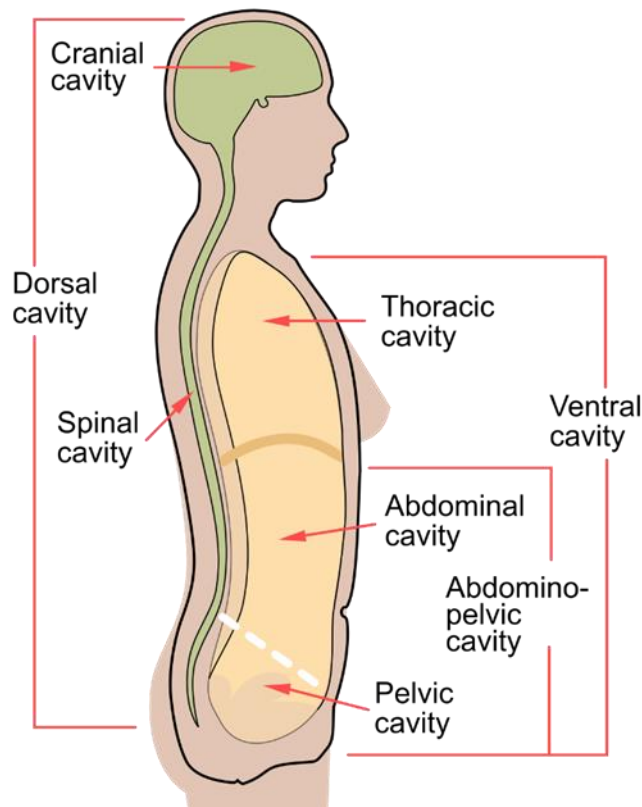
4.4. BODY CAVITIES

Exercise 4.29. Read and study the following information about body cavities.

The human body, like that of many other multicellular organisms, is divided into a number of body cavities. A body cavity is a fluid-filled space inside the body that holds and protects internal organs. Human body cavities are separated by membranes and other structures. The two largest human body cavities are the ventral cavity and the dorsal cavity.

The ventral cavity is at the anterior, or front, of the trunk. Organs contained within this body cavity include the lungs, heart, stomach, intestines, and reproductive organs. The ventral cavity allows for considerable changes in the size and shape of the organs within it as they perform their functions. For example, organs such as the lungs, stomach, or uterus can expand or contract without

distorting other tissues or disrupting the activities of nearby organs. The ventral cavity is subdivided into the thoracic and abdominopelvic cavities.



The thoracic cavity fills the chest and is subdivided into two pleural cavities and the pericardial cavity. The pleural cavities hold the lungs, and the pericardial cavity holds the heart.

The abdominopelvic cavity fills the lower half of the trunk and is subdivided into the abdominal cavity and the pelvic cavity. The abdominal cavity holds digestive organs and the kidneys, and the pelvic cavity holds

reproductive organs and organs of excretion.

The dorsal cavity is at the posterior, or back, of the body, including both the head and the back of the trunk. The dorsal cavity is subdivided into the cranial and spinal cavities.

The cranial cavity fills most of the upper part of the skull and contains the brain.

The spinal cavity is a very long, narrow cavity inside the vertebral column. It runs the length of the trunk and contains the spinal cord. The brain and spinal cord are protected by the bones of the skull and the vertebrae of the spine. They are further protected by the meninges, a three-layer membrane that encloses the brain and spinal cord. A thin layer of cerebrospinal fluid is maintained between two of the meningeal layers. This clear fluid is produced by the brain, and it provides extra protection and cushioning for the brain and spinal cord.

Exercise 4. 30. Answer the questions and do the following tasks.

1. What is a body cavity?

2. Compare and contrast ventral and dorsal body cavities.
3. Identify the subdivisions of the ventral cavity and the organs each contains.
4. Describe the subdivisions of the dorsal cavity and its contents.
5. Identify and describe all the tissues that protect the brain and spinal cord.
6. What do you think might happen if fluid were to build up excessively in one of the body cavities?
7. Explain why a woman's body can accommodate a full-term fetus during pregnancy, without damage to her internal organs.
8. Which body cavity does the needle enter in a lumbar puncture?
9. What are the names given to the three body cavity divisions where the heart is located?
10. What are the names given to the three body cavity divisions where the kidneys are located?
11. What is the name of the fluid that protects the brain and spinal cord?

Exercise 4.31. Read and translate the following words:

Pelvic; thigh; forearm; shoulder; girdle; approach; limb; thorax; superficial; chest; trunk; wrist; division; elbow; abdomen; stomach; intestine; knee, pelvic; thorax; wrist; elbow; hip; shoulder; leg; knee; superficial; limb; forearm; girdle; quadrant; pectoral; ankle; lower; associated; clinician.

Exercise 4. 32. Translate the following words into English:

Поділ, розподіл; лицьова частина; тулуб; черевна порожнина; пояс; передпліччя; коліно; гомілка; належати; тазовий; зап'ясток; нижня кінцівка; плече; серце; печінка; селезінка; кишківник; сечовий міхур; легені; відповідний.

UNIT V. SYSTEMS OF THE HUMAN BODY

UNIT 5.1. MUSCULAR-SKELETON SYSTEM

SKELETON

Speaking

1. What are the main parts of the skeleton?
2. Are there any differences between the skeletons of the male and the female?
3. What is the major function of the skeleton?
4. What are the important parts of the musculoskeletal system?
5. What types of dislocations and fractures do you know?

Active Vocabulary

vary	відрізнятися
ulna	ліктьова кістка
fuse	об'єднуватися, з'єднуватися
radius	променева кістка(передпліччя)
vertebral column	хребетний стовп
carpal	зап'ястковий
vertebra (pl. vertebrae)	хребець
metacarpal	п'ястковий
thoracic cage (rib cage)	грудна клітка
digit	палець
cranial vault	склепіння черепа
phalange	фаланга
auditory ossicle	слухова кісточка

pectoral girdle	плечовий пояс
protect	захищати; оберігати; підтримувати
coxa (pl. coxae)	кульша; кульшовий суглоб
ilium	клубова кістка
ischium	сіднична кістка
pubis	лобкова кістка
costal	реберний
femur	стегнова кістка
sternum	грудина
prominent	виступаючий, такий, що видається над рівнем чогось
floating rib	коливне ребро
tibia	великогомілкова кістка
manubrium	ручка, структура або частина, що нагадує держак
cervical	шийний
scapula	лопатка
lumbar	поперековий
shoulder blade	лопатка
sacral	крижовий
clavicle	ключиця
occygeal	куприковий
collar bone	ключиця
spinal cord	спинний мозок
pelvic girdle	пояс нижньої
sacrum	крижі, крижова кістка
patella	наколінок
xiphoid process	мечоподібний відросток грудини, ксифістернум
fibula	малогомілкова кістка

articulate	з'єднувати; шарнірно сполучати
grasp	схоплювання; міцне стиснення
tarsal bone	зап'єснова кістка
humerus	плечова кістка
metatarsal bones	плєснові кістки
cubital joint	ліктьовий суглоб

Exercise 5. 1. Read Active Vocabulary and memorize new words.

Exercise 5. 2. Translate the following words and word-combinations into Ukrainian:

Cranial vault; carpal; sacral; cervical; lumbar; vertebral column; thoracic cage; pectoral girdle; pelvic girdle; spinal cord; shoulder blade; collar bone; metatarsal bone; tarsal bone; ulna; radius; xiphoid process; fuse; coccygeal; vertebra; protect; sacrum; ilium; sternum.

Exercise 5.3. Read the following words and word-combinations:

Average; decrease; fuse; skull; vertebra; column; vault; auditory ossicle; thoracic; lumbar; support; major; muscle; sternum; xiphoid process; limb; touch; humerus; cubital joint; ulna; radius; carpal bone; girdle; scapula; clavicle; sacrum; coxa; femur; tibia; patella; fibula; articulate; tarsal bones.

Exercise 5. 4. Read and translate the following text:

SKELETON

There are 206 bones in the average adult skeleton, although the actual number varies from person to person and decreases with the age as some bones become fused.

The skeleton is divided into the skull, vertebral (spinal) column, thoracic cage, upper and lower limbs and the girdles that attach the limbs to the body.

The skull is composed of 28 bones. These bones are organized into cranial vault, facial bones, and auditory ossicles.

The vertebral column usually consists of 33-34 bones. They are divided into five regions.

There are 7 cervical vertebrae, 12 thoracic vertebrae, 5 lumbar vertebrae, 5 sacral vertebrae, and 4-5 coccygeal vertebrae. The vertebral column performs some major functions: it supports the weight of the head and trunk, it protects the spinal cord, it provides a site for muscle attachment, and it permits movement of the head and trunk.

The thoracic cage, or rib cage, protects the internal organs within the thorax. It consists of the thoracic vertebrae, the ribs with their associated costal (rib) cartilages, and the sternum (breastbone). Each rib consists of the head, the neck, and the body. Twelve pairs of ribs attach to the thoracic vertebrae. The sternum, or breastbone, is composed of the manubrium, the body, and the xiphoid process.

The human upper limb is capable of a wide range of movements, including lifting, grasping, and touching. The arm (the portion of the upper limb from the shoulder to the elbow) contains only one bone, the humerus. Between the arm and forearm there is a cubital (elbow) joint. The forearm has 2 bones, the ulna on the medial side of the forearm and the radius on the lateral side of the forearm. The wrist is a relatively short region between the forearm and hand and is composed of 8 carpal bones. The hand consists of five metacarpal bones. The pectoral, or shoulder, girdle attaches the upper limb to the body. It consists of two bones: the scapula, or shoulder blade, and the clavicle, or collar bone.

The lower limb is very similar to that of the upper limb, except the pelvic girdle. It is attached much more firmly to the body than is the pectoral girdle. The bones in general are thicker, heavier, and longer than those of the upper limb. The pelvic girdle supports the weight of the body and protects internal organs. The male pelvis usually is more massive than the female pelvis as a result of the greater weight and size of the male. Pelvic girdle is formed by the sacrum and paired bones, called the coxae, or hip bones. The thigh contains a single bone, the femur, which has a prominent rounded head. The femur articulates with the coxa, the tibia, and the patella. The knee joint is a joint located between the femur and the

tibia. The leg (the portion of the lower limb between the knee and the ankle) consists of the two bones, the tibia and the fibula. The tibia supports most of the weight of the leg. The fibula doesn't articulate with the femur but has a small proximal head where it articulates with the tibia. The ankle consists of seven tarsal bones. The ankle is relatively much larger than the wrist. The foot consists of five metatarsal bones.

Exercise 5. 5. Translate the following words and word-combinations into English:

З'єднувати; сполучати, шарнірно; палець; фаланга; плечова кістка; відрізнятись; ключиця; дозволяти, давати можливість; реберний; великогомілкова кістка; наколінок; сіднична кістка; малогомілкова кістка; кульша; хребець; шийний; грудина; ребро.

Exercise 5. 6. Complete the following sentences:

1. Approximately 206 bones _ in the adult skeleton. 2. The _ is divided into the skull, vertebral (spinal) column, thoracic cage, upper and lower limbs and the girdles. 3. The skull _ of 28 bones. 4. They are divided into _, facial bones and auditory ossicles. 5. The bones of vertebral column are cervical vertebrae, thoracic vertebrae, _ vertebrae, sacral bone, and coccygeal bone. 6. The vertebral column _ the weight of the head and trunk, protects the spinal cord, and _ movement of the head and trunk. 7. The thoracic cage protects the _ organs. 8. It consists of the thoracic vertebrae, the ribs, and the _ . 9. The upper limb consists of the humerus, _ joint, the ulna, and the radius. 10. The five _ of each hand include one thumb and four fingers. 11. Each digit consists of small long bones called _ . 12. Each finger has 3 phalanges, and the thumb _ two ones. 13. The pelvic _ supports the weight of the body. 14. The thigh contains the _ . 15. The knee is the _ located between the femur and the tibia. 16. The leg consists of the _ and the fibula. 17. The ankle consists of _ bones. 18. Each _ is formed by the fusion of the ilium, the ischium, and the pubis. 19. The toes of lower limb have three phalanges each except for the big _, which has two phalanges.

Exercise 5. 7. Answer the following questions:

1. What parts is the skeleton divided into?
2. What portions does the skull consist of?
3. What is the vertebral column composed of?
4. What are the functions of the vertebral column?
5. What is the major function of the thoracic cage?
6. What does the thoracic cage consist of?
7. What is the upper limb capable of?
8. What bones are in the upper limb?
9. What are the bones of the lower limb?

Exercise 5. 8. Speak on the anatomy of the skeleton:

Vertebral column: cervical vertebrae; thoracic vertebrae; lumbar vertebrae; sacral bone; coccygeal bone.

Thoracic cage: thoracic vertebrae; costal cartilages; sternum (breastbone); manubrium; xiphoid process; ribs.

Upper limb: pectoral girdle; humerus; cubital joint; ulna; radius; carpal bones; metacarpal bones.

Lower limb: pelvic girdle; femur; tibia; patella; fibula; tarsal bones; metatarsal bones.

Exercise 5. 9. Read the following abstract and retell it:

The skeleton consists of the skull, the spine, the ribs, the sternum (breastbone), two limb girdles (the shoulders and pelvis) and their attached limb bones. There are only minor differences between the skeletons of the male and the female: the men's bones tend to be larger and heavier than corresponding women's bones and the women's pelvic cavity is wider to accommodate childbirth.

The skeleton plays an important part in movement. It also supports and protects the internal body organs. The skeleton is not just a movable frame, however; it is an efficient factory, which produces red blood cells from the bone marrow of certain bones and white cells from the marrow of other bones to destroy harmful bacteria. The bones are also a storehouse for minerals – calcium, for example – which can be supplied to other parts of the body. Babies are born with

270 soft bones –about 64 more than an adult; and many of these will fuse together by the age of twenty or twenty-five into the 206 hard, permanent bones.

Exercise 5. 10. Translate the following sentences into English:

1. Скелет дорослої людини складається приблизно з 206 кісток. 2. Скелет складається з черепа, хребетного стовпа, грудної клітки та верхніх і нижніх кінцівок. 3. Склепіння черепа, лицьові кістки та слухові кісточка є кістками черепа. 4. Хребет складається з шийних, грудних, поперекових, крижових хребців та крижової кістки. 5. Хребетний стовп захищає спинний мозок. 6. Грудна клітка підтримує та захищає внутрішні органи. 7. Грудна клітка складається з грудних хребців, ребер, реберних хрящів та грудини. 8. Основна частина грудної клітки складається з ребер. 9. Кожне ребро має голівку, шийку та тіло. 10. Грудина – це довга кістка всередині грудної клітини. 11. Як правило, хребець складається з тіла, дуги та відростка. 12. Верхня кінцівка складається з плечової кістки, ліктьового суглоба, ліктьової кістки та променевої кістки. 13. Зап'ясток складається з зап'яткових кісток. 14. Кисть складається з п'яти п'яткових кісток. 15. Тазовий пояс підтримує вагу тіла та захищає внутрішні органи від пошкоджень. 16. Коліно – це суглоб, розташований між стегном та великою гомілковою кісткою. 17. Гомілка складається з великої гомілкової кістки та малогомілкової кістки.

Exercise 5. 11. Read the following words and try to memorize them:

epiphysis	епіфіз
epiphyseal line	епіфізарна лінія
cartilage	хрящ
compact bone	компактна кісткова тканина
cancellous bone	сітчаста кістка, губчаста кісткова речовина
spongy bone	губчаста кісткова речовина
matrix	матрикс, основа, міжклітинний матеріал
cavity	порожнина
medullary	медулярний, мозковий; серцевинний

sinus	пазуха
approximately	близько, приблизно
marrow	кістковий мозок
periosteum	окістя, надкісниця
dense	щільний, густий
diaphysis	діафіз, середня частина трубчастої кістки.

5.1.2. TRAUMAS OF SKELETAL SYSTEM

Active Vocabulary

fracture	перелом
dislocation	вивих, зміщення
sprain	розтягнення, ушкодження зв'язок
strain	розтягнення, деформація
injury	ушкодження, рана, забиття
tearing	розрив, порушення цілості структури
stretch	розтягування, розтягнення
break	ушкодження, перелом
crack	тріщина, щілина
splint	накладати шину; шина
accompany	супроводжувати
damage	пошкодження; ураження; порушення
severe	сильний, тяжкий
bleeding	кровотеча
victim	жертва, потерпілий
lower back	поперек
torn	розірваний
pull	розтягнення
swelling	опухання, припухлість

bruising	ушкодження, забиття
vehicle	транспортний засіб

Exercise 5. 12. Compose 3-4 sentences using the words of Vocabulary.

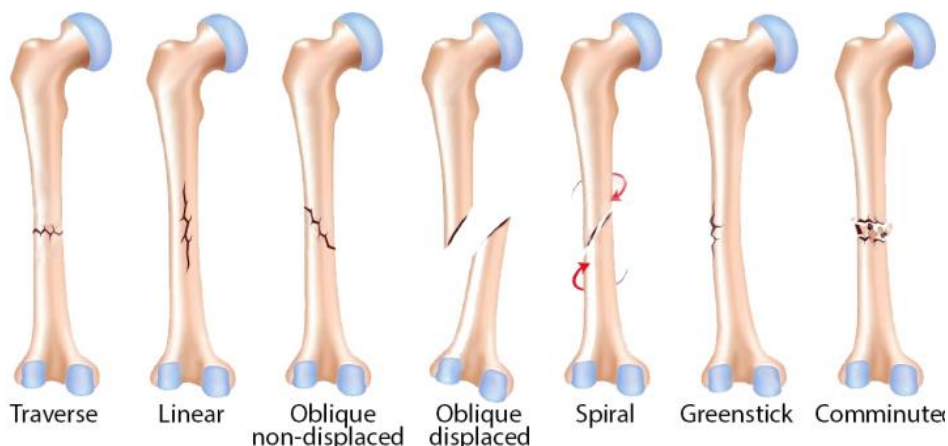
Exercise 5. 13. Translate the following words and word-combinations into Ukrainian:

Swelling; tendon; severe; stretch; strain; internal; fracture; dislocation; bleeding; ligament; pull; painful; injury; cause; accompany; bruising; involve; sprain; tearing; lower back; separate; damage; closed fracture; displace.

Exercise 5. 14. Read the following words:

Fracture; occur; injury; accident; ligament; musculoskeletal; motor-vehicle; call; define; involve; severe; break; damage; victim; sign; lower; either; wound; accompany; fall; position; bruising; accompanied; injury; partial.

Exercise 5.15. Read the following text:



FRACTURES, DISLOCATIONS, SPRAINS, AND STRAINS

The musculoskeletal system consists of the bones, muscles, ligaments, and tendons. Fractures, dislocations, sprains, and strains are injuries that occur to the musculoskeletal system.

Fractures. Fractures are breaks or cracks in bones. They are defined as either closed or open. Closed fractures leave the skin unbroken. They are more common than open fractures. An open fracture involves an open wound. Open fractures are more serious than closed fractures because of the risks of infection and severe

bleeding. Fracture of a large bone can cause severe shock because bones and soft tissue may bleed heavily.

Fractures can be accompanied by internal injuries. For example, victims with fractured ribs can also have injuries to the lungs, kidneys, or liver. Fractures can be caused by motor-vehicle accidents, falls, blows, sports injuries, or bone diseases.

Dislocations. A dislocation is an injury in which a bone is displaced from its normal position at a joint. A dislocation may involve damage to the ligaments around the joints. Dislocations can be caused by falls, sports injuries, motor-vehicle accidents, underlying disease (such as rheumatoid arthritis) and others.

Sprains. A sprain is the partial or complete tearing of ligaments and other tissues at a joint. The more ligaments are torn, the more severe the injury. Sprain most commonly occurs in joints of the ankles and knees. Like dislocations, sprains can be caused by falls, sports injuries, and motor-vehicle accidents.

Strains. A strain is a stretching and tearing of muscle or tendon fibers. It is sometimes called a "muscle pull" or "tear". Strains are often caused by lifting something too heavy. They often occur in the neck or back. Strains of the neck or lower back can be very painful.

The signs of fractures, dislocations, sprains, and strains. The signs of these injuries are very similar. Five common signs of musculoskeletal injuries are pain, swelling, deformity, bruising of the skin, and inability to use the affected part normally.

Exercise 5. 16. Translate the following words and word-combinations into English:

Поперек; розірваний; розрив, порушення цілісності структури; зв'язка; припухлість; розтягнення; пошкодження, забиття; внутрішній; тріщина, щілина; супроводжувати; спричиняти; кровотеча; перелом; сухожилля.

Exercise 5. 17. Translate the text "Fractures, Dislocations, Sprains, and Strains" into Ukrainian.

Exercise 5. 18. Answer the questions:

1. What does the musculoskeletal system consist of? 2. What are fractures, dislocations, sprains and strains? 3. Give the definition to the medical term "fracture". 4. What kinds of fractures do you know? 5. What are the causes of fractures? 6. What is a dislocation? 7. What are the common causes of dislocations? 8. What do you know about sprains? 9. Define the term "strain". 10. What are the causes of strains? 11. What are the common signs of fractures and dislocations?

Exercise 5. 19. Read the following text and speak on the purposes of splinting and the basic principles of splinting:

FIRST AID

Sometimes it is difficult to tell whether an injury is a fracture, dislocation, sprain, or strain. Since you cannot be sure which of these a victim might have, always care for it as a fracture. If ambulance car is on the way, do not move the victim. Control any bleeding first. Care for shock, and monitor Airway Breathing Circulation (ABCs). If you are going to transport the victim to a medical facility, follow this general rule: "When in doubt, splint."

Splinting. Splinting is a process of immobilizing a suspected fracture.

Materials that can immobilize a fractured bone and the joints above and below it can be used to splint. (Examples are rolled-up newspapers, magazines, and pieces of wood.) Commercial splints are also available.

The purposes of splinting are:

- To immobilize a possibly fractured part of the body.
- To lessen pain.
- To prevent further damage to soft tissues.
- To reduce the risk of serious bleeding.
- To reduce the possibility of loss of circulation in the injured part.
- To prevent closed fractures from becoming open fractures.

The basic principles of splinting are –

- Splint only if you can do it without causing more pain and discomfort to the victim.

- Splint an injury in the position you find it.
- Apply the splint so that it immobilizes the fractured bone and the joints above and below the fracture.
- Check circulation before and after splinting.

If there are no splinting supplies available, splint the broken part of the body to another part. For example, a broken arm can be splinted to the chest. A fractured leg can be splinted to the other, uninjured leg.

If the injury is a closed fracture, dislocation, sprain, or strain, apply a cold pack. Do not apply a cold pack to an open fracture. This would require you to put pressure on the wound and may cause discomfort to the victim.

Next, elevate the injured area. Do not attempt to elevate a part you suspect is fractured until it has been splinted.

For any of these injuries, care for shock and monitor ABCs.

Exercise 5. 20. Translate the following sentences into English:

Перелом – це пошкодження кістки або хряща кістки. Переломи поділяються на відкриті та закриті. Перелом кістки може викликати сильну кровотечу або шок. При переломі ребер можуть бути пошкоджені внутрішні органи людини, наприклад, легені, нирки, селезінка або печінка. Кажуть, що вивих менш небезпечний у порівнянні з переломом. Я з цим не погоджуюсь. При багатьох вивихах виникають серйозні ускладнення. Основні причини переломів та вивихів – це травми, отримані в результаті дорожньо-транспортних пригод.

Exercise 5. 21. Read the dialogue:

AT THE TRAUMATOLOGIST'S

Traumatologist: What is wrong with you?

Patient: I have a severe pain in my leg.

T.: Let's me examine your leg. How did the injury occur?

P.: I have fallen down.

T.: How long is it since the injury occurred?

P.: Two days.

T.: Does it hurt when I touch here?

P.: Yes, it does.

T.: Where is the pain more acute, here or there?

P.: Here it is.

T.: Bend your leg.

P.: It is very painful.

T.: Could you stand on your injured leg immediately following injury?

P.: No, I couldn't.

T.: I suppose you have a fracture. Do you agree to be hospitalized?

P.: No, I don't.

T.: You will be treated in the out-patient department. It is necessary to X-ray your leg. I'll put a plaster of Paris. I'll give an injection with antitetanic serum. Do massage your leg, train your toes with a little exercise.

P.: When will you remove a plaster of Paris?

T.: I think it will be in a month. You must not engage in hard physical labour for 3 months.

P.: What medicines must I take?

T.: I'll prescribe you some drugs and vitamins for the improvement of your general health condition.

5.1. 3. MUSCULAR SYSTEM

Active Vocabulary

fiber	волокно
contractile	який стискає, стискувальний; скорочувати(ся)
pectoral muscle	грудний м'яз
brachial	брахіальний, плечовий
smooth	гладкий, непосмугований
refer	мати відношення, стосуватися
locomotion	рух
gluteal	глютеальний, сідничний

deltoid muscle	дельтоподібний м'яз
expression	вираз
posture	статура, постава
triangular	трикутний
propel	рухати
orientation	спрямування
dilate	розширяти(ся)
oblique	косий
constrict	скорочувати
pupil	зіниця
longitudinal	поздовжній
biceps	біцепс, двоголовий м'яз
force	сила, зусилля; нагнітати
abductor	відвідний м'яз
extend	простягати(ся), тягнути(ся)
buttock	сідниця
cross	пересікати(ся), перехрещуватися
move away	відводити

Exercise 5.22. Translate the following words and word-combinations into Ukrainian:

Contractile; smooth; associated; to be divided into; comprise; weight; locomotion; posture; propel blood through vessels; dilate; trunk; constrict; provide; force; spontaneously; cross; at least; cause; pectoral muscle; to be attached; extend; brachial; refer; buttock; gluteal; triangular; oblique; longitudinal; biceps; abductor.

Exercise 5.23. Read the following words and word-combinations:

Fiber; muscle; muscular; characterize; contractile; mass; major; associated; comprise; weight; locomotion; posture; propelling; through; stomach; dilate; constrict; provide; force; spontaneously; at least; cause; pectoral muscle; brachial;

refer; buttock; gluteal; triangular; oblique; longitudinal; biceps; abductor; structure; variety; however.

Exercise 5.24. Read and translate the following text:

MUSCLES

There are 650 muscles in the human body. The muscles are fibers, characterized by their contractile abilities. The muscle consists of the muscular fibers connected together by connective tissue. Blood vessels and nerves are in the muscle. Muscles contraction and relaxation causes most body movements. The muscles are subdivided into three groups. These groups are the muscles of the trunk, head, and limbs.

As for the structure the muscles are divided into three major parts: skeletal, cardiac, and smooth. Skeletal muscle with its associated connective tissue comprises approximately 40% of the body's weight and is responsible for facial expressions, posture, and many body movements. Its function is controlled by our consciousness. Smooth muscles are in the walls of hollow organs and tubes, in the internal portions of the eyes, in walls of blood vessels, and in other areas. Smooth muscles perform a variety of functions, including propelling urine through the urinary tract, mixing food in the stomach and intestine, dilating and constricting the pupil, and the regulation of blood flow through blood vessels. Cardiac muscles are found only in the heart, and their contractions provide the major force for propelling blood through the circulatory system. Unlike skeletal muscles, smooth and cardiac muscles contract spontaneously.

As for the form of the muscles they can be long, short, and wide. The long muscles form the limbs, the short ones compose the facial part, and the wide muscles form the walls of the body cavities.

Muscles are attached to bones, internal organs, and blood vessels. Most skeletal muscles extend from one bone to another and cross at least one joint. Some muscles of the face, however, are not attached to bone at both ends but they are attached to the skin, which moves when the muscles contract.

Muscles are named according to their location, size, number of heads, or function.

Location. Some muscles are named according to their location. For example, a pectoral (chest) muscle is located in the chest, and a brachial (arm) muscle is located in the arm.

Size. Muscle names may also refer to the size of the muscle. For example, the gluteus maximus (large) is the largest muscle of the buttock, and the gluteus minimus (small) is the smallest muscle of the gluteal group.

Shape. Some muscles are named according to their shape: the deltoid (triangular) muscle is triangular.

Orientation. Muscles are also named according to the structure of their fibers: an oblique muscle lies oblique to the longitudinal axis of the body.

Number of heads. The number of heads, which a muscle has, may also be used in naming the muscle. A biceps muscle has two heads.

Function. Muscles are also named according to their function. An abductor moves a structure away from the midline.

Exercise 5. 25. Translate the following words and word-combinations into English:

Скорочуватись; скорочувальна здатність; м'язові волокна з'єднуються разом; гладкий м'яз; супутня з'єднувальна тканина; рух; вираз обличчя; розширюватися; спонтанно скорочуватись; на відміну від скелетних м'язів; простягатися, тягнутися; називатися у відповідності з; грудний м'яз; плечовий м'яз; глутеальний м'яз; дельтоподібний м'яз; біцепс; косий м'яз; поздовжня вісь; у відповідності з напрямком; лежати (знаходитися) під нахилом до; відвідний м'яз.

Exercise 5. 26. Answer the following questions:

1. What does a muscle consist of?
2. What major muscle groups do you know?
3. What are skeletal muscles responsible for?
4. Where are smooth muscles located?

5. What are the functions of smooth muscles?
6. Where is a cardiac muscle?
7. What is its function?
8. Where are long and short muscles?
9. Where are wide muscles located?
10. What muscles' names do you know?

Exercise 5.27. Complete the following sentences:

Muscles of the Upper Limb

1. The muscles of the human body are characterized by _.
2. The muscles consist of the muscular fibers and contain _.
3. Skeletal muscles with their associated connective tissue are responsible for _.
4. Smooth muscles are located in the walls of blood vessels and hollow organs, _ and other body regions.
5. Smooth muscles propel urine through the urinary tract, mix food in the intestine and stomach, _ and perform many other functions.
6. The contractions of cardiac muscles provide the major force for _.
7. Some facial muscles are not attached to bone _.
8. The most muscles are named according to their _.
9. The largest muscle of the buttock is _.
10. The deltoid muscle has _ shape.
11. An oblique muscle lie oblique to the _.
12. The long muscles compose _.
13. The short muscles form the _ part.
14. Muscles are attached to bones, _ , and blood vessels.

Exercise 5.28. Compose the sentences using the following words and word-combinations:

1. divided / are / smooth / into / and / cardiac / the muscles / skeletal / muscles.

2. of / the skeletal / muscles / functions / are / by / controlled / the nervous system.

3. is / cardiac muscle / in / the heart.

4. contract / and / cardiac / smooth / muscles / spontaneously.

5. skeletal muscles / from / extend / bone / one / to another.

6. cause / muscle contractions / body movements / most .

7. of / some muscles / the face / are attached / to / the skin.

8. a pectoral muscle / located / is / the chest / in .

9. the arm / muscle / is / a brachial / found / in .

10. muscles / various / have / of / number / heads.

11. a biceps / muscle / two / has / heads.

12. skeletal / the trunk / move / the head / and / muscles / the limbs.

13. propel / through / the cardiac muscles / blood / vessels. 14. through / smooth / force / food / muscles / the digestive system.

Exercise 5.29. Translate the following sentences into English:

1. У тілі людини знаходиться близько 650 м'язів. 2. М'яз складається з м'язових клітин. 3. Кожен м'яз містить кров'яні судини та нерви. 4. М'язи поділяються на три групи: скелетні, гладкі та серцеві м'язи. 5. Скелетні м'язи призводять до руху тулуб, голову та кінцівки. 6. Серцевий м'яз сприяє руху крові по судинам. 7. Гладкі м'язи просувають їжу по травній системі. 8. Серцеві та гладкі м'язи скорочуються спонтанно. 9. М'язи прикріплюються до кісток за допомогою сухожилків. 10. Більшість скелетних м'язів простягаються від однієї кістки до іншої. 11. Деякі м'язи обличчя прикріплюються до шкіри, яка приходить у рух тоді, коли скорочуються м'язи. 12. Довгі м'язи знаходяться у кінцівках, короткі м'язи утворюють лицьову частину, а широкі м'язи формують стінки порожнин тіла.

Exercise 5.30. Make up a dialogue on muscles.

5.2.1. CIRCULATORY (CARDIOVASCULAR) SYSTEM

Speaking

1. What are the main organs of cardiovascular system?
2. How does blood move through the circulatory system?
3. What does the blood consist of?
4. What are the main functions of blood?
5. What blood types do you know?

Part 1. BLOOD

Active Vocabulary

1. connective tissue	сполучна тканина
2. clot	згусток крові, тромб
3. waste products	відходи, продукти розпаду
4. cell fragments	фрагменти клітин
5. corpuscles	тільця
6. platelet (thrombocyte)	тромбоцити
7. leukocyte (white blood cells)	лейкоцити (білі кров'яні тільця)
8. erythrocyte (red blood cells)	еритроцити (червоні кров'яні тільця)
9. dissolved component	розчинений компонент
10. nutrient	поживна речовина
11. total weight	загальна вага
12. total blood volume	загальний об'єм крові
13. approximately	приблизно
14. enzymes	ферменти
15. fluid balance	баланс рідини
16. blood loss	крововтрата
17. albumin	альбумін
18. globulin	глобулін

19. fibrinogen	фібриноген
20. serum	сироватка

Exercise 5. 31. Translate the following words and word-combinations into Ukrainian:

Connective tissue; corpuscle; pale yellow fluid; clot-producing; platelet; fluid matrix; remaining fluid; average adult; however; waste products; maintenance; suspended molecules; to protect against; remove; site of infection; slightly; more than half; body's total weight; total blood volume; approximately; to be classified; corpuscles; platelet; hormone; enzyme; leukocyte; thrombocyte; erythrocyte; plasma; dissolved component; nutrient; formed elements; major category.

Exercise 5. 32. Read and translate the following text:

BLOOD

Blood is classified as a connective tissue, consisting of cells and cell fragments surrounded by a liquid matrix. The total blood volume in the average adult is approximately 4 to 5 L in females and 5 to 6 L in males. Blood makes up approximately 8% of the body's total weight.

The cells and cell fragments are the formed elements, and the fluid matrix is the plasma. The formed elements of the blood include several types of highly specialized cells and cell fragments. They are grouped into three major categories. Approximately 95% of the volume of the formed elements consists of erythrocytes (red blood cells or corpuscles). The remaining 5% consists of leukocytes (white blood cells or corpuscles) and platelets (cell fragments), which are also called thrombocytes.

Plasma is a pale yellow fluid accounting for slightly more than half the total blood volume and consisting of approximately 92% water and 8% dissolved or suspended molecules. Plasma contains proteins such as albumin, globulin, and fibrinogen. When the proteins that produce clots are removed from the plasma, the remaining fluid is called serum. In addition to the suspended molecules, plasma also contains a number of dissolved components such as salts, nutrients, gases,

waste products, hormones, and enzymes. Water enters the plasma from the digestive tract, from interstitial fluids, and as a by-product of metabolism. Excess water is removed from the plasma through the kidneys, lungs, intestinal tract, and skin. Solutes in the plasma come from several sources such as the liver, kidneys, intestines, endocrine glands, and immune tissues such as the spleen.

The functions of the blood can be placed into the categories of transportation, maintenance, and protection. Blood transports gases, nutrients, waste products, and hormones. It is involved in the regulation of homeostasis and the maintenance of pH, body temperature, fluid balance, and electrolyte level. Blood protects against diseases and blood loss.

Exercise 5. 33. Translate the following words and word-combinations into English:

Розчинені компоненти; вага тіла людини; загальний об'єм крові; утворювати згустки; міжклітинний матеріал; ферменти; сироватка; складатися з; включати кілька типів; поділятися на; червоні кров'яні тільця; кров'яні пластинки; білі кров'яні тільця; поживні речовини; транспортувальна функція; захисна функція; білки; видаляти.

Exercise 5. 34. Complete the following sentences:

1. Blood is a type of _ tissue whose cells are suspended in a liquid intracellular material. 2. Blood consists of a liquid portion called _ and a solid portion. 3. This portion also named as the cellular fraction includes _, _, _. 4. _ are essential for the clotting of blood. 5. _ are the most numerous blood cells. 6. The blood plays an important role in _ homeostasis.

Exercise 5. 35. Answer the following questions:

1. What type of tissue is the blood? 2. What is the total blood volume in an average adult? 3. What does the blood consist of? 4. What is the plasma? 5. What does the plasma contain? 6. What is blood serum? 7. What major categories are the formed elements grouped into? 8. What blood cells are the most numerous? 9. What are the major functions of the blood?

Exercise 5. 36. Choose the proper terms from the box for the definitions.

There are two extra words.

thrombocytes, serum, corpuscles, erythrocytes, lymphocytes, plasma, iron, protein

1. Liquid portion of blood containing water, proteins, salts, nutrients, hormones, vitamins.
 2. Tiny cells, which are necessary for blood clotting.
 3. These cells are biconcave disks made in the bone marrow, they transport oxygen.
 4. Plasma minus the clotting proteins and clotting cells.
 5. “Little body” refers to blood cells.
 6. This substance is necessary for the synthesis of hemoglobin, is absorbed from small intestines; insufficiency of this substance may result in anemia.
- thrombocytes, serum, corpuscles, erythrocytes, lymphocytes, plasma, iron, protein.

Exercise 5.37. Translate the following sentences without using a dictionary:

1. Red blood cells are tiny, biconcave disks that are thin near their centers and thicker around their rims.
2. This special shape is related to the red cell’s function of transporting gases.
3. Each red blood cell is about one-third hemoglobin by volume, and this substance is responsible for the color of the blood.
4. The number of red blood cells varies from time to time even in healthy individuals, the normal range for adult males is 4.2 to 5.8 million cells per mm³, and that for adult females is 3.6 to 5.2 million cells per mm³.
5. After an infant is born, the red blood cells are produced almost exclusively by the tissue that lines the spaces within the red bone marrow.
6. White blood cells function primarily to control various disease conditions.
7. Normally, five types of white cells can be found in the circulating blood.
8. They are distinguished by their size, the nature of their cytoplasm, the shape of their nucleus, and their staining characteristics.
9. The procedure used to count white blood cells is similar to that used for counting red cells. Normally, there are from 5.000 to 10.000 white cells per mm³ of human blood.
10. Since the

total number of white blood cells may change in response to abnormal conditions, white blood cells count is of clinical interest.

Exercise 5.38. Are these statements true (T), false (F)? Write true sentences.

1. Blood can be separated into solid and liquid portions. (T/F)
2. The solid cellular portion is mostly white blood cells. (T/F)
3. Red blood cells function to control disease conditions. (T/F)
4. The plasma proteins are classified into three major groups: albumins, globulins, and fibrinogens. (T/F)
5. Total blood volume does not vary by the sex (male or female). (T/F)

5.2. 2. CIRCULATORY (CARDIOVASCULAR) SYSTEM

Active Vocabulary

	Word	Translation
.	circulatory	кровоносний, пов'язаний з кровообігом
.	blood	кров
.	to mean	означати
.	artery	артерія
.	vein	вена
.	capillary	капіляр
.	chamber	порожнина (серця)
.	atrium	передсердя (атріум)

.		
.	heart	серце
0.	auricle	передсерцеве вушко
1.	ventricle	шлуночок (серця)
2.	valve	клапан (серця)
3.	tricuspid valve	клапан тристулковий (передсерцевошлуночковий правий)
4.	mitral valve	мітральний, двостулковий клапан (передсерцевошлуночковий лівий)
5.	septum	перегородка (серця)
6.	vessel	судина
7.	systole	систола (серця)
8.	diastole	розширення серця
9.	hypertension	гіпертензія
0.	hypotension	гіпотензія
1.	lung	легеня

2.	aorta	аорта
3.	fluid	рідина
4.	plasma	плазма
5.	vascular	судинний
6.	humor	рідина (тканини) кровообіг
7.	bloodstream	
8.	hemoglobin	гемоглобін – пігмент крові людини
9.	carbon dioxide	вуглекислий газ
0.	oxygen	кисень
1.	corpuscle	тілце
2.	naked eye	неозброєне око
3.	continuous circulation	постійна церкуляція

Exercise 5.39. Read and memorize the given expressions and their Ukrainian equivalents. You will come across these expressions in the following text and they will be useful to understand it better.

1. It can be thought as – це може вважатись
2. The only route of communication – єдиний спосіб сполучення, з'єднання

3. To be supplied with smth. – постачатись чимось
4. To distribute smth. by means of smth. – розподіляти щось шляхом ...
5. To form a close net-work – утворювати компактну сітку
6. Gradually joining together – поступово з'єднуючись
7. Too small to be seen – надто малі, щоб бути поміченими
8. To convert food to energy – перетворювати їжу на енергію

Exercise 5.40. Translate the following words and word-combinations into Ukrainian.

The system of blood circulation; the cardiovascular system; the heart; the arteries; the veins; capillaries; hollow muscle; four chambers; valve separates chambers; route of communication between these two parts of the heart; two isolated pumps; to be supplied with oxygen; to receive blood from the veins; well-oxygenated blood; to distribute blood to the entire body; the lesser circulatory system; the greater circulatory system; the dissolved nourishment; to nourish something; the impurities from the tissues; a close net-work; to join gradually; a red fluid; blood coagulates when it escapes.

Exercise 5.41. Match the words with their definitions.

1. Heart	a) a system of organs that includes the heart, blood vessels, and blood which is circulated throughout the entire body of a human
2. aorta	b) two large veins (great vessels) that return deoxygenated blood from the body into the heart.
3. circulatory system	c) a blood vessel that carries blood away from the heart
4. vena cava	d) a blood vessel that carries blood towards the heart
5. pulmonary	e) the organ in your chest that sends the

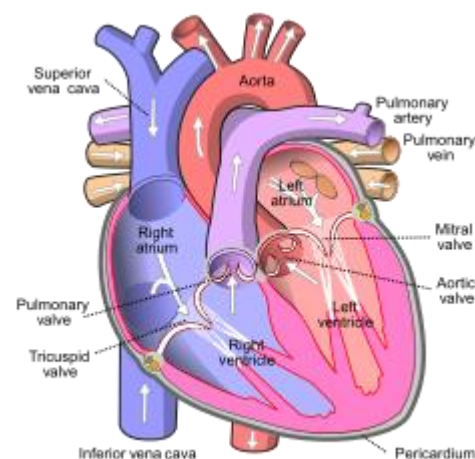
		blood around your body
6.	valve	f) having to do with the lungs
7.	capillary	g) a flap in a bodily system that allows passage of material in one direction but prevents passage in other direction
8.	artery	h) upper chamber of the heart that receive blood from the veins and push it down into the ventricles
9.	vein	i) the smallest kind of blood vessel in the body
10.	atrium	j) the main artery (thick tube carrying blood from the heart) that takes blood to the other parts of the body

Exercise 5.42. Read and translate the following text.

THE CIRCULATORY (CARDIOVASCULAR) SYSTEM

The cardiovascular system is the system of blood circulation. Hence, by the cardiovascular system is meant the heart, the arteries, the veins, and capillaries of the human body.

Basically, the heart is a hollow muscle located in the thoracic cavity between the lungs. The heart is responsible for the circulation of the blood. It is known that the heart is a pump. But it is an extraordinary pump. It weighs only about a pound but the heart of a healthy 70-kg person pumps about 7200 L of blood each day at rate of 5 L per minute. If the heart loses its ability to pump blood for even a few minutes, the life of the individual is in danger. The heart actually is divided into four chambers. The right heart consists of an upper chamber called an atrium (with the auricle) and a lower chamber called



a ventricle. Between these two chambers is a one-way valve, called the tricuspid valve. The left heart has two similar chambers, but the valve that separates its chambers is called the mitral valve. Although the heart is a unit, anatomically and functionally, it can be thought of as two isolated pumps – the “right heart” and the “left heart”. Normally the only route of communication between these two parts of the heart is the lung. The contraction of these muscles causes the blood to be pumped.

The right heart receives blood from the veins and pumps it into the lung by way of the lesser circulatory system. In the lung the blood is supplied with oxygen. Then it moves into the left heart. From the left heart the well-oxygenated blood is pumped into a large artery called the aorta, which distributes it to the entire body by means of the greater circulatory system. The blood is returned to the heart by means of the veins. A continuous circulation is thus kept up. The walls of the capillaries are so thin that the dissolved nourishment, which comes from the digestive system, and the oxygen, which comes from the lungs and is contained in the blood, can pass through them into the tissues of the body and so nourish it, while the impurities from the tissues are taken up by the capillaries and are carried away in the blood. The capillaries form a close net-work all over the body, and, gradually joining together and getting larger, they become veins.

The tissue of the heart consists of three layers. The exterior layer is the thin epicardium. The middle layer is the myocardium, the heart muscle itself. The inner lining of the heart is the endocardium, a thin, smooth structure. The pericardium is a fibrous sac that surrounds the heart. In the space between the pericardium and the epicardium there is a small amount of fluid. The heart rate varies depending on activity at any given moment. The control mechanism for the heart rate involves electrical impulses. One of the four chambers of the heart, the right atrium, contains a group of cells called the sinus node. The sinus node produces electrical impulses that signal the muscle of the heart to contract in the pumping cycle. When a person is at rest, the heart pumps more slowly and at a regular rate, about 60 to 80 beats per minute. When a person runs, climbs stairs, or otherwise exert yourself,

the sinus node issues electrical “instructions” to increase the pace of the heart in order to provide the muscles and other tissues with the necessary additional blood and its supply of oxygen. The heart rate may increase up to 200 beats per minute if you exert yourself strenuously. The heart rate may be affected by various factors including tobacco use, caffeine-containing foods, alcohol, and a number of drugs. In addition, the cardiac disorders may produce heart rate problems.

The blood is a red fluid, which coagulates when it escapes from a blood vessel. It consists of colorless fluid, called plasma or serum, and many millions of minute bodies, too small to be seen by the naked eye, which give the blood its color and substance, the corpuscles.

Exercise 5. 43. Put the sentences in the order they appear in the text.

.	The right heart consists of an upper chamber called an atrium and a lower chamber called a ventricle.	
.	The capillaries form a close net-work all over the body.	
.	The blood is returned to the heart by means of the veins.	
.	The blood is a red fluid, which coagulates when it escapes from a blood vessel.	
.	The right heart receives blood from the veins and pumps it into the lung	
.	The heart is a hollow muscle which is divided into four chambers.	
.	From the left heart the well-oxygenated blood is pumped into a large artery called the aorta.	
.	Between these two chambers is a one-way valve, called the tricuspid valve.	

.	The only route of communication between these two parts of the heart is the lung	
0.	The cardiovascular system is meant the heart, the arteries, the veins, and capillaries of the human body.	
1.	The exterior layer is the thin epicardium.	
2.	The control mechanism for the heart rate involves electrical impulses.	
3.	If the heart loses its ability to pump blood for even a few minutes, the life of the individual is in danger.	
4.	When a person is at rest, the heart pumps more slowly and at a regular rate	
5.	It weighs only about a pound but the heart of a healthy 70-kg person pumps about 7200 L of blood each day.	

Exercise 5.44. Complete the sentences with the words and phrases given below.

Circulatory system carries 1) _____ in blood to all parts of the body. Blood begins its journey in 2) _____, which beats 3) _____ it to the rest of the body. 4) _____ control how blood moves through the heart. Blood picks up oxygen in 5) _____ by traveling through the pulmonary artery. It then leaves the heart through 6) _____, the body's largest artery. Blood flows throughout the body in 7) _____. At the end of arteries are tiny 8) _____. Here, oxygen moves to parts of the body. 9) _____ without oxygen returns to the heart in veins. The largest of these, the vena cava, empties into the heart's right 10) _____. Then the cycle can begin again.

(Valves; blood; to pump; the aorta; the lungs; capillaries; atrium arteries; the heart; oxygen)

Exercise 5.45. Are these statements true (T), false (F)? Give true sentences.

1. The respiratory system is the system of blood circulation. (T/F)

2. The heart is a hollow muscle which is divided into five equal chambers. (T/F)
3. The heart of a healthy 70-kg person pumps about 5 L of blood per minute. (T/F)
4. The control mechanism for the heart rate involves electrical impulses. (T/F)
5. Between upper and lower chambers is a one-way valve, called the tricuspid valve. (T/F)
6. The valve that separates chambers is called the artery. (T/F)
7. The only route of communication between these two parts of the heart is the brain. (T/F)
8. Blood travels through the aorta to the lungs. (T/F)
9. Oxygen leaves blood through capillaries. (T/F)
10. The vena cava is the largest artery in the body. (T/F)
11. Vein is the smallest kind of blood vessel in the body. (T/F)
12. The blood is a colorless fluid, which coagulates when it escapes from a blood vessel. (T/F)
13. The walls of the capillaries are so thin that the dissolved nourishment, which comes from the circulatory system. (T/F)
14. The cardiac disorders don't produce heart rate problems. (T/F)
15. The blood is returned to the heart by means of the arteries. (T/F)

Exercise 5.46. Read the text again. Answer these questions.

1. What does circulatory system consist of?
2. How does blood move through the circulatory system?
3. What is heart? What is its function?
4. What is the structure of the right heart?
5. What happens if the heart loses its ability to pump blood for even a few minutes?
6. What is the structure of the left heart?

7. What is the only route of communication between these two parts of the heart?
8. Does blood without oxygen return to the left or right atrium?
9. How many beats does the heart make per minute?
10. What part of heart receives blood from the veins and pumps it into the lung by way of the lesser circulatory system?
11. What is the sinus node? What does it produce?
12. What layers does the heart consist of?
13. Describe the route of the lesser circulatory system.
14. Describe the route of the greater circulatory system.
15. What is the heart rate affected by?
16. How does the dissolved nourishment from the digestive system pass into the tissues of the body?
17. What does blood consist of?

Exercise 5. 47. Insert the missing prepositions (at; from; into; on; per; by; for; of; in; to).

1. The heart actually is divided _four chambers. 2. During physical exercises the amount _ blood pumped per minute increases several times. 3. If the heart loses its ability to pump blood _ even a few minutes, the life of the individual is in danger. 4. The superior vena cava and inferior vena cava carry blood _ the body to the right atrium. 5. The pericardium consists _ fibrous connective tissue. 6. Seven large veins carry blood _ the heart. 7. The heart rate varies depending _ activity _ any given moment. 8. The heart makes from 60 to 72 beats _ minute. 9. _ some months the rate of your heartbeat will average about 83 beats per minute. 10. Blood consists of colorless fluid, called plasma or serum, and many millions of minute bodies, too small to be seen _ the naked eye.

Exercise 5.48. Make the following sentences negative. Then give the right information.

MODEL: The heart consists of three (four) chambers. The heart doesn't consist of three chambers. It consists of four chambers.

1. The muscular structure of the heart consists of atrioventricular (fibrous) bands. 2. The vascular system has three groups of arteries (vessels). 3. The vessels carrying blood to and from the tissues of the body compose the endocrine (general) system. 4. The heart contracts to pump blood through the vessels of the head (body). 5. The heart of a healthy person pumps about 7200 L of blood each month (day).

Exercise 5.49. Speak on:

1. The location and weight of heart;
2. The rate of heartbeat;
3. Heart chambers;
4. Layers of the heart.

Exercise 5.50. Translate the following sentences into English:

Серце знаходиться в грудній порожнині. Частота серцевих скорочень складає приблизно 72 ударів за хвилину. Серце складається з чотирьох камер. Вони розділені клапанами. Нижня камера називається шлуночком, а верхня – передсердям. Між правим шлуночком і правим передсердям знаходиться тристулковий клапан. Між лівим шлуночком і лівим передсердям розташований двостулковий (мітральний) клапан. Перегородка, яка відокремлює лівий шлуночок від правого шлуночка, називається міжшлуночковою перегородкою. Серце нагнітає кров по судинах до всіх частин тіла. Тканина серця складається з трьох шарів – епікарду, міокарду і ендокарду.

Exercise 5. 51. Complete the following dialogues:

A.

– For generations, poets have endowed the human heart with a wide range of emotional abilities. But we (as medical students) must have deep knowledge of anatomy and physiology of human heart. That is why I would like to ask you some questions if you don't mind. What is a heart?

– _ (muscle)

– Where is the heart located?

- _ (thoracic cavity)
- What is the weight of the heart?
- _ (male – ... grams, female – ... grams)
- How many litres of blood does the heart pump each day?
- _ (7200 L)

B.

- I know that heart consists of some chambers. What are they?
- _ (atrium, ventricle)
- What is between the right atrium and the right ventricle?
- _ (tricuspid valve)
- What valve separates the left atrium from the left ventricle?
- _ (bicuspid valve)
- What valve separates the left ventricle from the right ventricle?
- _ (interventricular valve)

Exercise 5. 52. Reproduce the similar dialogue.

5.2.3. CARDIOVASCULAR DISEASES.

DRUG THERAPY OPTIONS

Speaking

1. What cardiovascular diseases do you know?
2. Number of cardiovascular diseases is increasing nowadays. What are the main reasons?
3. What should people do to prevent cardiovascular diseases?

Active Vocabulary

	Word	Translation
1	to radiate	віддавати
2	heart attack	Серцевий напад

.		
3.	atherosclerosis	атеросклероз
4.	plaque	наліт
5.	clot	згусток
6.	cholesterol	холестерин
7.	myocardial infarction	інфаркт міокарда
8.	hypertension	гіпертензія
9.	stroke	інсульт
0.	ischemic	ішемічний
1.	hemorrhagic	геморагічний
2.	angina	стенокардія
3.	dyspnea	задишка
4.	dizziness	запаморочення
5.	fatigue	втома
6.	sweat	піт

7.	cellular death	клітинна смерть
8.	workload	навантаження
9.	diuretic	сечогінний
0.	obesity	ожиріння

Exercise 5. 53. Translate the following words and word-combinations into Ukrainian.

Numerous disorders of the heart; blood vessels; behavioral risk factors; unhealthy diet; physical inactivity; plaque builds up; the inner walls of the blood vessels; to thicken the arteries; to stop the blood flow; to cause any signs and symptoms; to lead to a medical emergency; to experience any signs and symptoms; to affect artery; the most effective at decreasing cholesterol; to block the blood flow by a blood clot; pain radiating to the arms; survive their first heart attack; reduce high cholesterol levels; to lower blood pressure; to prevent further attacks.

Exercise 5. 54. Read and translate the text.

CARDIOVASCULAR DISEASES AND DRUG THERAPY OPTIONS

Cardiovascular diseases (CVDs) are a group of numerous disorders of the heart and blood vessels. CVDs are the number one cause of death globally. The most important behavioral risk factors of heart disorders are unhealthy diet, physical inactivity, tobacco use and alcohol abuse.

Many of heart problems are related to a process called **atherosclerosis**. Atherosclerosis develops when plaque builds up on the inner walls of the blood vessels that supply the heart or brain. This buildup narrows and thickens the arteries. If a blood clot forms, it can stop the blood flow. Atherosclerosis usually doesn't cause any signs and symptoms until it leads to a medical emergency, such

as a heart attack or stroke. However, if signs and symptoms are experienced, they depend on the artery affected and include: angina, dyspnea, arrhythmia, hypertension, fatigue, confusion, dizziness, sudden and severe headache, sleep problems and lack of energy.

In addition to lifestyle changes and low cholesterol diet effective drug therapy options are available. **Statins** are recommended for most patients. They are most effective at decreasing LDL (bad) cholesterol, but also have modest effects on reducing triglycerides (blood fats) and raising HDL (good) cholesterol.

A **heart attack** (a myocardial infarction) occurs when the blood flow to a part of the heart muscle is blocked by a blood clot. Symptoms of a heart attack include pain or discomfort in the center of the chest radiating to the arms, the left shoulder, elbows, lower jaw, or upper back. In addition the person may experience shortness of breath, vomiting, light-headedness, breaking into a cold sweat.

Most patients survive their first heart attack and return to their normal lives. Heart attack treatment involves a variety of drugs. **Anticoagulants** are used to inhibit the formation of blood clots by affecting blood coagulation factors. **Antiplatelet agents** keep blood clots from forming by preventing blood platelets from sticking together. **Beta blockers** decrease the heart rate and cardiac output, which lowers blood pressure. **Combined alpha and beta blockers** are used for those patients experiencing a hypertensive crisis. **Calcium channel blockers** interrupt the movement of calcium into the cells of the heart and blood vessels, decrease the heart's pumping strength and relax blood vessels. **Cholesterol-lowering medications** (statins) reduce high cholesterol levels. **Digitalis glycosides** increase the force of the heart's contractions, which can be beneficial in heart failure and for irregular heartbeats. **Diuretics** cause the body to excrete excess fluids and sodium through urination. They help to relieve the heart's workload. **Vasodilators** relax blood vessels and increase the supply of blood and oxygen to the heart.

An **ischemic stroke** (the most common type) happens when a blood vessel that feeds the brain is blocked, usually by a blood clot. A **hemorrhagic stroke**

occurs when a blood vessel within the brain bursts. The most common symptom of a stroke is sudden weakness or paralysis of the face, arm, or leg, most often on one side of the body. Other symptoms include sudden onset of: numbness of the face, arm, or leg; confusion, difficulty speaking or understanding speech; difficulty seeing with one or both eyes; difficulty walking, dizziness, loss of balance or coordination; severe headache; unconsciousness.

Tissue plasminogen activator (tPA) is a thrombolytic (a “clot-busting” drug) given to break up blood clots if the victim gets to the hospital within 3 hours of the first symptoms of an ischemic stroke. To prevent further attacks of stroke the doctor usually prescribes anticoagulants, antiplatelet medicines, statins, blood pressure medications, and medicines to deal with depression and pain.

Cessation of tobacco use, reduction of salt in the diet, consuming fruits and vegetables, regular physical activity and avoiding harmful use of alcohol generally reduce the risk of cardiovascular diseases.

Exercise 5. 55. Put the sentences in the order they appear in the text.

.	To prevent further attacks of stroke the doctor usually prescribes anticoagulants, antiplatelet medicines, statins, blood pressure medications, and medicines to deal with depression and pain.	
.	Beta blockers decrease the heart rate and cardiac output, which lowers blood pressure.	
.	The most common symptom of a stroke is sudden weakness of the face, arm, or leg, most often on one side of the body.	
.	Atherosclerosis usually doesn't cause any signs and symptoms until it leads to a medical emergency, such as a heart attack or stroke.	
.	In addition the person may experience shortness of breath, vomiting, light-headedness, breaking into a cold sweat.	
.	The most important behavioral risk factors of heart disorders	

.	are unhealthy diet, physical inactivity, tobacco use and alcohol abuse.	
.	Statins are recommended for most patients.	
.	If a blood clot forms, it can stop the blood flow.	
.	Cessation of tobacco use, reduction of salt in the diet, consuming fruits and vegetables, regular physical activity and avoiding harmful use of alcohol generally reduce the risk of cardiovascular diseases.	
0.	Most patients survive their first heart attack and return to their normal lives.	

Exercise 5. 56. Match the words from the text with their definitions (a-j).

1. abuse	a) a minute cell occurring in the blood of vertebrates and involved in clotting of the blood
2. buildup	b) disorientation
3. arrhythmia	c) a compound consisting of three fatty acids and glycerol
4. confusion	d) improper or excessive use; misuse
5. triglyceride	e) an oral lipid-lowering medicine
6. platelet	f) an accumulation, as of a material
7. statin	g) abnormal loss of muscle function or of sensation
8. paralysis	h) an irregularity in the force or rhythm of the heartbeat
9. depression	i) dissolution or destruction of a thrombus
10. clot-busting	j) the condition of feeling sad

Exercise 5. 57. Complete the sentences with the words and phrases in the box.

heart	digitalis	tobacco	reduction	blood pressure
cholesterol	survive	unconsciousness		blood flow
shortness of breath				

1. The cardiologists advocate the _____ of salt in the diet.
2. A wide variety of medications known as antihypertensive can be bought by prescription to lower _____.
3. The patients who take aspirin to reduce the risk of _____ attack may diminish its action by taking anti-inflammatory drugs at the same time.
4. Mary has just received the telephone call from her cardiologist informing her about extremely high _____ levels.
5. Some heart attacks may be accompanied by _____.
6. A Welsh family known as the physicians of Myddvai collected different herbs and _____ was included in their prescriptions.
7. To _____ in the fight against likely complications of a stroke rehabilitation and family support should be greatly valued.
8. Atherosclerosis and thrombosis interfere with normal _____.
9. Overexertion, insomnia, physical inactivity, tobacco use and alcohol abuse may result in dyspnea known as _____.
10. The habit of smoking nicotine-rich leaves of _____ leads commonly to cardiovascular diseases.

Exercise 5. 58. Are these statements true (T), false (F)? Write true sentences.

1. Cardiovascular diseases are a group of numerous disorders of the stomach and bowels. (T/F)
2. If a blood clot forms, it improves the blood flow. (T/F)
3. To prevent further attacks of stroke the doctor usually prescribes anticoagulants. (T/F)

4. The most important behavioral risk factors of heart disorders are unhealthy diet, physical inactivity, tobacco use and alcohol abuse. **(T/F)**
5. Tissue plasminogen activator is given if the victim gets to the hospital within 5 hours of the first symptoms of a hemorrhagic stroke. **(T/F)**
6. Most patients do not survive their first heart attack and die. **(T/F)**
7. Diuretics cause the body to retain fluids and sodium. **(T/F)**
8. A hemorrhagic stroke occurs when a blood vessel within the brain bursts. **(T/F)**
9. Statins are most effective at decreasing HDL (good) cholesterol. **(T/F)**
10. Atherosclerosis develops when plaque builds up on the inner walls of the blood vessels that supply the heart or brain. **(T/F)**

Exercise 5 59. Read the text again. Answer these questions.

1. What is number one cause of death globally?
2. What are the most important behavioural risk factors of cardiovascular disorders?
3. How can the human health be affected by atherosclerosis?
4. What therapeutic action do statins produce?
5. When does a myocardial infarction occur?
6. What drug options are available today for the treatment of heart attacks?
7. What prognosis does a cardiologist usually make after the patient suffers his first heart attack?
8. What type of a stroke is the most common? When does it develop?
9. What medications are prescribed to prevent further attacks of stroke?
10. What general recommendations are given to the patients to reduce the risk of cardiovascular diseases?

Exercise 5. 60. Read the following text. Write down unknown medical terms and translate them into Ukrainian. Retell the text:

MYOCARDIAL INFARCTION

Myocardial infarction is a synonym for heart attack. Myo means “muscle”, kardia means “heart”, an infarct is an area of tissue that has died because of oxygen starvation. Myocardial infarction results from a prolonged lack of blood flow to a portion of the cardiac muscle resulting in a lack of oxygen and cellular death. Myocardial infarctions vary with the amount of cardiac muscle affected and the part of the heart that is affected. If blood supply to cardiac muscle is reestablished within 20 minutes, no permanent damage occurs. If the lack of oxygen lasts longer, cell death results. However, within 30 to 60 seconds after blockage of a coronary blood vessel, functional changes are obvious. The electrical properties of the cardiac muscle are altered, and the ability of the cardiac muscle to function properly is lost. The most common cause of myocardial infarction apparently is the formation of a thrombus that blocks a coronary artery. Coronary arteries narrowed by atherosclerotic lesions provide one of the conditions that increase the chances for myocardial infarctions. The emergency signs and symptoms of myocardial infarction are the following: intense, prolonged chest pain, often described as a feeling of heavy pressure; pain may extend beyond the chest to the left shoulder and arm, back, and even teeth and jaw; prolonged pain in upper abdomen; shortness of breath, fainting episode; and nausea, vomiting, and intense sweating. Heart attacks are the leading cause of death for both men and women worldwide. Important risk factors are previous cardiovascular disease, older age, tobacco smoking, high blood levels of certain lipids (triglycerides, low-density lipoprotein) and low levels of high density lipoprotein (HDL), diabetes, high blood pressure, obesity, chronic kidney disease, heart failure, excessive alcohol consumption, the abuse of certain drugs, and chronic high stress levels.

Exercise 5. 61. Complete the following dialogues:

A.

- Where is the blood entering the right side of the heart returning from?
- _ (tissues).
- What has the blood entering the right side of the heart been delivered by?
- _ (veins).

- What is the right atrium?
- _ (the receiving chamber).
- What atrium is the low-pressure pump?
- _ (the right atrium).
- What valve does the right atrium move the blood into the right ventricle through?

- _ (the tricuspid valve).

B.

- _?

- The pumping action moves the blood from the lungs to the left atrium.

- _? - The left atrium pumps the blood into the left ventricle.

- _?

- The left atrium pumps the blood into the left ventricle through the mitral valve. - _?

- The left ventricle sends the oxygen-enriched blood into the aorta.

- _?

- Aorta is the principal artery of the human body that subdivides and delivers the blood to the body's tissues, including the brain, organs, and extremities.

Exercise 5. 62. Compose the similar dialogues.

Exercise 5. 63 Memorize the following words and word combinations and make up sentences with them.

1. Sharp pain гострий біль;
2. rheumatism ['ru:mqtIzm] ревматизм;
3. stitch pain колющий біль;
4. to ascend staircase підійматися сходами;
5. to tire стомлюватися;
6. disturbance порушення.

Exercise 5. 64. Read and translate the following dialogue:

AT THE CARDIOLOGIST'S

Cardiologist: What do you complain of?

Patient: My heart often troubles me.

C.: Is your pain cutting or dull?

P.: I have a stitch pain in my heart.

C.: Do you have any difficulty in breathing?

P.: Yes, I do. I have breathlessness when ascending a staircase or walking quickly.

C.: What else troubles you?

P.: My temperature is not constant. It is rising by the evening. I often have a general malaise and get tired after some physical exertion.

C.: When did you notice these disturbances? When have the pains in your heart become constant?

P.: These disturbances appeared some years ago. My pains have become constant this year.

C.: What diseases did you suffer from in the past?

P.: In my childhood I often had quinsy but then my tonsils were removed. During some years ago I am ill with rheumatism. **C.:** Do you have a pain in your joints?

P.: Yes, I do. My hands and legs become periodically swollen and painful.

C.: Were you treated at a hospital?

P.: Yes, I was. Last year I was hospitalized and treated at the hospital. My diagnosis was rheumatism.

C.: Did you have any improvement after the treatment in the hospital?

P.: Yes, I did. Last summer I was treated at the sanatorium too and I felt well.

C.: Now strip to the waist, please. I'll examine you.

(After examination)

C.: You are seriously ill. Your main disease is rheumatism and that's why you must periodically be treated at a hospital. But at present you have to make electrocardiogram and to come to me. I'll administer you the treatment for your heart. I advise you to avoid intensive physical exertion. You should not be tired.

Your diet has to be nourishing and containing many vitamins but it is limit in salt.
Walk in the fresh air as much as possible.

Exercise 5. 65. Reproduce the similar dialogue.

Exercise 5. 66. What facts can you present to your group about:

The circulatory system; organs of the circulatory system; the heart; blood; cardiovascular diseases; drug therapy options.

5.3.1. RESPIRATORY SYSTEM

Part A

Speaking

1. What does respiratory system consist of?
2. What is respiration?
3. What respiratory diseases do you know?

Active Vocabulary

English	Ukrainian
1. alveolus	альвеола
2. breathing	дихання
3. bronchiole	бронхіола
4. bronchus	бронх
5. diaphragm	діафрагма
6. larynx	гортань
7. lung	легеня
8. mediastinum	середостіння
9. pharynx	глотка
10. pleura	плевра
11. respiration	дихання
12. trachea	трахея
13. ventilation	вентиляція
14. nasal cavity	носова порожнина

15.	inhalation	ВДИХАННЯ
16.	exhalation	ВИДИХАННЯ
17.	lobe	частка
18.	bronchial tree	бронхіальне дерево

Exercise 5. 67. Read the following word combinations and translate them.

Make up your own sentences with them.

To breath with lungs; pulmonary ventilation; nasal cavity; vocal organ; air movement; gas exchanges; respiratory rates; diffusion of gases; the preservation of life; interruption of breathing; to transport oxygen to the cells; by the circulating blood; to filter, to warm and to moisten air; subdivide again and again; to be covered with the membrane; tiny air sacs; cells and tissues; rhythm of respiration; allergy-causing things;

Exercise 5. 68. Read and translate the text.

WHAT IS THE RESPIRATORY SYSTEM?

The respiratory system is the organs and other parts of your body involved in breathing. Breathing is of vital importance for the preservation of life. Any interruption of breathing for long time may cause death.

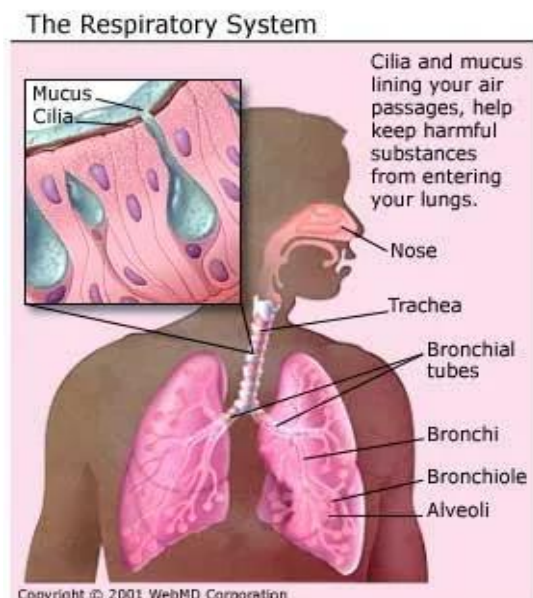
Respiration is the process when oxygen is obtained from the environment and transported to the cells, and carbon dioxide is exchanged from the cells.

Respiration includes three phases:

1. Pulmonary ventilation is normally accomplished by inspiration and expiration.

2. The diffusion of gases includes the passage of oxygen from air sacs into the blood and carbon dioxide out of the blood.

3. The transport of oxygen and carbon dioxide by the circulating blood.



PARTS OF THE RESPIRATORY SYSTEM

Respiratory system includes:

- Nose and the nasal cavity
- Mouth
- Throat (pharynx)
- Voice box (larynx)
- Windpipe (trachea)
- Diaphragm
- Lungs
- Bronchial tubes/bronchi
- Bronchioles
- Air sacs (alveoli)
- Capillaries

Nasal cavities filter, warm and moisten air, which we inhale. The pharynx (throat) carries air into the respiratory track and food into the digestive track. The larynx (voice organ) contains vocal cords. The trachea is the windpipe. The bronchi are the continuations of the trachea, they are two in number; they enter the lungs and then subdivide again and again making the bronchial tree. The smallest subdivisions of the bronchi are bronchioles. The lungs are covered with the membrane called pleura. The pleura not only encloses the lung but also lines the chest walls. Mediastinum is the space for heart, great blood vessels, esophagus, trachea, and lymph nodes; it is located between the lungs. The lungs consist of lobes, which subdivide into lobules. The tiny air sacs in the lungs are called alveoli.

The respiratory control centers, located in the medulla and pons of the brain stem, regulate the process of respiration. Respiration is regulated so that the level of oxygen, carbon dioxide, and acid are kept within certain limits. The control centers regulate the rate, depth, and rhythm of respiration.

How Do We Breathe?

Breathing starts when you inhale air into your nose or mouth. It travels down the back of your throat and into your windpipe, which is divided into air passages called bronchial tubes.

For your lungs to perform their best, these airways need to be open. They should be free from inflammation or swelling and extra mucus.

As the bronchial tubes pass through your lungs, they divide into smaller air passages called bronchioles. The bronchioles end in tiny balloon-like air sacs called alveoli. Your body has about 600 million alveoli.

The alveoli are surrounded by a mesh of tiny blood vessels called capillaries. Here, oxygen from inhaled air passes into your blood.

After absorbing oxygen, blood goes to your heart. Your heart then pumps it through your body to the cells of your tissues and organs.

As the cells use the oxygen, they make carbon dioxide that goes into your blood. Your blood then carries the carbon dioxide back to your lungs, where it's removed from your body when you exhale.

Inhalation and Exhalation

Inhalation and exhalation are how your body brings in oxygen and gets rid of carbon dioxide. The process gets help from a large dome-shaped muscle under your lungs called the diaphragm.

When you breathe in, your diaphragm pulls downward, creating a vacuum that causes a rush of air into your lungs.

The opposite happens with exhalation: Your diaphragm relaxes upward, pushing on your lungs, allowing them to deflate.

How Does the Respiratory System Clean the Air?

Your respiratory system has built-in methods to keep harmful things in the air from entering your lungs.

Hairs in your nose help filter out large particles. Tiny hairs, called cilia, along your air passages move in a sweeping motion to keep the passages clean. But if you breathe in harmful things like cigarette smoke, the cilia can stop working. This can lead to health problems like bronchitis.

Cells in your trachea and bronchial tubes make mucus that keeps air passages moist and helps keep things like dust, bacteria and viruses, and allergy-causing things out of your lungs.

Mucus can bring up things that reach deeper into your lungs. You then cough out or swallow them.

Exercise 5.69. Describe three phases of respiration.

Exercise 5.70. Match the words from the text with their definitions (a-h).

1.	Respirato ry	a) the act of breathing out;
2.	inspiratio n	b) the act of forcing air in and out of the lungs of a person who cannot breathe easily on their own, using a special machine:
3.	nasal	c) the act of breathing in;
4.	alveolus	d) of or related to the nose;
5.	lung	e) the muscle that separates the chest from the lower part of the body:
6.	ventilatio n	f) one of the many very small air bags in the lungs, with thin walls that allow oxygen to enter the blood;
7.	diaphrag m	g) thin membrane covering each lung that folds back to make a lining for the chest cavity:
8.	pleura	h) two organs in the chest with which people and some animals breathe:
9.	trachea	i) relating to breathing:
10.	expiration	j) windpipe

Exercise 5.71 Complete the following sentences with the words given below and translate them:

1. A patient has difficulty in
2. When one breathes normally not all ... opened.
3. The respiratory system consists of nose, pharynx, larynx, trachea and ...
4. Each bronchus leads to a separate
5. When one ..., the external intercostal

muscles contract and lift the ribs. 6. ... passes from the blood into the lungs and is breathed out. 7. The tonsils are masses of

(breathes *in*; *lung*; *bronchi*; *alveoli*; *breathing*; *lymphatic tissue*; *carbonic acid gas (carbon dioxide)*).

Exercise 5. 72. Are these statements true (T), false (F)? Correct the false statements.

1. The respiratory system is the organs and other parts of your body involved indigestion. (T/F)

2. Breathing is of vital importance for the preservation of life. (T/F)

3. Respiration is the process when carbon dioxide is obtained from the environment and transported to the cells. (T/F)

4. Larynx filters, warms and moistens air, which we inhale. (T/F)

5. Your body has about 6000 alveoli. (T/F)

6. The alveoli are surrounded by the tiny blood vessels called pulmonary arteries. (T/F)

7. Inhalation is the process when your body gets rid of carbon dioxide. (T/F)

8. When you breathe in your diaphragm relaxes upward, pushing on your lungs, allowing them to deflate. (T/F)

9. Your respiratory system has built-in methods to keep harmful things in the air from entering your lungs. (T/F)

10. Cells in your nasal cavity make mucus that keeps air passages moist and helps keep things like dust, bacteria and viruses, and allergy-causing things out of your lungs. (T/F).

Exercise 5. 73. Answer the following questions.

1. What does the term respiration mean?

2. What does the respiratory system consist of?

3. What is the function of the nasal cavities?

4. What does the pharynx do?

5. What contains vocal cords?

6. What makes the bronchial tree?

7. What are the smallest subdivisions of the bronchi?
8. What is the function of the pleura?
9. What is the mediastinum? Where is it located?
10. What processes does the physiology of respiration include?
11. What do lungs consist of?
12. What is the difference between inspiration (inhalation) and expiration (exhalation)?
13. Where are respiratory control centers located and what is their function?

Exercise 5. 74. What facts can you present to your group about:

- The process of respiration
- Phases of respiration
- Structure of the respiratory system
- Inhalation and Exhalation
- How the Respiratory System Cleans the Air

Exercise 5. 75. Read the text, translate it and.

LUNGS

The lungs are the main organs of the respiratory system. There are two lungs in the human body located in the lateral cavities of the chest. The lungs are separated from each other by the mediastinum. The lungs are covered with the pleura. They are conical in shape. Each lung has the base, apex, two borders and three surfaces.

The lung has the apex extending upward 3 – 4 centimeters (cm) above the level of the first rib.

The base of the lung is located in the convex surface of the diaphragm.

The posterior borders of the lungs are on each side of the spinal column. The anterior border is thin and overlaps the pericardium.

The weight of the lungs varies according to many conditions. In the adult male the weight of the lungs is about 1,350 gr. The right lung is about 15% heavier than the left one. The vital capacity of the lungs is 3.5 – 4 liters in the male and it is 3 – 3.5 liters in the female.

The right lung consisting of three lobes is heavier than the left one because the latter consists only of two lobes. The lower lobe of the left lung is larger than the upper one.

In infants the lungs are of a pale rosy color, but later they become darker.

The structure of the lung consists of an external serous coat, the visceral layer of the pleura, a subserous elastic tissue and the parenchyma or proper substance of the lungs.

Exercise 5. 76. Answer the following questions.

1. What are the main organs of respiratory system and where are they located?
2. What are lungs covered with?
3. Are they oval in shape?
4. What is located in the convex surface of the diaphragm?
5. What is the weight of the lungs?
6. Do all people have the same capacity of the lungs?
7. People of all ages have the lungs of pale rosy color, do they?
8. What is the structure of the lung?

Exercise 5. 77. Translate the following sentences.

1. Ваше серце і легені потрібно перевірити. 2. Зробіть повторну електрокардіограму. 3. Вам необхідно терміново зробити аналізи крові та сечі. 4. Підійть до терапевта і він перевірить ваше серце та легені. 5. Вашому другу потрібне стаціонарне лікування. 6. Вас будуть лікувати у пульмонологічному відділенні.

Exercise 5. 78. Read the dialogue and dramatize it.

Doctor: I suppose you have pneumonia. I'll put you on a sick leave and prescribe you some treatment.

Patient: What must I do?

D: Listen to me attentively. Take these drugs. This mixture is for your cough. These tablets are for your headache. These drops are for the heart trouble. Take these drugs three times a day.

P: Must I stay in bed?

D: Yes, you must. Apply cups and mustard plasters every other day before going to bed. Drink hot tea with raspberry jam. Gargle your throat several times a day. You must take analyses of blood and urine. Your lungs should be X-rayed. Besides it's necessary to take an electrocardiogram.

P: Well, doctor. I'll fulfill all prescriptions.

5.3.2. RESPIRATORY SYSTEM DISEASES

Speaking

1. What respiratory diseases do you know?
2. Have you ever had any respiratory disease?
3. What symptoms did you have?
4. What did you do? Did you consult the doctor?

Exercise 5.79. Read, translate and learn the words, paying attention to the pronunciation.

English	Latin/Greek	Ukrainian
auscultation	auscultatio	Аускультация (вислуховування)
bronchoscope	bronchoscopium	бронхоскоп
mucus	mucilago	слиз
hypoxia	hypoxia	гіпоксія
pneumonia	pneumonia	пневмонія
bronchial asthma	asthma bronchialis	бронхіальна астма
allergic reaction	reaction allergica	алергічний прояв
smell	odor	запах
cough	tussis	кашель
attack	attacus	напад
spasm	spasmus	спазм

failure	dysfunctio	дисфункція
rhinitis	rhinitis	риніт, (нежить)

Exercise 5. 80. You are a therapist and receive clinical patients. Make up a dialogue between a doctor and a patient who suffers from influenza. Use the phrases below.

To examine; don't move your shoulders; strip to the waist; take your clothes off; unbutton your outerwear; breathe deeply; breathe deeper; hold your breath; breathe in; breathe out; turn your back on me; cough, please; cover your mouth, when coughing; dress; to be painful to breathe; to be more painful to cough; to run a temperature; to cough up blood; to give up smoking; to avoid catching cold; to cause asthma attack; to listen to one's lungs.

Common diseases of the respiratory system include:

- **Asthma.** Your airways narrow and make too much mucus.
- **Bronchiectasis.** Inflammation and infection make your bronchial walls thicker.
- **Chronic obstructive pulmonary disease (COPD).** This long-term condition gets worse over time. It includes bronchitis and emphysema.
- **Pneumonia.** An infection causes inflammation in your alveoli. They might fill up with fluid or pus.
- **Tuberculosis.** A bacterium causes this dangerous infection. It usually affects your lungs but might also involve your kidney, spine, or brain.
- **Lung cancer.** Cells in your lung change and grow into a tumor. This often happens because of smoking or other chemicals you've breathed in.
- **Cystic fibrosis.** This disease is caused by a problem in your genes and gets worse over time. It causes lung infections that don't go away.
- **Pleural effusion.** Too much fluid builds up between the tissues that line your lungs and chest.
- **Idiopathic pulmonary fibrosis.** Your lung tissue becomes scarred and can't work the way it should.
- **Sarcoidosis.** Tiny clumps of inflammatory cells called granulomas form, often in your lungs and lymph nodes.

Exercise 5. 81. Read and translate the following text:

RESPIRATORY DISORDERS

If bacteria, viruses, or fungi enter the lungs and become established there, they can cause several diseases, classifying from common illnesses such as cold and flu to more serious illnesses such as pneumonia, bronchitis, and tuberculosis.

Bronchitis. When the mucous membranes that line the main air passageways of the lungs become inflamed, the condition is called bronchitis. Virtually everyone has bronchitis at some time.

In most cases, this ailment is the result of viral infections similar to those that cause the cold. The infection spreads to the bronchi, producing the deep cough that, in turn, tends to bring up the yellowish gray sputum from the lungs. The other symptoms are soreness and feeling of constriction in the chest, breathlessness, chill, and slight fever.

Because bronchitis most commonly is the result of a viral infection, the physician probably will be able to do relatively little to hasten the recovery. Rest, drinking extra liquids, and cough medicine are the cornerstones of treatment of bronchitis. The person must avoid other irritants to the airways, such as tobacco smoke. The person must remember that the act of coughing also is irritating to the trachea and bronchi.

If a person has repeated attacks of bronchitis, he/she may be able to trace the occurrence of the conditions in which he/she lives. Cold, damp environments combined with excessive air pollution can make a person more susceptible to bronchitis.

Pneumonia. Pneumonia is an inflammation of the tissues of the lungs. There are many different kinds of pneumonia. The major subtypes are community-acquired pneumonia, hospital-acquired pneumonia, and aspiration pneumonia. The causes of pneumonia are different. Among them are bacteria; influenza and other viruses; and chemical irritants.

The symptoms vary depending on the kind of pneumonia. Cough that produces bloody sputum, breathlessness, pain in the chest, chill, high fever are the major signs and symptoms of pneumonia.

The physician will listen to the chest to detect distortions in the breathing that suggest the presence of the infection. Chest X-rays also may be obtained to identify the location and extent of the infection. A sample of patient's sputum may be tested to identify the infecting agent. Blood test may also be conducted.

The treatment depends on the cause and severity of the patient's symptoms. It may include some antibiotics. Hospitalization may be necessary in severe cases.

Exercise 5. 82. Translate the following words and word-combinations into English:

Озноб; мокротиння; мазок; позалікарняний; виводити; відхилення; біль, болісність; захворювання, недуга; запалюватися; наявність; слідкувати; стиснення; жар, лихоманка, підвищена температура; вологість; слизова оболонка; бронхіт; запалення легенів; задишка.

Exercise 5. 83. Complete the following sentences:

1. Pneumonia is an inflammation of the tissues of the _____. 2. There are many different _____ of pneumonia. 3. The major subtypes of pneumonia are _____ pneumonia, hospital-acquired pneumonia, and aspiration pneumonia. 4. The physician will listen to the chest to detect _____ in the breathing that suggest the presence of the infection. 5. A _____ of patient's sputum may be tested to identify the infecting agent. 6. The treatment depends on the cause and _____ of the patient's symptoms. 7. When the mucous membranes that line the main air passageways of the lungs become _____, the condition is called bronchitis. 8. In most cases, this _____ is the result of viral infections similar to those that cause the cold. 9. The infection spreads to the bronchi, producing the deep cough that, in turn, tends to _____ up the yellowish gray sputum from the lungs. 12. The other symptoms are soreness and feeling of constriction in the chest, breathlessness, _____, and slight fever.

Exercise 5. 84. Combine corresponding parts into sentences, paying attention to the meaning of the sentences:

1. Acute bronchitis is usually caused by viruses or bacteria and _____.
2. Acute bronchitis is characterized by cough and sputum (phlegm) production and symptoms related to the obstruction of the airways by the inflamed airways and the phlegm, such as _____.
3. _____ will often reveal decreased intensity of breath sounds, wheeze and prolonged expiration.
4. To treat acute bronchitis, caused by a bacterial infection, or as a precaution, _____.
5. The fever, fatigue, and malaise may last only a few days, _____.

A. a physical examination; B. shortness of breath and wheezing; C. antibiotics may be given; D. may last several days or weeks; E. but the wet cough may last up to several weeks.

Exercise 5. 85. Answer the following questions:

1. What infections of the respiratory tract do you know?
2. What is bronchitis?
3. What is the cause of bronchitis?
4. What are the signs of bronchitis?
5. What is the treatment for bronchitis?
6. What is pneumonia?
7. What subtypes of pneumonia do you know?
8. What is the cause of pneumonia?
9. What are the symptoms of pneumonia?
10. What tests may help to determine pneumonia?
11. What does the treatment of pneumonia include?

Exercise 5.86. Insert the prepositions:

A respiratory infection such as that caused _ the influenza virus or bacterium may cause bronchioles (small airways in the lungs) to become inflamed and to secrete an excessive amount _ mucus. Bronchiolitis is common, especially during the winter, _ children younger 2 years, but it can occur in young adults under special circumstances. It usually is caused by a viral infection, often contracted _ someone in the infant's household. In infants or families with a history _ allergies or _ infants with recurring bronchiolitis, and allergic reaction may be the cause of the respiratory disorders. Ex. 16. Write out key words of the text "Respiratory Disorders".

Exercise 5. 87. Read and translate.

Diagnosis and treatments for respiratory and lung disorders

Treatments for lung and breathing disorders will depend on the severity and sometimes root cause of the disease. Our team of specialists will work closely with you to develop an individualized treatment plan.

Asthma: The most common treatment for asthma is rescue and controller inhalers, but other treatments and medications can be used. Doctors also recommend patients identify and reduce asthma triggers. Common triggers include allergies, viruses, exercise, cold weather and fumes. Patients are also often taught skills to monitor and manage their asthma.

Chronic Cough: Some of the tests that may be used to diagnose the cause of a chronic cough may include a chest X-ray and other radiology tests, breathing tests, pH monitoring, swallow tests and upper GI endoscopy if reflux is associated with the cough. The treatment of chronic cough is usually directed at its cause. Our specialists can help determine your best options for treatment.

Chronic Obstructive Pulmonary Disease (COPD): The most common cause of COPD is smoking, although breathing in pollutants, dust or chemicals can also be the cause. For smokers, smoking cessation can help prevent the disease or keep it from getting worse. COPD can also be treated with inhalers, medications, oxygen therapy and pulmonary rehab. In severe cases, surgery may be an option.

Lung Cancer: Lung cancer is diagnosed with a tissue sample or biopsy to determine the kind of cancer. The diagnosis is most commonly made by bronchoscopy or needle biopsy. Treatment of lung cancer depends on the type of cancer, the stage, the location and whether the cancer has spread. Treatment may include surgery, chemotherapy and/or radiation.

Lung Nodules: Lung nodules are often found when tests are being done for another reason. Diagnostic tests include:

- Bronchoscopy
- Electromagnetic navigation bronchoscopy
- PET scan/CT scan
- Needle biopsy through the chest wall

- Surgical lung biopsy

Pulmonary Hypertension: A series of tests may be needed to diagnosis pulmonary hypertension such as:

- Pulmonary function tests
- Chest X-rays, lung perfusion scans and other film studies
- Six-minute walk test
- Blood tests
- ECG (EKG)
- Echocardiogram

There is no cure but there are treatment options to try to reduce the symptoms, slow the progression and improve quality of life. If pulmonary hypertension is the side effect of another illness, treatment focuses on the primary cause. If pulmonary hypertension is the primary cause, medications can be used.

Shortness of Breath: Diagnostic tests may include pulmonary function tests, chest X-ray, EKG, echocardiogram, bronchoscopy, blood tests or chest CT scan. Treatment for shortness of breath depends on the underlying cause and severity.

Pulmonary Rehabilitation: Pulmonary rehab is for people with chronic breathing conditions that limit quality of life. Gundersen exercise physiologists and respiratory therapists help you set goals, establish a safe exercise routine and learn how to exercise at home. To learn if you are a good candidate for pulmonary rehab, talk with your primary care provider. You'll need a referral to participate. While most health insurance covers pulmonary rehab, you should also check with your health insurance carrier before you begin.

Tobacco Cessation: Smoking is a leading cause of preventable respiratory and lung disease. Quitting smoking is the most important thing you can do to live a longer, healthier life.

Exercise 5.88. Are these statements true (T), false (F)? Correct the false statements.

1. Asthma is a chronic heart condition. (T) / (F)

2. Bronchitis is a respiratory infection that causes a hacking cough and produces phlegm. (T) / (F)
3. Inhalation and inhaler are noun forms. (T) / (F)
4. Some individuals with pneumonia will experience a cold, a fever, shaking chills, and cough with sputum production. (T) / (F)
5. Tuberculosis cannot be treated successfully with antibiotics. (T) / (F)
6. The most common cause of emphysema is cigarette smoking. (T) / (F)
7. People with chronic obstructive pulmonary disease (COPD) experience wheezing and shortness of breath. (T) / (F)
8. Pneumothorax refers to a collapsed lung. (T) / (F)
9. A person with bronchitis may experience fatigue, shortness of breath, and itchiness. (T) / (F)
10. The most common forms of COPD are asthma and tuberculosis. (T) / (F)
11. Pleurisy is a blood clot in the lung, and a pulmonary embolism is fluid in the lung. (T) / (F)
12. Allergens such as pet dander, dust mites, molds, and pollen can trigger asthma. (T) / (F)

Exercise 5.89. Read the following text, write out key words of it, and retell the text:

COUGH

A cough is a normal protective reflex, designed to defend the respiratory system against irritants. However, a forceful cough can be painful and bothersome. Some of these coughs need the physician's attention. Others respond to simple self-care and the right medicine.

What causes a cough? Here are some typical irritations that cause coughing:

Infections, such as cold and flu;

Environmental irritants, such as cigarette smoke, smog, dust, home aerosol sprays, and cold and dry air;

Asthma, which inflames and constricts the air passages;

Gastroesophageal reflux – the backup of stomach acid into the esophagus when a person lies down;

Medications, such as inhaled corticosteroids or certain medications prescribed for high blood pressure and heart disease.

Coughing itself. Sometimes there is no medical explanation for a cough. Some people cough to release nervous tension, gain attention, or express anger. Whatever the reason, one cough can irritate the person's throat and lead to another, setting up a vicious cycle.

A cough begins when an irritant reaches one of the cough receptors in the nose, throat, or chest. The receptor sends a message to the cough center in the brain, signaling the body to cough. After a person inhales, the epiglottis and vocal cords close tightly, trapping air within the lungs. The abdominal and chest muscles contract forcefully, pushing against the diaphragm. Finally, the vocal cords and epiglottis open suddenly, allowing trapped air to explode outward.

Exercise 5.90. Indicate whether each sentence below is true (T) or false (F).

1. Chest percussion is a treatment for asthma. (T) / (F)
2. A person who has tuberculosis will wheeze. (T) / (F)
3. Irritants and pollutants can cause chronic bronchitis. (T) / (F)
4. Pneumonia is an infection and inflammation of the lung caused by cigarette smoke. (T) / (F)
5. If a child is suffering from croup, the vocal chords are affected, and the child's voice will be hoarse and produce a loud, barking sound. (T) / (F)
6. Bacteria, viruses, and fungi cause asthma. (T) / (F)
7. The word "asthmatic" is both a noun and an adjective. (T) / (F)
8. Whooping cough is not a contagious disease. (T) / (F)
9. Symptoms of COPD include a persistent cold, nausea, and shallow breathing. (T) / (F)
10. The word "exhausted" is both an adjective and a noun. (T) / (F)

Exercise 5. 91. An important part of communication is the ability to write about what you read, to write correctly, and to spell correctly. In the exercises below, write your understanding of the meaning of the bolded words.

1. Describe in writing what **asthma**, **emphysema**, and **chronic bronchitis** are.

2. Describe in writing what **croup** and **whooping cough** are.

3. Describe in writing what **cystic fibrosis**, **tuberculosis**, and **pneumonia** are.

5.4. 1.DIGESTIVE SYSTEM

Speaking

1. What are the main parts of the digestive system?
2. What are possible problems that can occur in the digestive system?
3. How can we prevent digestive system disorders?

Active Vocabulary

1.	Stomach	шлунок
2.	gallbladder	жовчний міхур
3.	digestive	травний
4.	chew	жувати; пережовувати

5.	pharynx	глотка
6.	accessory	допоміжний, додатковий
7.	mucous	слизовий
8.	reduce	зменшувати
9.	release	виділяти
10.	enzyme	фермент
11.	colon	ободова кишка
12.	indigestive	неперетравлений
13.	vermiform	червоподібний
14.	ingest	поглинати, проковтнути
15.	pancreas	підшлункова
16.	propel	проштовхувати
17.	saliva	слина
18.	esophagus	стравохід
19.	dilate	розширювати
20.	semi-liquid	напіврідкий
21.	duodenum	дванадцятипала кишка
22.	jejunum	порожня кишка
23.	ileum	клубова кишка
24.	caecum (caecum)	сліпа кишка
25.	rectum	пряма кишка
26.	feces	кал, фекалії, екскременти
27.	appendix	відросток
28.	masticate	жувати
29.	undigested	неперетравлений
30.	intestines	кишківник
31.	palate	піднебіння
32.	to attach	прикріплювати

Exercise 5. 92. Read and translate the following words and word-combinations:

The oral cavity; small and large intestines; muscular contractions; the alimentary tract; the soft and hard palates; salivary glands; esophagus; the upper abdomen; a semi-liquid mixture; to release acid and enzymes; a thin-walled tube; the abdominal and pelvic cavities; the major site of absorption; the attached vermiform appendix.

Exercise 5. 93. Match the words from the text with their definitions (a-h).

1. stomach	a) a small tube-shaped part that is joined to the intestines on the right side of the body and has no use in humans
2. liver	b) an organ in the body that produces insulin (a chemical substance that controls the amount of sugar in the blood) and substances that help to digest food
3. pancreas	c) the tube-like passage from the mouth, through the stomach and to the anus, through which food travels during digestion
4. gallbladder	d) any substance that people, plants or animals need in order to live and grow
5. digestive tract	e) glands that produce saliva and release it into the mouth
6. tongue	f) a small, pear-shaped organ located under your liver that stores and releases bile
7. salivary glands	g) a large organ in the body that cleans the blood and produces bile
8. abdominal	h) the large, soft piece of flesh in the mouth that you can move, and is used for tasting, speaking, etc.

9. appendix	i) an organ in the body where food is digested, or the soft front part of your body just below the chest
10. nutrients	j) in, forming, or relating to the abdomen

Exercise 5. 94. Complete the following sentences using words from exercise 2.

1. She had her _____ out (medically removed) last summer.
2. This exercise works your _____ muscles.
3. The tip of the _____ is sensitive to salt and sweet stimuli and the back of the _____ is sensitive to bitter stimuli.
4. She has a very delicate _____ and doesn't eat spicy food.
5. A healthy diet should provide all your essential _____.
6. The food we eat is propelled through the _____ by muscular contractions.
7. _____ is responsible for the amount of sugar in the blood.
8. Symptoms of the disease include an enlarged spleen or _____.

Exercise 5. 95. Read the following text:

DIGESTIVE SYSTEM

The digestive system consists of many parts. They are the oral cavity, esophagus, stomach, small and large intestines, the liver, the pancreas, gallbladder and others.

The food we eat is propelled through the digestive tract by muscular contractions. The digestive tract is also called the alimentary tract or alimentary canal. The term gastrointestinal tract technically only refers to the stomach and intestines but is often used as a synonym of the digestive tract.

The first division of the digestive tract is the mouth, or oral cavity. Important structures of the oral cavity are the teeth, the tongue, the soft and hard palates, and salivary glands. Digestion begins when the person chews the food. The food is

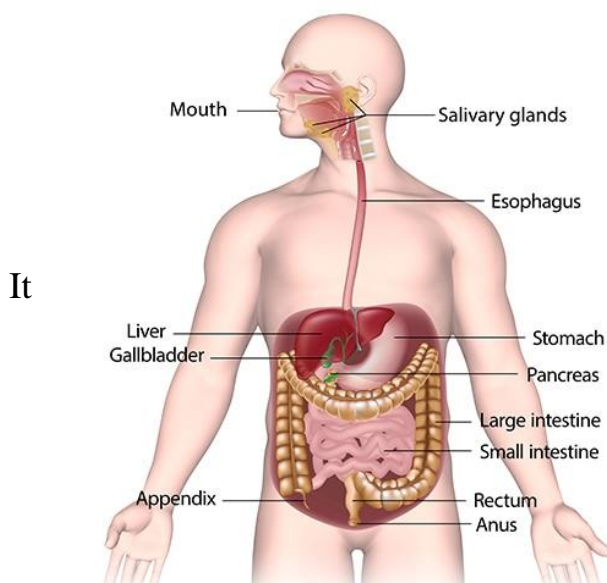
broken into smaller pieces by the teeth and is mixed with saliva secreted by the salivary glands.

From the mouth food passes through the pharynx to the esophagus. The major accessory structures of the pharynx and the esophagus are mucous glands.

The esophagus opens into the stomach. It rests in the upper abdomen. It is a dilated portion of the digestive tract. The stomach receives food from esophagus, and its mixing action reduces the food to a semi-liquid mixture. The stomach walls contain many glands from which acid and enzymes are released into the stomach and mixed with ingested food.

The stomach opens into the small intestine. The small intestine is a thin-walled tube approximately 6.5 meters long. It is located in the lower and central portions of the abdominal and pelvic cavities. It is composed of the duodenum, jejunum, and ileum. The first segment of the small intestine is the duodenum. The major accessory structures in this segment of the digestive tract are the liver, the gallbladder, and the pancreas. The next segment of the small intestine is the jejunum. Small glands exist along its length, and it is the major site of absorption. The last segment of the small intestine is the ileum, which is similar to the jejunum except that fewer digestive enzymes and more mucus are secreted and less absorption occurs in the ileum.

The Digestive System



It

The last section of the digestive tract is the large intestine. It is divided into cecum, colon, and rectum. Its major accessory glands secrete mucus. It absorbs water and salts and concentrates indigested food into feces. The first segment is the cecum, with the attached vermiform appendix. The cecum is followed by colon and rectum.

The rectum joins the anal canal, which ends at the anus.

The functions of the digestive system are to ingest food, masticate the food, propel the food through the digestive tract, add secretions to the food and digest the food; and absorb water, electrolytes, and other nutrients from the digested food. Once these useful substances are absorbed, they are transported through the circulatory system to cells where they are used. Undigested matter is moved out of the digestive tract and excreted through the anus. The processes of propulsion, secretion, and absorption are regulated by nervous and hormonal mechanisms.

Exercise 5. 96. Translate the following words and word-combinations into English:

Глотка; стравохід; шлунок; підшлункова залоза; товстий кишечник; жовчний міхур; сліпа кишка; пряма кишка; товста кишка; порожня кишка; клубова кишка; дванадцятипала кишка; зуби; язик; тверде піднебіння; слинні залози; знаходитися у нижній частині черевної порожнини; напіврідка суміш; тонкостінна трубка; проходити уздовж; переноситись по кровоносній системі.

Exercise 5. 97. Are these statements true (T), false (F)? Correct the false statements.

1. The food we eat is propelled through the digestive tract by process of exhalation. (T) / (F)
2. The last segment of the small intestine is the duodenum. (T) / (F)
3. The stomach opens into the large intestine. (T) / (F)
4. The first section of the digestive tract is the large intestine (T) / (F)
5. The small intestine is a thin-walled tube approximately 1 meter long. (T)/(F)
6. Small glands exist along the length of the jejunum, and it is the major site of absorption. (T) / (F)
7. The only function of the digestive system is to ingest food. (T) / (F)
8. Undigested matter isn't moved out of the digestive tract. (T) / (F)
9. The appendix is followed by colon and rectum. (T) / (F)

10. Small intestine is divided into cecum, colon, and rectum. (T) / (F)

11. The pancreas is a short thin gland lying under and behind the stomach. (T)/ (F)

Exercise 5. 98. Answer the following questions:

1. What does the digestive system consist of?

2. What is the food propelled through the digestive tract by?

3. What is the first division of the digestive tract?

4. What are there in the oral cavity?

5. Where does the food pass from the mouth?

6. What is the esophagus?

7. What is the function of the stomach?

8. What parts is the small intestine composed of?

9. What are the major accessory structures in the first segment of the small intestine?

10. What is the functional difference between ileum and jejunum?

11. What portions is large intestine divided into?

12. What are the major functions of the digestive system?

Exercise 5. 99. Insert the missing words given below:

THE ALIMENTARY TRACT

The alimentary tract is a musculomembraneous canal about 8.5 meters in length. It 1)_____ from the oral cavity to the anus. It consists of the mouth, pharynx, 2)_____, stomach, small intestine, and large intestine. The liver with gallbladder and 3)_____ are the large glands of the alimentary tract.

The first division of the alimentary tract is formed by the mouth. Important structures of the mouth are the 4)_____ and the tongue, which is the organ of taste. The soft and hard 5)_____ and the salivary glands are also in the oral cavity.

From the mouth food passes through the 6)_____ to the esophagus and then to the stomach.

The stomach is a dilated portion of the alimentary canal. It is in the upper part of the abdomen under the diaphragm. It measures about 21-25 cm in length.

The small intestine is a thin-walled muscular tube about 6.5 meters long. It is located in the lower and central parts of the 7)_____ and pelvic cavities. The small intestine is composed of the duodenum, jejunum, and ileum.

The large intestine is about 1.5 meters long. It is divided into caecum, 8)_____, and rectum.

The liver is the largest 9)_____ in the human body. It is in the right upper part of the abdominal cavity under the diaphragm. The gallbladder is a hollow 10)_____ lying on the lower surface of the liver.

The pancreas is a long thin gland lying under and behind the stomach.

palates; esophagus; gland; pharynx; teeth; colon; pancreas; extends; abdominal; sac.

Exercise 5. 100. Answer the following questions:

What organ or the part of the digestive tract is located:

- 1) *in the lower and central portions of the abdominal and pelvic cavities?*
- 2) *in the right upper part of the abdominal cavity under the diaphragm?*
- 3) *in the abdominal cavity under and behind the stomach?*
- 4) *within the abdominal cavity on the lower surface of the liver?*

Exercise 5. 101. Speak on the structure and functions of the digestive system. The following expressions may be helpful:

Digestive system consists of

Important structures of ... are

The first /second /last segment of alimentary canal is

Food passes through ... to

Small / Large intestine is divided into /includes /consists of

The main function of ... is to

Exercise 5. 102. Read and reproduce the following dialogue:

At the Gastroenterologist's

Gastroenterologist: What do you complain of?

Patient: I often have a severe pain in my abdomen.

G.: In what part of abdomen do you feel the pain?

P.: In the upper part. Here it is.

G.: What is the character of the pain? Is your pain acute or dull?

P.: It is dull. But sometimes I have colics in my stomach.

G.: Is your pain constant or periodic?

P.: I feel it just after meals.

G.: Do you take any medicines when you feel the pain?

P.: Yes, I do. I take some medicines and my pain disappears.

G.: When did the abdominal pain appear? Where does the pain radiate to?

P.: The pain appeared some months ago. It often radiates to the back.

G.: Do you have a feeling of heaviness?

P.: Yes, I do.

G.: What else troubles you?

P.: Sometimes I have nausea or vomiting.

G.: Do you obtain relief after vomiting?

P.: Yes, I do.

G.: Now undress, please. I'll examine you. Show me your tongue, please. Your tongue is thickly coated. Lie down on the couch. I'll palpate your abdomen. The abdomen is symmetrically enlarged. Show me where the pain is. Is it painful when I press here?

P.: Yes, it is.

G.: That's all. Dress yourself and sit down here. Listen to me attentively. First you have to make roentgenography of your abdomen and your gastric juice analysis. Then come to me and I'll prescribe you the treatment. Keep to a diet. Don't eat sour and salt meals. Avoid the physical exertion and emotional overstrain.

P.: Thank you. I'll fulfill all your administrations.

5.4.2. GASTROINTESTINAL DISEASES.

DRUG THERAPY OPTIONS

Speaking

1. What organs may be damaged by gastrointestinal diseases?
2. What gastrointestinal diseases do you know?
3. Have you ever suffered from gastrointestinal disorders?

Active Vocabulary

1. gastrointestinal tract (GI)	шлунково-кишкового тракту (ШКТ)
2. gastritis	гастрит
3. peptic ulcer	виразкова хвороба
4. stomach cancer	рак шлунку
5. ulcerative colitis	виразковий коліт
6. excessive	надмірний
7. anti-inflammatory	протизапальний
8. insufficiency	неефективність
9. gastroenterologist	гастроентеролог
10. nausea	нудота
11. bloating	вздуття живота
12. heartburn	печія
13. weight loss	втрата ваги
14. release	виділення, (звільнення)
15. constipation	закреп
16. fatigue	втома
17. cramps	судоми
18. bleeding	кровотеча
19. flare-ups	спалахи (загострення)
20. viral hepatitis	вірусний гепатит

Exercise 5. 103. Translate into Ukrainian:

The digestive tract disorders; to range from mild to serious; excessive alcohol use; to contribute significantly; to deal with the diagnosis and treatment; irritation or erosion of the lining of the stomach; to form cancer cells; painful sores;

symptoms of gastric dysfunction; to neutralize gastric juice; to be broken down into small particles; potent therapy; to require prescription medicines; to restrict consumption of something.

Exercise 5. 104. Read the text.

GASTROINTESTINAL DISEASES AND DRUG THERAPY OPTIONS

A digestive disease is any disorder that occurs in the digestive tract, which is sometimes called the gastrointestinal (GI) tract. The digestive tract is made up of the mouth, throat, esophagus, stomach, small and large intestines, liver, pancreas, and the gallbladder. In digestion, food and drink are broken down into small particles (nutrients) that the body can absorb and use for energy, growth and cell repair.

Digestive diseases may range from mild to serious. Some common problems include gastritis, peptic ulcer, stomach cancer, ulcerative colitis. Excessive alcohol use, stress, aspirin and other anti-inflammatory medications, infections, and vitamin insufficiency may contribute significantly to their development. A gastroenterologist is a physician who deals with the diagnosis and treatment of the digestive disorders.

Gastritis is an inflammation, irritation or erosion of the lining of the stomach. **Peptic ulcer** disease refers to painful sores in the gastric mucosa or duodenum. **Stomach cancer** occurs when cancer cells form in the mucous membrane of the stomach. The common symptoms of gastric dysfunction may include nausea, vomiting, abdominal pain, bloating, indigestion, heartburn, loss of appetite, weight loss, and black and tarry stools. To relieve and remove gastric discomfort it is generally recommended to advise of taking *antacids* to neutralize gastric juice, *proton pump inhibitors* or *H-2 blockers* to reduce the release of stomach acid, *antibiotics* to kill bacteria, *vitamin* shots to replenish **B-12** in the body. Stomach cancer is treated by surgery, *chemotherapy* and *radiation*. Some side effects can be observed after this potent therapy, such as pain, fatigue, mouth, gum and throat sores, nausea and vomiting, constipation or diarrhea, skin irritation, weight

changes, hair loss, kidney and bladder problems, anemia, impairment of blood clotting process, increased risk of infection.

Ulcerative colitis is inflammatory bowel disease. It affects the lining of the large intestine and results in the appearance of painful and bleeding sores or ulcers. The main symptoms are abdominal pain, cramps, diarrhea, bleeding from the rectum, joint pain, and eye problems. If the symptoms are mild, the patient may need only over-the-counter medication for diarrhea. Many people require prescription medicines, such as *aminosalicylates* and *steroids* to reduce the body's immune response, to stop symptoms and prevent flare-ups.

The incidence of gastrointestinal diseases such as cholera, typhoid, dysentery, viral hepatitis (A and E virus) can be substantially reduced by providing clean water and food to the population. Restricting consumption of tobacco and nonsteroidal anti-inflammatory drugs, diminishing alcohol intake and improving blood banks would prevent many acute and chronic liver diseases.

Exercise 5. 105. Put the sentences in the order they appear in the text.

.	Stomach cancer is treated by surgery, chemotherapy and radiation.
.	If the symptoms are mild, the patient may need only over-the-counter medication for diarrhea.
.	Peptic ulcer disease refers to painful sores in the gastric mucosa or duodenum.
.	Restricting consumption of tobacco and nonsteroidal anti-inflammatory drugs, diminishing alcohol intake and improving blood banks would prevent many acute and chronic liver diseases.
.	To relieve and remove gastric discomfort it is generally recommended to advise of taking antacids.
.	In digestion, food and drink are broken down into small particles (nutrients) that the body can absorb and use for energy, growth and cell repair.

.	A gastroenterologist is a physician who deals with the diagnosis and treatment of the digestive disorders.
.	A digestive disease is any disorder that occurs in the digestive tract, which is sometimes called the gastrointestinal (GI) tract.
.	Some common problems include gastritis, peptic ulcer, stomach cancer, ulcerative colitis.
0.	Digestive diseases may range from mild to serious.

Exercise 5. 106. Match the words from the text with their definitions (a-j).

1. nutrient	a) a destruction or wearing away of a surface by friction, pressure, ulceration or trauma
2. aspirin	b) said of feces that are black and glutinous
3. insufficiency	c) abnormally decreased function of the organ
4. erosion	d) a biochemical substance used by the body that must be supplied in adequate amounts from foods consumed
5. sore	e) any agent that neutralizes acidity, as of the gastric juice or any other secretion
6. tarry	f) a medicine that relieves pain and reduces fever
7. antacid	g) any type of painful lesion or ulcer of the skin or mucous membrane
8. chemotherapy	h) a group of drugs that includes the corticosteroids, similar to hormones produced

	by the adrenal glands, and used to relieve inflammation and itching
9. over-the-counter	i) a medication that may be bought without a physician's prescription
10. steroids	j) drug therapy option to kill cancer cells

Exercise 5. 107. Complete the sentences with the words and phrases in the box.

digestive diseases	cell repair	stomach cancer	ulcerative colitis
proton pump inhibitors	antibiotics	vitamin shots	prescription medicines
aminosalicylates	nonsteroidal anti-inflammatory drugs		

1. Pharmacy mustn't sell steroids to its customer without a physician's prescription as they are _____.
2. _____ are a group of effective and generally safe medicines prescribed to treat heartburn and heal gastric ulcers by reducing the amount of acid produced by the patient's stomach.
3. More and more doctors recommend their patients _____ because of their better absorption.
4. There are common symptoms associated with _____: nausea and vomiting, abdominal pain, bloating, indigestion, heartburn, loss of appetite, weight loss.
5. _____ are effective in our struggle against *Helicobacter Pylori*.
6. Prophylaxis and early diagnosis lower the risk of contracting _____.
7. If the doctor establishes bleeding sores and redness of the surface of the colon, he will carry out additional investigations to confirm _____.

8. Intensive stem cell research will enable the scientists to succeed in _____ and replacement.

9. Gastritis may be followed by peptic ulcer unless the patient stops taking _____ that cause irritation of the stomach lining.

10. After the patient had been diagnosed with the inflammatory bowel disease the gastroenterologist wrote out a prescription for _____ to treat and prevent flare-ups.

Exercise 5. 108. Are these statements true (T), false (F)? Write true sentences.

1. A digestive disease is any disorder that occurs in the urinary tract. (T/F)
2. Digestive diseases always cause severe symptoms. (T/F)
3. Gastritis is an inflammation, irritation or erosion of the lining of the stomach. (T/F)
4. Peptic ulcer disease is established when there are bleeding sores in the mucosa of the colon. (T/F)
5. Black and tarry stools may indicate gastric bleeding. (T/F)
6. Antacids neutralize gastric juice but proton pump inhibitors or H-2 blockers reduce its secretion. (T/F)
7. Vitamins given in injections are not easily absorbed. (T/F)
8. Chemotherapy includes highly potent drugs that kill cancerous cells. (T/F)
9. If the symptoms of ulcerative colitis are serious, the patient may need only over-the-counter medications for diarrhea. (T/F)
10. The incidence of gastrointestinal diseases can be substantially reduced by providing clean water and food to the population, restricting consumption of tobacco and nonsteroidal anti-inflammatory drugs, diminishing alcohol intake and improving blood banks. (T/F)

Exercise 5. 109. Read the text again. Answer these questions.

1. What organs of the digestive tract can be damaged by gastrointestinal diseases?
2. Why do people need nutrients?

3. What lifestyle and medical factors may contribute significantly to the development of gastrointestinal diseases?
4. What does a gastroenterologist deal with?
5. When is gastritis (peptic ulcer, stomach cancer) diagnosed?
6. What are the most frequent complaints of the patients suffering from gastric dysfunction?
7. What classes of medications can improve the symptoms of gastric problems and promote recovery?
8. What side effects can chemotherapy and radiation provoke?
9. What prescription medicines are recommended to treat ulcerative colitis? What action do they produce?
10. What measures can reduce the incidence of gastrointestinal diseases globally?

Exercise 5. 110. A) Complete the text with the given below words.

B) Read and translate the text.

STOMACH

The stomach stores and 1) _____ the ingested food. The major function of the stomach is to prepare the food chemically and 2) _____ so it can be received in the small intestine for further digestion and absorption into the 3) _____.

The stomach is an 4) _____ segment of the digestive tract. It is located in the left superior portion of the abdomen. Its shape and 5) _____ vary from person to person. The region of the stomach around the cardiac opening is the cardiac region. The stomach 6) _____ the fundus (upper part), the body (middle part), and the antrum (lower distal part).

The largest 7) _____ of the stomach is the body, which turns to the right. The walls of the stomach consist of various 8) _____ of powerful muscles. The mechanical activity of these muscles breaks the food into smaller and smaller pieces. The glands of the stomach 9) _____ gastric juice. This juice contains pepsins (digestive enzymes) and hydrochloric acid. Pepsin converts 10) _____

_____ into smaller substances. Hydrochloric acid is necessary for the correct action of pepsin. Food leaves the stomach in two 1) _____. The 2) _____ portion of the stomach contracts first, pushing the more liquid material into 3) _____ intestine. The more solid food leaves later, primarily by the action of the 4) _____ in the lower part of the stomach. The partially processed food then travels through the pyloric canal into the first portion of small intestine, the 5) _____.

(size; muscles; proteins; blood; phases enlarged; duodenum; secrete; upper; portion; small; consists of; layers; mechanically; mixes)

C) Answer the following questions:

1. What is the stomach?
2. What is the major function of the stomach?
3. Where is the stomach located?
4. What does the stomach consist of?
5. What is the largest portion of the stomach?
6. What do the walls of the stomach consist of?
7. What secretes the gastric juice?
8. What substances does the gastric juice contain?
9. What substances are absorbed in the stomach?

D) Translate into English:

1. Шлунок – найбільш розширений відділ травного каналу. 2. Він розташований між стравоходом і дванадцятипалою кишкою, у верхньому відділі черевної порожнини. 3. Форма та розміри шлунка коливаються у різних людей. 4. Це залежить від його функціонального стану, від віку та статі. 5. По краях шлунка одна його стінка переходить в іншу, утворюючи малу кривизну шлунка. 6. Стінки шлунка складаються з трьох оболонок: серозної, м'язової та слизової.

Exercise 5. 111. What facts can you present to your group about:

Structure of the digestive tract, gastritis, peptic ulcer, stomach cancer, common gastric symptoms; drug therapy options.

UNIT 5.5.1. ENDOCRINE SYSTEM

1. What are some important parts of the endocrine system?
2. What endocrine glands do you know?
2. What are the main functions of endocrine glands?
3. What are the major functions of hormones and hormonal problems?

ACTIVE VOCABULARY

hormone	гормон
maintain homeostasis	підтримувати гомеостаз
adrenal gland	наднирник
pituitary gland	гіпофіз
thyroid gland	щитоподібна залоза
parathyroid gland	паращитоподібна залоза
ovaries	яєчники
testicles	яєчка
markedly affect (to influence)	помітно впливати
gonadal gland	статева залоза
pineal gland	шишкоподібна залоза, епіфіз
thymus gland	вилочкова залоза
mammary glands	молочні залози
salivary glands	слинні залози
sweat glands	потові залози
lacrimal glands	слізні залози
bloodstream	кровотік
proteins	білки
amino acids	амінокислоти
derivatives	похідні
glycoproteins	глікопротеїни

lipids	ліпіди
fatty acids	жирні кислоти
steroids	стероїди
glandular activity	діяльність залоз

Exercise 5. 112. Read active vocabulary and memorize new words.

Exercise 5. 113. Translate the following words and word-combinations into Ukrainian:

Target organ; response; stimuli; adrenaline; separate glands; enable; secrete the insulin; burst; lacrimal gland; sweat gland; external body surface; bloodstream; produce; glandular; pancreas; adrenal; pituitary; thyroid; parathyroid.

Exercise 5. 114. Read the following words and word-combinations:

Protein; lipid; amino acid; hormone; glycoprotein; polypeptide; breathe; usual; although; either; affect; mechanism; release; amount of sugar; certain; particular hormone; insulin; to separate; separate glands; via.

Exercise 5. 115. Read and translate the following text:

Structure of Endocrine System

The endocrine system consists of cells, tissues, and organs that produce hormones or other chemical substances. The organs of endocrine system act together to control body activities and maintain homeostasis. In most people, the pancreas, the adrenal, pituitary, thyroid, and parathyroid glands, and ovaries or testicles work in tandem. The endocrine system regulates various functions of a human organism.

It functions as a control system for the human body. Unlike other organs and body parts that enable to move, breathe, eat, or sense the world around us, the endocrine system influences the body's processes. Along with nervous system, it coordinates the body's activities and responses to usual and unusual events.

Although both the endocrine system and the nervous system regulate the activities of structures in the body, they do so in different ways. These two systems cannot be separated completely either anatomically or functionally. For example, some hormones

secreted by endocrine glands affect the nervous system and markedly influence its activity.

The key mechanism of the endocrine system is the hormone. Different types of endocrine hormones are secreted by different glands (pituitary gland, thyroid gland, parathyroid gland, pancreas, adrenal glands, gonads: ovaries and testicles, pineal gland, and thymus gland). Most of these hormones are released into the bloodstream so that they can deliver instructions to various organs and tissues. The pancreas, for example, secretes the insulin hormone, which enables the body to regulate the amount of sugar in the bloodstream. In response to stress or other stimuli, the adrenal glands secrete adrenaline, which produces a sudden and remarkable burst of energy.

Similarly, the pituitary, thyroid, parathyroid, and gonadal glands influence certain body functions. Glands, which send the chemical substances into ducts leading to external body surfaces, are called exocrine glands. They are mammary, salivary, lacrimal and sweat glands.

A hormone is an organic substance with a special molecular structure secreted by definite cells that has an effect on the function of another cells. Although hormones circulate throughout the body via the bloodstream, each hormone influences on only certain organs (target organs) or tissues.

So, several types of chemicals are produced by cells and act as chemical messengers, but not all of them are hormones.

Hormones are proteins, glycoproteins, polypeptides, derivatives of amino acids, or lipids (steroids or derivatives of fatty acids).

As a rule, the greater the amount of a particular hormone in the bloodstream, the greater activity of the target organ. Some hormones (such as several of those produced by the pituitary gland) control other glandular activity, but virtually every system in the body is subject to the influence of the hormones, either directly or indirectly.

Exercise 5. 116. Translate the following words and word-combinations into English:

Адреналін, епінефрин; залозовий, такий, що стосується залози; гіпофіз; щитоподібна залоза; прищитоподібна залоза; підшлункова залоза; надниркова залоза; здійснювати вплив, впливати; подразники, стимули; шишкоподібна залоза; загруднинна залоза, тимус; гормони, що виробляються ендокринними залозами; жирні кислоти.

Exercise 5. 117. Answer the following questions:

1. What does the endocrine system consist of? 2. What is the function of endocrine system? 3. What glands of external secretion do you know? 4. What glands are the glands of internal secretion? 5. What is a hormone? 6. Where do the hormones circulate?

Exercise 5. 118. Read the following abstract and say what it deals with:

Pituitary gland is at the base of the brain. Thyroid gland is located on either side of the trachea below the thyroid cartilage. Parathyroid glands are located on the dorsal side of the thyroid gland. Pancreas is behind the stomach. The adrenal glands are situated one on top of each kidney.

Exercise 5. 119. Choose the correct terms (parathyroid gland; thyroid gland; adrenal glands; endocrine gland; pancreas; exocrine gland; pituitary gland) for the following definitions:

1. Gland that releases its secretion internally into a body fluid.
2. A gland that releases its secretion to the outside through a duct.
3. A set of glands located near the surface of the thyroid gland.
4. This is a largest gland of the human body.
5. This gland is located in the neck and consists of two lobes. Its hormones are thyroxine and calcitonin.
6. These glands are located atop the kidneys. Each gland consists of a medulla and a cortex.
7. This gland is attached to the base of the brain, has an anterior lobe and a posterior lobe. Most its secretion are controlled by the hypothalamus. Its hormones are growth hormone, thyroid-stimulating hormones, and some others.

Exercise 5. 120. Choose the correct answer:

A mother consulted the doctor about her son who had grown up in height about 18 cm during the summer. On examination: height – 190 cm, weight – 68 kg. What endocrine gland's hypersecretion may cause this condition? (thyroid gland, epiphysis, adrenal gland, pituitary gland, pancreas)

Exercise 5. 121. Give a summary of the text “Endocrine System”.

Exercise 5.122. Pronounce and memorize the words to the theme studied:

secretory activity	секреторна діяльність
extension	подовження, зв'язка
band	смуга, зона
vascular	судинний
triiodothyronine	трийодтиронін
tetraiodothyronine	тетрайодтиронін
thyroxine	тироксин (гормон щитоподібної залози)
parietal	парієтальний, пристінковий
peritoneum	очеревина
adrenal cortex	кора надниркової залози
adrenal medulla	мозкова речовина надниркової залози
pancreatic islet (Langerhans islet)	панкреатичний острівець, острівець Лангерганса
norepinephrine	норепінефрин, норадреналін
circulatory system	система кровообігу, кровотворна система
glucagon	гіперглікемічний гормон підшлункової залози, глюкагон
immature cell	незріла клітина

Exercise 5. 123. Read the following words and word-combinations:

Hypophysis; antidiuretic; hypothalamus; molecule; initiate protein synthesis; embryonic; capsule; mesoderm; elongate; enzyme.

Exercise 5. 124 Read translate the following text:

ENDOCRINE GLANDS

The pituitary gland, or hypophysis, is known to secrete some major hormones (e. g. antidiuretic hormone, growth hormone, thyroid-stimulating hormone, adrenocorticotrophic hormone, lipotropins, prolactin) that directly regulate numerous body functions and the secretory activity of several other endocrine glands. The hypothalamus of the brain regulates the secretory activity of the pituitary gland, and, in turn, the activity of the hypothalamus is influenced by the central nervous system, and by the emotional state of the individual. The hypothalamus and pituitary gland are the major sites in which the two regulatory systems of the body (the nervous and endocrine systems) interact. Indeed, a major portion of the pituitary gland (the posterior pituitary) is an extension of the hypothalamus. As for pituitary gland, it is roughly 1 cm in diameter and weighs 0.5 to 1 g. The pituitary gland is located inferior to the hypothalamus. It is divided functionally into two parts (posterior pituitary gland and anterior pituitary gland). The thyroid gland is composed of two lobes connected by a narrow band of thyroid tissue. The lobes are lateral to the upper portion of the trachea just inferior to the larynx.

The thyroid gland is one of the largest endocrine glands with a weight of approximately 20 g. It is highly vascular and appears redder than its surrounding tissues. The thyroid hormones include both triiodothyronine (T3) and tetraiodothyronine (T4); T4 is also called thyroxine. These substances constitute the major secretory products of the thyroid gland, with 10% T3 and 90% T4. Thyroid hormones bind with intracellular receptor molecules and initiate new protein synthesis.

The adrenal glands are near the top of each kidney. Like kidneys, they lie posterior to the parietal peritoneum and are surrounded by adipose tissue. They are enclosed by a connective tissue capsule and receive a well-developed blood

supply. The adrenal glands are composed of an inner medulla and an outer cortex, which are derived from two separate embryonic tissues. Unlike most glands of the body, which develop from epithelial tissue, the adrenal cortex is derived from mesoderm. The adrenal medulla is a component of the autonomic nervous system and secretes two types of hormones: epinephrine (adrenaline), 80%, and norepinephrine (noradrenaline), 20%. The adrenal cortex secretes three hormone types: mineralocorticosteroids, glucocorticoids, and sex hormones. All are similar in structure in that they are steroids, highly specialized lipids that are derived from cholesterol.

The pancreas lies behind the peritoneum between stomach and the duodenum. It is elongated structure approximately 15 cm long. It weighs 85 to 100 g. The head of the pancreas lies near the duodenum, and its body and tail extend toward the spleen. The pancreas plays a key part in the digestive process, producing enzymes essential to the digestion of food. The pancreas is both an exocrine gland and endocrine gland. The endocrine portion, consisting of pancreatic islets (islets of Langerhans), produces hormones that enter the circulatory system. Each islet is composed of alpha cells (20%), which secrete glucagons, beta cells (75%), which secrete insulin, and other cell types (5%). The remaining cells are either immature cells of questionable function or delta cells, which secrete somatostatin.

Exercise 5. 125. Insert the missing words:

1. The _ secretes at least nine hormones that regulate numerous body functions and other endocrine glands.
2. The hypothalamus _ pituitary gland activity through neurohormones.
3. The _ is just inferior to the larynx.
4. Thyroid hormones increase the rate of glucose, fat, and protein metabolism in many tissues, thus increasing body _.
5. Normal growth of many tissues is dependent on _ hormones.
6. The adrenal glands are near the superior pole of each_.
7. The adrenal cortex is derived from _.

8. Norepinephrine stimulates cardiac muscle and causes constriction of most peripheral _ vessels.

9. The adrenal _ hormones prepare the body for physical activity.

10. The pancreas is located along the small _ and the stomach.

11. It is both an _ and endocrine gland.

12. The endocrine portion of pancreas _ the pancreatic islets.

Exercise 5. 126. Answer the following questions:

1. What hormones of the pituitary gland do you know?

2. What is the major function of the pituitary gland?

3. Where is the pituitary gland located?

4. What is the thyroid gland composed of?

5. What thyroid hormones do you know?

6. What do thyroid hormones initiate?

7. Where are the adrenal glands located?

8. What are the adrenal glands composed of?

9. What hormones does the adrenal cortex secrete?

10. What does the pancreas consist of?

11. What is the major function of the pancreas?

Exercise 5. 127. Pick up correct statements (true or false choice):

1. As a group, endocrine glands are concerned with the regulation of metabolic processes.

2. Exocrine glands secrete hormones.

3. Hormone is carried to its target cells by body fluid.

4. Endocrine glands do not secrete hormones that affect target cells possessing specific receptors.

Exercise 5. 128. Retell the text “Endocrine Glands”.

Exercise 5. 129. Read the following text, make up a plan, and speak on the functions of hormones:

FUNCTIONS OF HORMONES

The secretory products of endocrine glands are hormones. Traditionally a hormone is defined as a substance that is produced in minute amounts by a collection of cells, is secreted into the interstitial spaces, enters the circulatory system on which it is transported some distance, and acts on specific tissues called target tissues at another site in the body to influence the tissues' activity.

The hormones produced by the pancreas enable the body to break down (metabolize) the food you eat. They regulate the body's use of glucose, a simple form of sugar that is an energy source for much of the daily activities of all human cells. Three hormones are produced by the pancreas. The first is insulin, which is produced when the concentration of glucose in the blood increases. This normally occurs shortly after a person eats a meal. Muscle and fat cells are stimulated by insulin to absorb the glucose they need as fuel for their activities. The second pancreatic hormone is glucagon. When needed, it breaks down the glycogen stored as fuel into the bloodstream. In effect, this raises the concentration of sugar in the blood. The third hormone produced by the pancreas, somatostatin, is a factor in regulating the production and release of both insulin and glucagon.

When secreted into the bloodstream adrenal medulla hormones increase cardiac output, blood flow to skeletal muscles and heart, and release of glucose and fatty acids into blood. The cortex produces a group of hormones called corticosteroids, of which there are three kinds. One kind is the sex hormones. They affect sexual development and reproduction. Another kind includes glucocorticoids. They influence the conversion of starchy foods into glycogen in the liver. The third kind is the mineralocorticosteroids. They control the body's use of minerals, sodium and potassium.

The hormones of the adrenal gland affect virtually every system in the human body to some degree. The thyroid gland helps set the rate at which the body functions. It responds to instructions from the pituitary gland to secreting the hormone thyroxine, whose actions control the rate of chemical activity in the body. Such activities vary directly with the quantity of thyroxine present: the more

hormones circulating in the bloodstream, the greater the speed at which chemical reactions occur.

As you know the pituitary gland (hypophysis) consists of two parts, the front (anterior) lobe and the posterior lobe. The anterior lobe produces six distinct hormones, including prolactin to stimulate the production of breast milk and growth hormone to regulate the body's physical growth.

The other four hormones influence other parts of the endocrine system, stimulating activities in the thyroid gland, ovaries, testicles, and adrenal glands. The posterior lobe produces two hormones: oxytocin and antidiuretic hormone. Oxytocin prompts contractions during childbirth and stimulates the breast to release milk during breastfeeding. Antidiuretic hormone acts on the kidneys to control urine output.

Exercise 5. 130. Speak on the some endocrine glands using obtained data.

You may use the following expressions:

The endocrine system consists of __. The __ gland is one of the endocrine glands. It is located __. The __ glands secrete the following hormones __. These hormones play a key part in __.

Exercise 5.131. Read and translate the following text:

THYROID GLAND

The thyroid gland is one of the endocrine glands, which make hormones to regulate physiological functions in the human body. The thyroid gland manufactures thyroid hormone, which regulates the rate at which the body carries on its necessary functions.

The thyroid gland is located in the middle of the lower neck, below the larynx (voice box) and just above your clavicles (collarbones). It is shaped like a "bow tie," having two halves (lobes): a right lobe and a left lobe joined by an "isthmus".

The thyroid gland contains numerous follicles, which are small spheres with their walls composed of a single layer of cuboidal epithelial cells. The center, or lumen, of each thyroid follicle is filled with a protein called thyroglobulin to which

thyroid hormones are bound. The thyroglobulin stores large amounts of thyroid hormone.

Between the follicles a delicate network of loose connective tissue contains numerous capillaries. Scattered parafollicular cells are found between the follicles and among the cells that comprise the wall of the follicle. Calcitonin is secreted from the parafollicular cells and plays a role in reducing the concentration of calcium in the body fluids when calcium levels become elevated.

Diseases of the thyroid gland are very common. The most common diseases are caused by an over- or under-active glands. These conditions are called hyperthyroidism (e.g., Grave's disease) and hypothyroidism. Sometimes the thyroid gland can become enlarged from over-activity (as in Grave's disease) or from under-activity (as in hypothyroidism). An enlarged thyroid gland is often called a "goiter."

Patients may develop "lumps" or "masses" in their thyroid gland. They may appear gradually or very rapidly. Patients who had radiation therapy to the head or neck are more prone to develop thyroid malignancy.

Exercise 5. 132. Compose your own dialogue on the endocrine system.

Exercise 5. 133. Read the definitions and fill in blanks with proper term elements given below:

1. Endo_ is the branch of medicine dealing with endocrine glands and internal secretion of the body.

2. Endo_ is abnormal condition when endocrine glands fail to perform their functions. 3. Endo_ is a method of treatment, which includes the using of some hormones. 4. Endo_ is inflammation of the endothelial membrane lining the cavities of the heart. 5. Endo_ is the use of a specific often flexible instruments in medical examination.

A. <i>_scopy</i> ; B. <i>_crinology</i> ; C. <i>_carditis</i> ; D. <i>_crinopathology</i> ; E. <i>_crinotherapy</i> .

Exercise 5.134. Skim through the following text and entitle it:

Although the stated differences between the endocrine and nervous systems are generally true, exceptions do exist (e.g., some endocrine responses are more rapid than some neural responses, and some endocrine responses have a shorter duration than some neural responses).

The endocrine system was believed to be relatively independent and different from the nervous system, but a relationship between these systems is now recognized. In fact, the two systems cannot be separated completely either anatomically or functionally. Some neurons secrete into the circulatory system regulatory chemicals called neurohormones, which function like hormones. Other neurons directly innervate endocrine glands and influence their secretory activity.

Conversely, some hormones secreted by endocrine glands affect the nervous system and markedly influence its activity. Several types of chemicals are produced by cells and act as chemical messengers, but not all of them are hormones. Intercellular chemical messengers act as signals that allow one cell type to communicate with other cell types. The signals coordinate and regulate the activities of the many cells that comprise the body. Terms such as hormones, neurohormones, neuromodulators are used to classify these substances. Although many intercellular chemical messengers consistently fit one specific definition, others do not.

Exercise 5. 135. Translate the following sentences into English:

1. Залози внутрішньої секреції виділяють гормони. 2. Вони надходять у кров і беруть участь у гуморальній регуляції функцій різних систем організму людини. 3. Залози, які мають протоки, називають залозами зовнішньої секреції, або екзокринними залозами. 4. Залози, які не мають вивідних проток – це залози внутрішньої секреції, або ендокринні залози. 5. Продукти їхньої діяльності потрапляють у серцево-судинну або лімфатичну систему. 6. Щитоподібна залоза – непарний орган масою 20-50 г. Залоза

розташована в передній ділянці ший. 7. Прищитоподібні залози парні. Загальна маса залоз становить у середньому близько 1 г. 8. Надниркова залоза – парний ендокринний орган. Маса залози 12-13 г, довжина 5 см, ширина 3 см. 9. Кора надниркових залоз (adrenal cortex) виробляє кортикостероїди. Мозкова речовина надниркової залози (adrenal medulla) виробляє адреналін і норадреналін. Ці гормони мобілізують захисні сили організму.

5.5.2. HORMONAL PROBLEMS

VOCABULARY

growth hormone	гормон росту
hypothalamus	гіпоталамус
somatomedin	соматомедін, інсуліноподібний фактор росту
lack	нестача, відсутність
stature	зріст; статура
obesity	ожиріння
retard	уповільнювати; затримувати
giantism	гігантизм
acromegaly	акромегалія, синдром Тінеля
diuretic	діуретик; сечогінний засіб; сечогінний
dilute	зниженої концентрації; розбавляти
diabetes insipidus	нецукровий діабет
removal	видалення
diabetes mellitus	цукровий діабет
hyperthyroidism	базедова хвороба, гіпертиреозидизм, зоб дифузний тиреотоксичний
goiter	зоб
iodine	йод

consumption	споживання
disturbance	порушення, розлад, патологічне відхилення
aldosteronoma	альдостеронома
release	вивільнення (речовини)
supplement	додаток
fail	слабшати, перестати діяти
hyperglycemia	гіперглікемія
detect	виявляти

Exercise 5. 136. Translate the following words and word-combinations into Ukrainian:

Disturbance; fail; goiter; stature; release; lack; obesity; remain; consumption; intricate; aldosteronoma; supplement; detect.

Exercise 5. 137. Read the following words and word-combinations:

Pituitary gland; associated; hypothalamus; chronic; dwarfism; dilute urine; diabetes; sign; frequency; diarrhea; iodine; thyroxine; aldosteronoma, congenital adrenal hyperplasia; tachycardia; insulin; require.

Exercise 5. 138. Read the following text:

HORMONAL PROBLEMS

Because of the complexity of the endocrine system, many problems, great or small, can result from a malfunction.

Pituitary gland disorders. Growth hormone (GH) stimulates growth in most tissues and is one of the major regulators of metabolism. Several pathological conditions are associated with abnormal GH secretion. In general, the causes for hypersecretion or hyposecretion of GH involve tumors in the hypothalamus or the pituitary, the synthesis of structurally abnormal GH, the inability of the liver to produce somatomedins, or the lack of receptor molecules in the target cells. Chronic hyposecretion of GH in infants and children leads to dwarfism in which the stature is short because of delayed bone growth; however, the bones usually have a normal shape. Other symptoms that result from the lack of GH include mild

obesity and retarded development of the adult reproductive functions. Chronic hypersecretion of GH leads to one of two conditions (giantism and acromegaly).

Treatment for chronic hypersecretion of GH often involves surgical removal or irradiation of a GH-producing tumor. The inability to secrete antidiuretic hormone (ADH) leads to the production of a large volume of dilute urine. This condition is called diabetes insipidus.

The most common thyroid disorders are hyperthyroidism and hypothyroidism.

Hyperthyroidism occurs when the thyroid gland produces excessive amounts of thyroid hormone. The signs of this disorder are the following: weight loss despite increased appetite, increased heart rate and blood pressure, nervousness, swelling at the base of the neck (goiter), increases in the frequency of bowel movements, sometimes diarrhea, and muscle weakness. Three types of treatment are available: a liquid form of radioactive iodine, an antithyroid medication, and surgery.

An underactive thyroid gland causes hypothyroidism. This disorder can occur in either sex and at any age. However middle-aged women are most commonly affected. The key treatment is daily consumption of thyroid hormone. Physicians generally prescribe a synthetic thyroxine. The individual must continue this treatment for the rest of his or her life.

The hormones of the adrenal glands affect virtually every system in the body to some degree. Their effects are complex. Disturbances can occur in this intricate system, leading to such disorders as Addison's disease, aldosteronoma, congenital adrenal hyperplasia and others.

Symptoms result from the release of large amounts of epinephrine and norepinephrine and include weight loss, darkening of the skin, sweating, nervousness, and tachycardia. Treatment requires daily doses of steroid tablets and salt supplements.

Sometimes the pancreas' balanced system of control fails. The amount of glucose in the bloodstream increases. The result is hyperglycemia. This condition

is easily diagnosed by measuring the concentration of glucose in the blood. If it is high enough, some glucose will spill into the urine, where it can be detected easily. When the body's cells are unable to use the glucose in the bloodstream because of a lack of insulin activity (absence of enough hormone or resistance to the hormone), diabetes mellitus results. It is very serious disease but modern medications have made possible the effective management of diabetes mellitus.

Exercise 5. 139. Translate the following words and word-combinations into English:

Залишатися, знаходитися; уповільнювати, затримувати; гігантизм; причина; акромегалія, синдром Тінеля; пухлина; порушення, розлад, патологічне відхилення; базедова хвороба; сечогінний засіб; слабшати; гормон росту; слабкість; цукровий діабет.

Exercise 5. 140. Insert the missing words or word-combinations:

1. _ hormone (GH) stimulates growth in most tissues. 2. Several pathological conditions are associated with abnormal GH _. 3. They are _ and hyposecretion. 4. The causes for hypersecretion or hyposecretion _ tumors in the hypothalamus or the pituitary, the synthesis of structurally abnormal GH, the inability of the liver to produce somatomedins and others. 5. Chronic hyposecretion of GH in infants and children leads to _. 6. Treatment for chronic hypersecretion of GH often _ surgical removal or irradiation of a GH-producing tumor. 7. Hyperthyroidism _ when the thyroid gland produces excessive amounts of thyroid hormone. 8. The signs of this disorder are the following: weight loss despite increased appetite, increased heart rate and blood pressure, nervousness, _ at the base of the neck and others. 9. An underactive _ gland causes hypothyroidism. 10. The key treatment is daily _ of thyroid hormone.

Exercise 5. 141. Answer the following questions:

1. What does GH stimulate? 2. What are the causes for hypersecretion or hyposecretion of GH? 3. What does the treatment for chronic hypersecretion of GH involve? 4. What thyroid disorders do you know? 5. What are the signs of hyperthyroidism? 6. What does the treatment for hyperthyroidism include? 7. What

is the cause for hypothyroidism? 8. What is key treatment? 9. What disorders of adrenal glands do you know? 10. What are the symptoms of adrenal glands disorders? 11. What are the causes of the pancreas disorders?

Exercise 5. 142. Speak on:

- pituitary gland disorders;
- thyroid disorders;
- adrenal glands disorders;
- pancreas disorders.

Exercise 5. 143. Compose your own dialogue on hormonal problems.

UNIT 5.6.1. NERVOUS SYSTEM

Speaking

1. Why is the nervous system so important to bodily function?
2. What are the major divisions of the nervous system?
3. What are the main parts of the central nervous system (CNS)?
4. What does the peripheral nervous system (PNS) consist of?
5. What is the function of the brain? What regions of the brain do you know?
6. Give the examples of nervous system disorders.

Active Vocabulary

neuron	нейрон
branching	розгалуження, гілкування
axon	аксон, провідна частина нервової клітини, відросток нервової клітини
dendrite	дендрит, відросток нервової клітини, що розгалуджується
synapse	синапс
spinal cord	спинний мозок
meninges	мозкові оболонки

dura mater	тверда мозкова оболонка
arachnoid	павутинна оболонка (мозку)
pia mater	м'яка мозкова оболонка
innermost	той, що знаходиться глибоко усередині; внутрішній
relay	передавати
afferent	аферентний
efferent	еферентний, відцентровий
forth	вперед, далі
distribution	розподіл
brainstem (brain stem)	стовбур головного мозку
hypothalamus	гіпоталамус
blood supply	кровопостачання
critical	важливий, суттєвий, необхідний
signal	сигнал
output	об'єм
consume	вживати, поглинати, споживати
action potential	потенціал дії
viscera	внутрішні органи

Exercise 5. 144. Read the following words and word-combinations paying attention to their pronunciation and translate them:

Neuron; branching fiber; chemical; peripheral; spinal cord; vertebrae; meninges; liquid; numerous; sources; primarily; potential; muscle; blood flow; sweating.

Exercise 5. 145. Read and translate the following text:

TEXT 1. NERVOUS SYSTEM

The nervous system is the human's information center and control system. The basic unit in the system is the nerve cell, called neuron. A neuron consists of a cell body, one major branching fiber (axon), and numerous smaller branching fibers (dendrites). Each neuron is connected to other neurons by synapses on the axons and dendrites. A neuron receives chemical signals from other neurons through the synapses. All of these incoming signals are combined as an electrical signal within the neuron, and it may or may not send an outgoing chemical signal down its axon to another set of synapses. The nervous system can be divided into central nervous system (CNS) and peripheral nervous system (PNS).

The CNS processes information, initiates responses, and integrates mental processes. The central nervous system consists of the brain and the spinal cord. The brain is protected by the skull, and the spinal cord is protected by the vertebrae. Three connective tissue layers (the meninges) surround and protect the brain and spinal cord. They are dura mater (outermost), arachnoid (middle), and pia mater (innermost). In addition, a liquid called cerebrospinal fluid, between the arachnoid and pia mater, protects the brain and spinal cord from injury.

The peripheral nervous system (PNS) consists of cranial part, consisting of 12 pairs of nerves, and spinal part, consisting of 31 pairs of nerves. The PNS collects information from numerous sources both inside and on the surface of the individual and relays it by way of afferent fibers to the central nervous system. Efferent fibers in the PNS relay information from the CNS to various parts of the body, primarily to muscles and glands. Peripheral nerves run from the spinal cord to all parts of the body.

The parts of this system are named for the four spinal regions from which they branch: neck (cervical), chest (thoracic), lower back (lumbar), and pelvis (sacral). The spinal cord acts as a central communication network to transmit signals back and forth between the brain and peripheral nervous system. Two subdivisions comprise the PNS: the afferent, or sensory, division and the efferent, or motor, division. Afferent neurons carry action potentials from the periphery to

the CNS, and efferent neurons carry action potentials from the CNS to the periphery.

The efferent neurons belong to either the somatomotor (somatic) nervous system, which supplies skeletal muscles, or to the autonomic nervous system (ANS), which supplies smooth muscles, cardiac muscle, and glands. The ANS regulates the activities of viscera such as the heart, blood vessels, digestive organs and reproductive organs. This system controls distribution of blood flow, regulation of blood pressure, heartbeat, sweating, and body temperature.

Exercise 5. 146. Translate the following words and word-combinations into English:

Дендрит; стовбур головного мозку; аксон; включати; синапс; поглинати; аферентний; внутрішні органи; мозкова оболонка; спинний мозок; павутинна оболонка (мозку); м'яка мозкова оболонка; тверда мозкова оболонка.

Exercise 5. 147. Answer the following questions:

1. What is the nervous system of the human?
2. What is the major unit of this system?
3. What does a neuron consist of?
4. How is neuron connected to other neurons?
5. What is the function of a neuron?
6. What parts is the nervous system divided into?
7. What does the CNS consist of?
8. Where are the brain and spinal cord located?
9. What meninges do you know?
10. What is cerebrospinal fluid?
11. What parts is the PNS composed of?
12. What neurons does the PNS consist of?
13. What is the function of PNS?
14. What is the function of the spinal cord?
15. What is the major function of the ANS?

Exercise 5. 148. Insert the missing words:

1. The nervous system is the information center and _____ system.
2. The basic _____ is the neuron.
3. A neuron _____ a cell body, axon, and dendrites.
4. A neuron _____ chemical signals from other neurons through the _____.
5. Neuron sends an outgoing _____ signal to another synapses.
6. The nervous system is divided into _____nervous system and _____nervous system.
7. The central nervous system consists of the brain and the _____.
8. The meninges surround and _____ the brain and spinal cord.
9. They are dura mater, _____ , and pia mater.
10. The peripheral nervous system _____ cranial part and spinal part.
11. It is composed of afferent and _____ neurons.
12. The peripheral nervous system collects information from numerous sources and _____ it to the central nervous system.
13. The autonomic nervous system _____ smooth muscle, cardiac muscle, and glands.
14. It regulates the _____ of the heart, blood vessels, digestive organs and reproductive organs.
15. The somatic nervous system transmits action potentials from _____ to skeletal muscles.

Exercise 5. 149. Try to organize the information of the text in table:

Parts of the nervous system	Structure	Function
CNS		
PNS		

Exercise 5. 150. Insert the prepositions (to; at; by; for; of; from, about):

1. Connections between autonomic and other brain functions occur _ the brainstem and hypothalamus.
2. The arterial blood supply, carrying oxygen and nutrients, is critical _ the functioning of the brain.
3. Despite its small size and weight, the brain uses 20 percent of the heart's output of blood and 20 percent of the oxygen consumed _ the body at rest.
4. The major function of nervous system is to collect information _ the external conditions in relation to the body's external state, and to analyze this information.
5. The peripheral nervous system is responsible _ the body functions, which are not under conscious control like the heartbeat or the digestive system.
6. The nervous system uses electrical impulses, which travel along the length _ the cells.
7. The cell processes information _ the sensory nerves and initiates an action within milliseconds.

Exercise 5. 151. Speak on the structure and functions of nervous system.

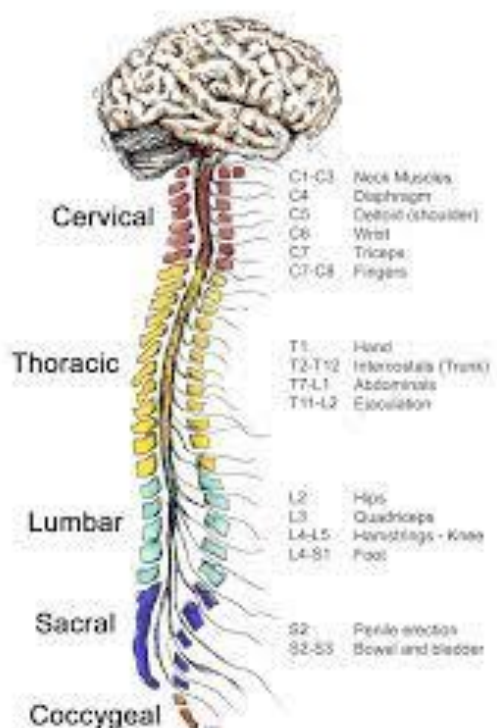
Exercise 5. 152. Compose the dialogue on nervous system.

Exercise 5. 153. Find in the dictionary unknown medical terms from the text “Spinal Cord” and memorize them.

Exercise 5. 154. Read the following text and retell it:

TEXT 2. SPINAL CORD

The spinal cord is extremely important to the overall function of the nervous system. It is the communication link between the brain and the peripheral nervous system inferior to the head, integrating incoming information and



producing responses through reflex mechanisms.

The spinal cord extends from the foramen magnum to the level of the second lumbar vertebra. It is shorter than the vertebral column because it does not grow as rapidly as the vertebral column during embryonic development. It is composed of cervical, thoracic, lumbar, and sacral segments, which are named according to the area of the vertebral column from which their nerves enter and exit. Because the spinal cord is shorter than the vertebral column, the nerves do not always exit the vertebral column at the same level that they exit the spinal cord. Thirty-one pairs of the spinal nerves exit the spinal cord and pass out of the vertebral column through the intervertebral foramina.

The spinal cord is not uniform in diameter throughout its length. There is a general decrease in diameter superiorly to inferiorly, and there are two enlargements where nerves supplying the limbs enter and leave the cord. The cervical enlargement in the inferior cervical region corresponds to the location at which nerves that supply the upper limbs enter or exit the cord, and the lumbosacral enlargement in the inferior thoracic and superior lumbar regions is the site at which the nerves that supply the lower limbs enter or exit. Immediately inferior to the lumbar enlargement the spinal cord tapers to form a cone-like region called the conus medullaris. Its tip is at the level of the second lumbar vertebra and is the inferior end of the spinal cord. A connective tissue filament, the filum terminale, extends inferiorly from the apex of the conus medullaris to the coccyx and functions to anchor the cord to the coccyx.

The nerves supplying the legs and other inferior structures of the body (L2 to S5) exit the lumbar enlargement and conus medullaris, course inferiorly through the vertebral canal, and exit through the intervertebral foramina from L2 to S5. The conus medullaris and the numerous nerves extending inferiorly from it resemble a horse's tail and are therefore called the cauda equina.

NOTE: S – sacral L – lumbar

5.6. 2 BRAIN

ACTIVE VOCABULARY

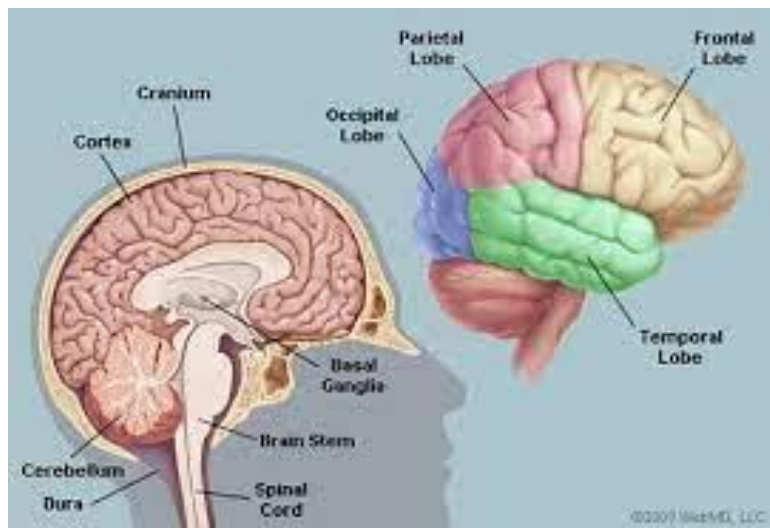
brain	ГОЛОВНИЙ МОЗОК
vault	СКЛЕПІННЯ
cerebrum	ВЕЛИКИЙ МОЗОК
midbrain	СЕРЕДНІЙ МОЗОК
pons	МІСТ
medulla oblongata	ДОВГАСТИЙ МОЗОК
thalamus	ТАЛАМУС
affect	ВПЛИВАТИ
add up	ВІДПОВІДАТИ
convey	ПЕРЕДАВАТИ
hemisphere	ПІВКУЛЯ
conscious	СВІДОМИЙ
cerebellum	МОЗОЧОК
linking	ЗВ'ЯЗОК
bit	ШМАТОЧОК; ЧАСТИНА, НЕВЕЛИКА КІЛЬКІСТЬ
core	СЕРЦЕВИНА; ЯДРО
atop	ПОВЕРХ; НАД
cerebral cortex	КОРА ГОЛОВНОГО МОЗКУ

Exercise 5. 155. Translate the following words into Ukrainian:

Affect; hemisphere; vault; cortex; cerebrum; relay; linking; pons; convey; cerebellum; bit; midbrain; core.

Exercise 5. 156. Read the following words and word-combinations and translate them:

Region; hypothalamus; medulla oblongata; analyze; function; signal; vital; breathing; tongue; mass; divide; conscious; hemisphere; beneath; area.



Exercise 5. 157. Read and translate the following text:

BRAIN

The brain is the part of the CNS located within the cranial vault. The major regions of the adult brain are the cerebrum, the thalamus and hypothalamus, midbrain, pons, medulla oblongata, and cerebellum. The brain works to analyze bits of information before transmitting these messages throughout the body. These messages affect functions such as coordination, learning, memory, emotion, and thought.

The scientists determined the brain was composed of approximately 100 billion neurons, their connections, and supporting cells, which add up to approximately 3 pounds of tissue. This dense network of interconnected neurons is organized to convey all the control signals necessary for individual activities.

The brain is connected to the spinal cord by the brain stem, which is composed of the medulla, the pons, and midbrain. The brain stem controls many of the vital functions, such as breathing and circulation of blood. Cranial nerves exit from the brain stem to control muscles of the face, eyes, tongue, ears, and throat. They also convey sensations from these parts back to the brain.

The cerebrum consists of thick masses of nerve tissue. It is divided into two sides (cerebral hemispheres). Conscious functions such as speech, memory, and vision are controlled in the cerebral hemispheres. Specific areas within these hemispheres are responsible for certain functions, such as speech and the control of

muscles in particular parts of the body. In general, control of the muscles of the right side of the body is in the left hemisphere of the brain, and muscles of the left side of the body are controlled by the right hemisphere of the brain. The linking of higher brain functions with cerebral areas is a very active field of research.

The other major portion of the brain, the cerebellum, is located beneath the cerebral hemispheres. It helps control the coordination. At the core of the brain, atop the brain stem, there are other key areas, including thalamus and hypothalamus. The hypothalamus is an endocrine regulatory center that affects sleep and appetite. The thalamus is a collection of nerve cells whose function is the transmission of many of the sensations. In addition, the centers under the cortex play critical roles in relaying messages between different areas of the brain.

Exercise 5. 158. Translate the following words and word-combinations into English:

Півкуля; ядро; відповідати; середній мозок; кора головного мозку; довгастий мозок; свідомий; зв'язок; поверх, над; передавати, транслювати; склепіння черепа; міст; невелика кількість; мозочок; впливати; головний мозок; центральна нервова система; головні ділянки; набір нервових клітин; передача відчуттів; дослідження; нервова тканина; м'яз; тканина; аналізувати.

Exercise 5. 159. Answer the following questions:

1. Where is the brain located?
2. What regions of the brain do you know?
3. What is the function of the brain?
4. What is the brain stem composed of?
5. What parts is the cerebrum divided into?
6. Where is the cerebellum located?
7. Where are thalamus and hypothalamus located?

Exercise 5. 160. Insert the prepositions:

Thalamus and hypothalamus are two important parts _ the brain. Thalamus is a mass of grey matter forming the lateral walls of the diencephalon (the part of the

brain between the brainstem and the cerebrum), which is involved _ the transmission of some sensations. It monitors the stimuli we receive _ suppressing some and increasing others. Hypothalamus is the part of the brain that forms the bottom _ the third ventricle and regulates many basic body functions, such as sleep, appetite, temperature, and some emotions. The received stimuli impulses are recognized, summarized and analyzed _ the central part of the nervous system (brain). Then they sent out _ a form of specific orders _ different parts and organs of the human body. The investigations determined some areas _ the brain, which control vision, hearing, movements, and emotions.

Exercise 5. 161. Match the following words with their definitions:

1. Dura mater	A. The upper, main and the largest part of the brain consisting of two equal hemispheres and controlling conscious and voluntary processes
2. Cerebrum	B. The outer layer over most of the cerebrum, the so-called “grey matter” of the brain
3. Cerebral cortex	C. Top of the section of the brain behind and below the cerebrum; it consists of two lateral lobes and a middle lobe and functions as the coordinating center for muscular movements and maintains balance
4. Cerebellum.	D. A piece of connecting tissue, the bridge of white matter at the base of the brain, containing neural connections between the cerebrum and cerebellum
5. Pons	E. The upper layer, the outmost of the three membranes, which surrounds the brain and spinal cord

Exercise 5. 162 . Give a summary of the text “Brain”.

Exercise 5. 163. Compose short dialogues using the following model.

MODEL:

Student A: What regions does the brain consist of?

Student B: The brain consists of the cerebrum, the thalamus and hypothalamus, midbrain, pons, medulla oblongata, and cerebellum.

Student A: What did I ask the student B?

Student C: You asked him/her what regions the brain consisted of.

Student A: What did the student B answer?

Student D: He/She answered the brain consisted of the cerebrum, the thalamus and hypothalamus, midbrain, pons, medulla oblongata, and cerebellum.

– What does the brain stem control?

– What do the cranial nerves convey?

Exercise 5. 164. Read and translate the text, divide it into logical parts and entitle them:

HUMAN BRAIN AND ITS FUNCTIONS

Most brains exhibit a substantial distinction between the grey matter and white matter. Grey matter consists primarily of the cell bodies of the neurons, while white matter is comprised mostly of the fibers (axons) which connect neurons. The axons are surrounded by a fatty insulating sheath called myelin, giving the white matter its distinctive color. The outer layer of the brain is gray matter called cerebral cortex. Deep in the brain, compartments of white matter, gray matter and spaces filled with cerebrospinal fluid are found.

The brain innervates the head through cranial nerves, and it communicates with the spinal cord, which innervates the body through spinal nerves. Nervous fibers transmitting signals from the brain are called efferent fibers. The fibers transmitting signals to the brain are called afferent (or sensory) fibers. Nerves can be afferent, efferent or mixed (i.e., containing both types of fibers).

The brain is the site of reason and intelligence, which include such components as cognition, perception, attention, memory and emotion. The brain is also responsible for control of posture and movements. It makes possible cognitive, motor and other forms of learning. The brain can perform a variety of functions automatically, without the need for conscious awareness, such as coordination of

sensory systems, walking, and homeostatic body functions such as heart rate, blood pressure, fluid balance, and body temperature.

Many functions are controlled by coordinated activity of the brain and spinal cord. Moreover, some behaviors such as simple reflexes and basic locomotion, can be executed under spinal cord control alone.

The study of the brain is known as neuroscience, a field of biology aimed at understanding the functions of the brain at every level, from the molecular up to the psychological. There is also a branch of psychology that deals with the anatomy and physiology of the brain, known as biological psychology. This field of study focuses on each individual part of the brain and how it affects behavior.

Exercise 5. 165. Give a brief summary of the text “Human Brain and its Functions”

Exercise 5. 166. Choose the correct form of each verb:

WHAT IS WONDERFUL ABOUT THE BRAIN?

Inside your head there is a remarkable organ, the brain. You use it to understand and remember things that (1) around you. The brain is soft and spongy. It (2) of billions of tiny parts called cells. Three coats or membranes (3) the brain.

The brain sometimes (4) the busiest communication center in the world. The brain (5) your body functions and keeps all parts of your body working together. Thousands of messages from all parts of the body (6) to and from the brain. Messages (7) to the brain by sensory nerves. Special places, or centers, on the brain receive sensory messages from all parts of the body. When messages (8) by centers, the brain (9) them.

All day long your muscles and your brain (10). By the end of the day they (11). Then your brain and your muscles (12) to relax. Before long, you go to sleep. As you sleep, the big muscles in your body relax.

	are happened	are happening
	is made up	made up
	is covered	cover

	is called	calls
	is controlled	controls
	send	are being sent
	are carried	was carried
	are received	will receive
	is interpreted	interprets
0	are worked	are working
1	have be tired	are tired
2	are started	start

Exercise 5. 167. Translate the following sentences into English:

1. Головний мозок міститься у порожнині черепа.
2. Середня маса головного мозку становить 1100-1800 г.
3. Довгастий мозок і міст є частинами мозкового стовбура.
4. У довгастому мозку біла речовина розташована на поверхні, а в середині міститься сіра речовина.
5. Передня та задня частини мосту утворені сірою і білою речовинами.
6. Довгастий мозок і міст виконують рефлекторну та провідну функції.
7. Мозочок розташований позаду від довгастого мозку та мосту. Він складається із сірої та білої речовини.
8. На поверхні мозочка сіра речовина утворює кору мозочка.

Exercise 5. 168. Speak on the structure and functions of the brain.

5.6.3. DISORDERS OF NERVOUS SYSTEM

VOCABULARY

vulnerable	уразливий
stroke	інсульт, порушення мозкового кровообігу
seizure	напад, епілепсія
neuralgia	невралгія
consciousness	свідомість
impair	погіршувати, ослаблювати, знижувати
excitation	активізація, збудження
inhibition	стримання, гальмування
disrupt	порушити
grand malseizure	великий (судорожний) епілептичний напад
rigidity	ригідність, заціпенілість, негнучкість
identify	встановлювати
reduce	послаблювати, знижувати, скорочувати,
improve	поліпшувати
avoid	уникати, застерігати
lack	брак, відсутність

Exercise 5. 168. Read and translate the following words:

Vulnerable; supply; degeneration; meningitis; encephalitis; poliomyelitis;
viral; variety; neuralgia;

seizure; partial; consciousness; impair; amount; excitation; disrupt; rigidity;
convulsion; chemical;

identify; hemorrhage; nevertheless; adequate.

Exercise 5. 169. Read and translate the following text:

DISORDERS OF NERVOUS SYSTEM

The central nervous system is vulnerable to a wide variety of disorders. They are strokes, Alzheimer's disease, Parkinson's disease, meningitis, encephalitis, poliomyelitis (polio), neuralgias and seizure. The causes of these disorders include

interruption of the blood supply to the brain, degeneration of nerve cells, head injury, tumor of the brain, viral infection and others.

Seizure (epilepsy) is actually a whole group of brain disorders. The seizure can be either partial or complete, depending on the amount of brain involved and whether or not consciousness is impaired. Normally there is a balance between excitation and inhibition in the brain. When this balance is disrupted by increased excitation or decreased inhibition, a seizure may result. There are some types of seizure. One of them is grand mal seizure.

A grand mal seizure starts with a loss of consciousness and falling down, followed by a 15-to 20-second period with muscle rigidity and then a 1- to 2-minute period of rhythmic convulsions. The seizure ends with a few minutes of deep, relaxed sleep before consciousness returns. Grand mal seizures are due to abnormal electric activity throughout the brain. Research has shown that seizure can be produced in normal brain by various chemical and electrical stimulants.

Sometimes seizures run in families. Other identified causes for seizures include scar tissue from brain disease or injury; brain infection, tumor, abscess, or hemorrhage; metabolic disturbances from kidney or liver disease. Nevertheless, the cause frequently is unknown when the disorder starts before age 25. Seizures that start after age 25 may be caused by slowly growing brain tumors.

Medication controls or greatly reduces seizures for more than 75 percent of affected persons. Some medicines can improve management of epileptic seizures in 25 percent of people with seizure disorders. The person must avoid lack of sleep or excess alcohol. Regular and adequate rest is important. The person has to wear a bracelet stating who should be contacted if a seizure occurs.

Exercise 5. 170. Read and translate the following definitions:

Seizure is a sudden attack often including convulsions; this symptom, if recurrent, often is referred to as a seizure disorder or as epilepsy. Grand mal is generalized convulsion accompanied by loss of consciousness. Neuralgia is sharp pain along the course of a nerve. Cognitive: pertaining to the mental process of thought, including perception, reasoning, intuition, and memory. Convulsion is a

sudden attack usually characterized by loss of consciousness and severe, rhythmic contractions of some or all voluntary muscles. It is the most often a manifestation of a seizure disorder.

Exercise 5. 171. Answer the following questions:

1. What causes strokes? 2. What diseases concerning degeneration of nerve cells do you know? 3. What are the causes of meningitis and encephalitis? 4. What is poliomyelitis? 5. What are cognitive disorders? 6. What is neuralgia?

Exercise 5. 172. Speak on the different causes of disorders of nervous system.

Exercise 5. 173. Translate the following sentences into English:

1. Існує величезна кількість захворювань центральної нервової системи.
2. Причинами захворювань можуть бути дегенерація нервових клітин, вірусна інфекція, метаболічне порушення функцій нирок, захворювання печінки, травма або пухлина мозку.
3. Епілепсія є результатом підвищеної активізації або надмірного стримування роботи мозку.
4. Ознаками епілепсії є втрата свідомості, конвульсії і короткочасний глибокий сон.
5. Медичні препарати можуть зменшити ступінь захворювання, але не вилікувати його.
6. Людина, що страждає на епілепсією, повинна вести здоровий спосіб життя.

Exercise 5. 174. Read and translate the following text:

INFECTIONS

Encephalitis is an inflammation of the brain most often caused by a virus and less often by bacteria or other agents. A large variety of symptoms may result, including fever, paralysis, coma, or even death. Myelitis is an inflammation of the spinal cord with causes and symptoms similar to those for encephalitis. Meningitis is the inflammation of the meninges. It may be viral induced but is more often bacterial. Symptoms include neck stiffness, headache, and fever. In severe cases meningitis may cause paralysis, coma, or death. Rabies is a viral disease transmitted by the bite of an infected mammal. The rabies virus infects the brain, salivary glands, muscles, and connective tissue. The virus also infects the brain and results in abnormal excitability, aggression, and in later stages, paralysis and death.

Exercise 5. 175. Read and memorize the following words:

deterioration	погіршення
exposure	вплив
gradual	поступовий
disintegration	роздрібнення, роздвоєння
irritability	роздратованість
modify	зм'якшувати; ослаблювати
behavior	поведінка
psychotic	психотичний
interfere	заважати, бути перешкодою
numbness	нечутливість, оніміння
sheath	оболонка
suspect	вважати
recur	повторюватися, відбуватися знову
spasticity	спастика, спастичність
stiffness	нерухливість; жорсткість
hallucination	галюцинація
tremor	тремтіння, тремор

Exercise 5. 176. Translate the following words into Ukrainian:

Transmitter; malfunction; feature; cause; interfere; increasing; shake; degree;
numbness; walking;
disintegration; irritability; sheath; gradual; stiffness; suspect; hallucination;
exposure; psychotic;
deterioration; recur.

Exercise 5. 177. Read and translate the following text:

DEGENERATIVE DISORDERS

The brain, spinal cord, and peripheral nerves consist of billions of nerve cells. Each of these cells is a complex electrical and chemical transmitter that carries signals to make the muscles move and to relay information throughout the nervous system. If a few cells die or malfunction, the person will notice any change. When there is progressive deterioration in any part of the nervous system, the person gradually will lose some ability to function. This loss can involve mental ability, muscular movement, muscular control, or impaired coordination. Compared with many other diseases, the degenerative disorders are less well understood.

Alzheimer's Disease. This disease is due to a degeneration of brain cells. It gradually produces abnormalities in certain areas of the brain. The brain cells of persons with Alzheimer's disease have characteristic features that were first described in 1907 by Alois Alzheimer. The cause of Alzheimer's disease, however, is unknown. Among the several possible causes are genetic factors, toxic exposures, abnormal protein production, viruses, and neurochemical abnormalities. The symptoms of Alzheimer's disease are gradual loss of memory and inability to learn new information, growing tendency to repeat oneself, slow disintegration of personality, increasing irritability, and depression. No effective treatment exists. Some medications modify the symptoms of the disease. Occasionally, mild sedatives, antidepressants, or antipsychotic medications may be necessary to control behavior.

Parkinson's disease was first described by Englishman James Parkinson in 1817. It is progressive degeneration of nerve cells in the part of the brain that controls muscle movements. The signs and symptoms of Parkinson's disease are shaking at rest (rest tremor), stiffness or rigidity of limbs, slow, soft, monotone voice, and difficulty in maintaining balance. The cause of this disease remains unknown. Parkinson's disease ordinarily starts in middle or late life and develops very slowly. Many individuals with Parkinson's disease have depression. Some degree of mental deterioration occurs in about one-third of those persons with Parkinson's disease. In the later stages, auditory and visual hallucinations may

develop. In early stages of the illness, the person may not require therapy. Medication normally is introduced at a time when Parkinson's disease interferes with daily activities. The main goal of treatment is to reverse the problems with walking, movement, and tremors.

Multiple sclerosis is characterized by numbness, weakness, or paralysis in one or more limbs, impaired vision with pain during movement in one eye, tremor, lack of coordination, and rapid, involuntary eye movement. Its cause is unknown, but medical research is very active. The presence of a virus, in either immune cells or sheath-producing cells, is one suspected cause. Attacks ordinarily recur and the symptoms may increase in severity. Many persons with multiple sclerosis are ambulatory, and many are employed even after having multiple sclerosis for 20 years. There is no cure for multiple sclerosis. Medications vary depending on the symptoms. Baclofen is sometimes useful for suppressing muscle spasticity. For severe attacks, corticosteroid drugs may be prescribed to reduce inflammation and provide temporary relief.

Exercise 5. 178. Translate the following words and word-combinations into English:

Погіршення; нечутливість, оніміння; психотичний; дія; заважати, стояти на заваді;

припускати; галюцинація; спастика, спастичність; повторюватися, відбуватися знову; розділення, роздвоєння; поведінка; поступовий; пом'якшувати, послаблювати; дратувати.

Exercise 5. 179. Answer the following questions:

1. What cases can the person lose some ability to function in? 2. What is Alzheimer's disease? 3. What are the causes of Alzheimer's disease? 4. What symptoms of this disease do you know? 5. What is the goal of medications in Alzheimer's disease? 6. When was Parkinson's disease described? 7. What is Parkinson's disease? 8. What are the signs of this disease? 9. What is the cause of Parkinson's disease? 10. When is medication normally introduced? 11. What is

multiple sclerosis characterized by? 12. What are the suspected causes of multiple sclerosis?

Exercise 5. 180. Do you agree or disagree with the following statements:

1. The particular behavioral characteristics of Alzheimer's disease depend on which area of the brain is most affected by the disease process. 2. Alzheimer's disease is extremely rare in middle age. 3. Alzheimer's disease is generally an acute condition and often requires emergency treatment. 4. Parkinson's disease ordinarily starts in young people and develops very quickly. 5. Although much research has been done on Parkinson's disease, the cause remains unknown. 6. Multiple sclerosis is a disease of the central nervous system. 7. Multiple sclerosis has a wide variety of symptoms because of the way it affect the central nervous system.

Exercise 5. 181. Translate the following sentences into English:

1. Якщо велика кількість клітин головного мозку або периферичної нервової системи відмирають, то людина може помітити суттєві зміни в стані свого здоров'я. 2. У порівнянні з іншими захворюваннями, дегенеративні захворювання вивчені менше. 3. При захворюванні Альцгеймера виникає дегенерація клітин мозку. 4. Причинами цього захворювання можуть бути генетичні чинники, патологічне продукування протеїнів та інфекційні захворювання. 5. Поступова втрата пам'яті, нездатність запам'ятовувати нову інформацію, депресія і підвищена дратівливість є ознаками цього захворювання. 6. Захворювання Паркінсона – це дегенерація нервових клітин в будь-якій частині головного мозку. 7. Це захворювання, як правило, починається в середньому або літньому віці. 8. Розсіяний склероз характеризується паралічем кінцівок, погіршенням зору і слуху, тремором і частим кліпанням очима.

Exercise 5. 182. Speak on causes, symptoms and signs, and treatment of:

Alzheimer's Disease;

Parkinson's Disease;

Multiple Sclerosis.

Exercise 5. 183. Write the summary of the text "Degenerative Disorders"

Unit 5.6.1. URINARY SYSTEM

Speaking

1. What is the function of the urinary system?
2. What are the major organs of the urinary system?
3. What kidneys disorders do you know?

Active Vocabulary

bladder	сечовий міхур
ureter	сечовід
urethra	уретра, сечівник
excretion	виділення
bean	біб
fist	кулак
renal	нирковий
urine	сеча
urination	сечовипускання
capsule	капсула, оболонка
fat pad	жирове тіло
fascia	фасція
cortex	кора
medulla	мозок
hilum, hilus	хілус, ворота
calyx (pl. calyces)	ниркова чашка
to narrow	звужуватись

Exercise 5. 184. Translate the following words and word-combinations into Ukrainian: Narrow; fat pad; urethra; bladder; cortex; carry; hilum; capsule; fist; medulla; ureter.

Exercise 5. 185. Read the following words and word-combinations:

Kidney; urine; excess; pressure; either; slightly; renal fascia; relatively; nerves; exit; hilum; sinus; channel; minor; muscular.

Exercise 5. 186. Read the following text:

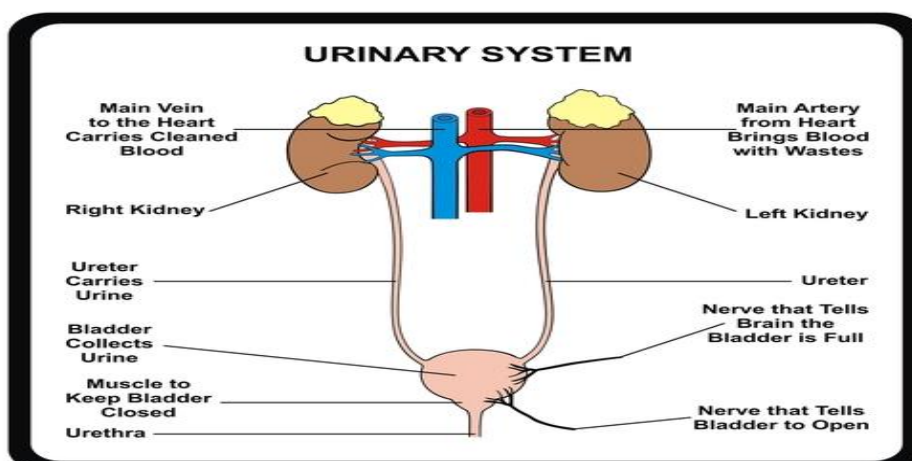
URINARY SYSTEM

The urinary system consists of two kidneys, urinary bladder, two ureters, which carry urine from the kidneys to the urinary bladder, and urethra, which carries urine from the bladder to the outside of the body. The primary function of the urinary system is to remove the excess fluid and waste material from the blood. In addition, the kidneys function as glands producing hormones that are important in the production of red blood cells, in the regulation of blood pressure, and in the formation of bone.

The kidneys are the most important organs for fluid excretion. The kidneys, a pair of bean-shaped organs, are located against the back of the abdominal wall on either side of the spine at the level of the lowest ribs. Each kidney is generally about the size of the person's fist. The right kidney is slightly lower than the left. The kidney is surrounded by a renal capsule and a renal fat pad and is held in place by the renal fascia. The two layers of the kidney are the cortex and the medulla.

On the medial side of each kidney there is a relatively small area called the hilum where the renal artery and the nerves enter and the renal vein and ureter exit.

The hilum opens into a cavity called the renal sinus, which is filled with fat and connective tissue. In the center of the renal sinus the urinary channel is enlarged to form the renal pelvis.



Several large urinary tubes (called calyces) extend to the renal pelvis from the kidney tissue. The calyces that open directly into the renal pelvis are called major calyces, and the smaller calyces that open into major calyces are called minor calyces. There are 8 to 20 minor calyces and 2 or 3 major calyces per kidney. At the hilum the renal pelvis narrows to form the ureter. Ureters are muscular tubes, one from each kidney, that propel the urine to the bladder. The bladder is a muscular bag that stores the urine. The urethra is the narrow tube through which the urine leaves the bladder during urination.

Exercise 5. 187. Translate the following words and word-combinations into English: Ниркова чашка; переносити, нести; капсула, оболонка; медула; фасція; виділення; уретра, сечовивідний канал; ворота; сечовий міхур; звужуватися; сечовипускання; сечовід; нирковий.

Exercise 5. 188. Translate the text “Urinary System” into Ukrainian.

Exercise 5. 189. Insert the missing words:

1. The main function of the _ system is removal of excess fluid and waste material from the blood. 2. The urinary system consists of two _, urinary bladder, ureters, and _. 3. The kidneys are _ against the back of the abdominal wall. 4. Each kidney is generally about the size of the person's _. 5. Kidneys are the most important organs for fluid _. 6. Ureters are _ tubes. 7. They propel the urine to the _. 8. The bladder is a muscular bag that stores the _. 9. The _ is the narrow tube through which the urine leaves the bladder during urination.

Exercise 5. 190. Answer the following questions:

1. What does the urinary system consist of? 2. What is the major function of the urinary system? 3. What are the layers of kidneys? 4. What is hilum? 5. What are ureters? 6. What are their functions? 7. What is the function of the urethra?

Exercise 5. 191. Match the following words with their definitions:

1. Kidney	A. Tube conducting urine from the kidney to the urinary bladder.
2.	B. One of the two organs that excrete urine. They are bean-

Urethra	shaped organs approximately 11 cm long, 5 cm wide, and 3 cm thick.
3. Ureter	C. Urogenital canal; canal leading from the bladder, discharging the urine externally.

Exercise 5. 192. Insert the prepositions:

1. The urinary system regulates the volume and composition _ the intestinal fluid. 2. The urinary system consists _ the kidneys, ureters, bladder, and urethra. 3. The key elements _ the urinary system are the kidneys, a pair of purplish-brown organs located below the ribs toward the middle of the back. 4. The kidneys remove excess liquid and wastes _ the blood in the form of urine, keep a stable balance of salts and other substances in the blood, and produce a hormone that aids the formation _ red blood cells. 5. Narrow tubes called ureters carry urine _ the kidneys to the bladder, a sack-like organ in the lower abdomen. 6. Urine is stored _ the bladder and emptied through the urethra.

Exercise 5. 193. Write out key words of the text “Urinary System”.

Exercise 5. 194. Speak on: the structure of the organs of the urinary system; the location of the organs of the urinary system; the functions of the organs of the urinary system.

Exercise 5. 195. Make up a dialogue on the urinary system.

Exercise 5. 196. Read the following text and retell it:

FUNCTIONS OF URINARY SYSTEM

The urinary system participates with other organs to regulate the volume and composition of the intestinal fluid. Exchange across the walls of capillaries provides nutrients and removes waste products from the interstitial spaces. Exchange of gas in the lungs removes carbon dioxide from the blood and provides a supply of oxygen. The digestive system supplies nutrients to the blood, and the liver removes certain waste products. These organ systems function together to regulate the level of gases, nutrients, and some waste products in the blood. The kidneys remove waste products, many of which are toxic, from the blood and play a major role in controlling blood volume, the concentration of ions in the blood,

and the pH of the blood. The kidneys are also involved in the control of red blood cell production and vitamin D metabolism. Although the kidneys are the major excretory organs in the body; the skin, liver, lungs, and intestines also eliminate wastes. However, if the kidneys fail to function, other structures cannot adequately compensate to maintain a normal environment for the body cells.

Exercise 5. 197. Give a summary of the following text:

FLUID EXCRETION

Blood enters each kidney from its renal artery, a major branch of the aorta, the body's main artery. Once inside the kidney, the blood passes through a set of filtering systems called nephrons. These are the main functioning units of the kidney. Each kidney contains more than 1 million such units, each consisting of a tuft of small blood vessels, called a glomerulus, and some tubules. Although most nephrons measure 50 to 55 mm in length, the nephrons with renal corpuscles located within the cortex near the medulla are longer than the nephrons with renal corpuscles in the cortex nearer to the exterior of the kidney. First, the blood passes through the glomerulus. The blood cells, proteins, large particles, and some of the water remain in the bloodstream. Everything else, including a large volume of water, filters out and passes into the tubule. In the tubule, an important process occurs to control what will be excreted in the urine and what will be reabsorbed into the blood. Waste products (urea, creatinine, and uric acid) and excess salts, water, and calcium remain within the tubule. The other substances are absorbed. These absorbed substances are then returned to the bloodstream. Thus, the composition of the urine is determined by both the need to get rid of unwanted substances and the need to retain other substances. The urine that has remained in the tubule emerges from its lower end, enters the ureter, and goes to the bladder, where it is stored. When the nerves of the bladder signal a feeling of fullness, the urine is voided through the urethra.

Exercise 5. 198. Read and translate the following words:

Adjacent; maintain; urea; erythropoiesis; cushion; cardiac output; interlobar; papillae; arcuate artery; radial artery; arteriole; peritubular; glomerule; link.

Exercise 5. 199. Read the following text:

KIDNEYS

The kidneys are complex organs that have numerous biological roles. Their primary role is to maintain the homeostatic balances of bodily fluids and secreting metabolites (such as urea) and minerals from the blood and excreting them, along with water, as urine. The kidneys are important regulators of blood pressure, glucose metabolism, and erythropoiesis (the process by which red blood cells (erythrocytes) are produced). The medical field that studies the kidneys and diseases of the kidney is called nephrology. The prefix nephro- meaning kidney is from the Ancient Greek word nephros; the adjective renal meaning related to the kidney is from Latin rēnēs, meaning kidneys. In humans, the kidneys are located in the posterior part of the abdomen. There is one on each side of the spine. The right kidney sits just below the liver, the left one is located below the diaphragm and adjacent to the spleen. Above each kidney an adrenal gland is. The asymmetry within the abdominal cavity caused by the liver results in the right kidney being slightly lower than the left one, while the left kidney is located slightly more medial. The kidneys are approximately at the vertebral level T12 to L3. The upper parts of the kidneys are partially protected by the eleventh and twelfth ribs, and each whole kidney is surrounded by two layers of fat, which help to cushion it. In a normal human adult, each kidney is about 10 cm long, 5.5 cm in width and about 3 cm thick, weighting 150 grams. Together, the kidneys weight about 0.5% of a person's body weight. The two kidneys together receive between 20% and 25% of the total cardiac output. Each kidney receives its blood supply from the renal artery, two of wich branch from the abdominal aorta. Upon entering the hilum of the kidney, the renal artery divides into smaller interlobar arteries situated between the renal papillae. At the outer medulla, the interlobar arteries branch into arcuate arteries, which course along the border between the renal medulla and cortex, giving off still smaller branches, the cortical radial arteries. Branching of these cortical arteries are the afferent arterioles supplying the glomerular capillaries,

which drain into efferent arterioles. Efferent arterioles divide into peritubular capillaries that provide an extensive blood supply to the cortex. Blood from these capillaries collects in renal venules and leaves the kidney via the renal vein. Efferent arterioles of glomeruli closest to the medulla send branches into the medulla, forming the vasa recta (interstitial artery). Blood supply is intimately linked to blood pressure.

Exercise 5. 200. Answer the following questions:

1. What is the major role of the kidneys? 2. Are the kidneys important regulators of blood pressure, glucose metabolism, and erythropoiesis? 3. Why is the right kidney slightly lower than the left one? 4. How do the kidneys receive blood supply?

Exercise 5.201. Translate the following sentences into English:

1. Органи сечової системи складаються з двох нирок та органів, які слугують для накопичення і виведення сечі (сечоводи, сечовий міхур, сечівник). 2. Нирка – парний, бобоподібної форми орган, масою 120-200 г. 3. Знаходиться нирка в поперековій ділянці, з боків від хребтового стовпа. 4. Права нирка знаходиться на 1 – 1,5 см нижче від лівої. 5. Сечовід має форму трубки, завдовжки 30-35 см, діаметром 4-7 см. 6. Функція сечоводу – проведення сечі. 7. Сечовий міхур – непарний порожнистий орган. 8. Функція сечового міхура – накопичення та виведення сечі. 9. Сечівник – непарний орган у формі трубки. 10. Сечівник має два отвори – внутрішній та зовнішній. 11. Функція сечівника – виведення сечі.

P 2. KIDNEYS DISORDERS

VOCABULARY

Glomerular	клубочковий,гломерулярний
glomerulonehritis	гломерулонефрит
corpuscle	тільце
renal corpuscle	мальпігієве тільце, ниркове тільце

permeability	проникність
filtrate	фільтрат; фільтрувати
osmolality	осмотичний тиск
blurred	нерізкий
flank	бік
recur	рецидивувати
eradicate	усувати, звільняти
failure	недостатність
urea	сечовина
acidosis	ацидоз, кислотна інтоксикація
pyelonephritis	пієлонефрит
renal pelvis	ниркова лоханка
renal tubule	нирковий каналець
vasoconstriction	ангіоспазм, вазоконстрикція, вазоспазм,

Exercise 5. 202. Read the following words and word-combinations:

Abnormality; initially; nephritis; corpuscle; permeability; osmolality; urine; generalized; pyelonephritis; medulla; high fever; although; immediate threat; recur; interfere; lead; mercuric ion; carbon tetrachloride; epithelium.

5.6.2. KIDNEYS DISORDERS

Exercise 5. 203. Read and translate the following text:

KIDNEYS DISORDERS

There are many forms of kidneys diseases. Many of the following abnormalities have no symptoms and may often go undetected, at least initially, or are detected when tests are done.

Glomerulonephritis results from inflammation of the filtration membrane within the renal corpuscle. It is characterized by an increased permeability of the filtration membrane and the accumulation of numerous white blood cells in the area of the filtration membrane. As a consequence, a high concentration of

plasma proteins enters the urine along with numerous white blood cells. Plasma proteins in the filtrate increase the osmolality of the filtrate, causing a greater-than-normal urine volume. The signs and symptoms are the following: cola- or tea-colored urine, hypertension, fluid retention, headaches, blurred vision, and generalized aches.

Pyelonephritis is inflammation of the renal pelvis, medulla, and cortex. It often begins as a bacterial infection of the renal pelvis and then extends into the kidney itself. It can result from several types of bacteria. Pyelonephritis may cause the destruction of nephrons and renal corpuscles, but because the infection starts in the pelvis of the kidney, it affects the medulla more than the cortex. As a consequence, the ability of the kidney to concentrate urine is dramatically affected. As a rule the person has flank pain, high fever, vomiting, and burning sensation during urination. When properly treated, acute pyelonephritis rarely progresses to chronic renal disease, although it can be an immediate threat to life in an elderly or weakened persons. It can also recur if the infection is not totally eradicated.

Renal failure may result from any condition that interferes with kidney function. Acute renal failure occurs when damage to the kidney is extensive and leads to the accumulation of the urea in the blood and to acidosis. In complete renal failure death may occur in 1 to 2 weeks. Acute renal failure may result from acute glomerulonephritis, or it may be caused by damage to or blockage of renal tubules. Some poisons such as mercuric ions or carbon tetrachloride that are the common to certain industrial processes cause necrosis of the nephron epithelium. If the damage does not interrupt the basement membrane surrounding the nephrons, extensive regeneration can occur within 2 or 3 weeks. Severe ischemia associated with circulatory shock caused by sympathetic vasoconstriction of the renal blood vessels can cause necrosis of the epithelial cells of the nephron.

Exercise 5.204. Translate the following words and word-combinations into English:

Гломерулонефрит; нирковий каналець; усувати, викорінювати; мальпігієве тільце, ниркове тільце; ацидоз, кислотна інтоксикація; осмотичний тиск; ниркова лоханка; сечовина; недостатність; пієлонефрит; рецидивувати; проникність; ангіоспазм, звуження кровоносних судин; викликати деструкцію; хронічне захворювання; виникати; покривати, оточувати.

Exercise 5. 205. Insert the missing words:

1. Glomerulonephritis results from inflammation of the filtration membrane within the renal __. 2. It is characterized by an increased __ of the filtration membrane. 3. The signs and symptoms of glomerulonephritis are the following: tea-colored urine, hypertension, fluid retention, __, and generalized aches. 4. Pyelonephritis is inflammation of the renal __, medulla, and cortex. 5. It often begins as a bacterial __ of the renal pelvis. 6. Then it extends into the __ itself. 7. Pyelonephritis may cause the destruction of __ and renal corpuscles. 8. The person with pyelonephritis has __ pain, high fever, vomiting, and burning sensation during urination. 9. When properly treated, acute __ rarely progresses to chronic renal disease. 10. Renal failure may result from any __ that interferes with kidney function. 11. Acute renal failure occurs when damage to the kidney leads to the accumulation of the __ in the blood. 12. In renal failure death may __ in 1 to 2 weeks. 13. Acute renal failure may result from acute __. 14. In some cases it may be caused by damage to or blockage of renal __. 15. Circulatory shock caused by sympathetic __ of the renal blood vessels can cause necrosis of the epithelial cells of the nephron.

Exercise 5. 206. Answer the following questions:

1. What kidneys disorders do you know? 2. What does glomerulonephritis result from? 3. What is glomerulonephritis characterized by? 4. What are the symptoms of glomerulonephritis? 5. What is pyelonephritis? 6. What can pyelonephritis result from? 7. What are the signs of pyelonephritis? 8. What is renal failure? 9. What are the causes of renal failure? 10. Is it dangerous disease?

Exercise 5. 207. Insert the prepositions and translate the following

sentences:

1. Acute infections practically always precede the onset _ acute nephritis. 2. Acute glomerular nephritis is not merely a disease of the kidney, but may involve various systems _ the body. 3. The chief changes occurring _ acute glomerular nephritis are swelling and disintegration of the endothelial cells which line the capillaries of the tufts (tuft пучок). 4. The patient may develop the clinical picture of acute nephritis _ a period of from two to eight days. 5. Disturbances of urination characterized _ a scanty (недостатній, обмежений) outflow of urine or even complete anuria may be present. 6. The severity or mildness of the kidney disease cannot always be measured _ the examination of the urine or any other tests.

Exercise 5. 208. Speak on the kidney disorders. The following expressions may be helpful:

... is one of the kidneys disorders. The cause of ... is The signs and symptoms of ... are may progress to/can cause

Exercise 5. 209. Make up a dialogue on glomerulonephritis, pyelonephritis, or renal failure. Use the following expressions:

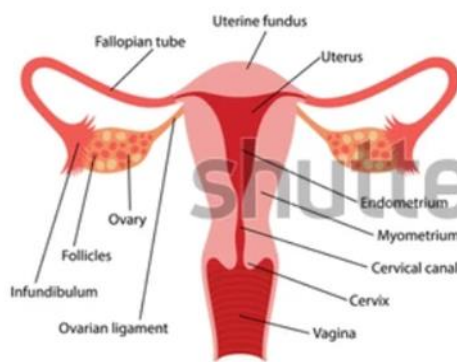
What is the definition of ...? What is the cause of ...? What are the signs of ... ?

UNIT 5.7. REPRODUCTIVE SYSTEM. PREGNANCY

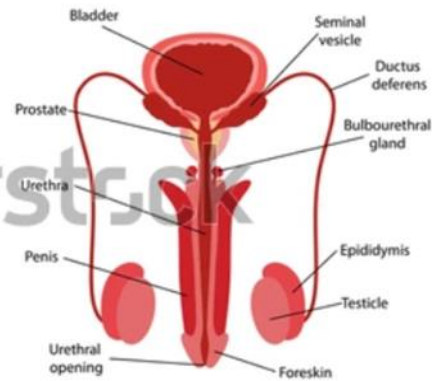
Speaking

1. What are the main functions of female and male reproductive system?
2. What is the structure of male and female reproductive system?
3. What are the main causes of infertility?
4. Name at least six sexually transmitted diseases.

Human reproductive system



Female organs



Male organs

childbirth	ПОЛОГИ
uterine tubes (fallopian tubes)	маткові труби (фаллопієві труби)
uterus	матка
external genital organs	зовнішні статеві органи
vagina	піхва
mammary glands	молочні залози
sweat glands	потові залози
ova	яйцеклітина
embryo	ембріон, заплід, зародок
oocyte or zygote (the fertilized oocyte)	ооцит або зигота (запліднена яйцеклітина)
puberty	статеве дозрівання
menopause	менопауза (клімактеричний період)
sex hormones	статеві гормони
estrogen	естроген
progesterone	прогестерон
breasts	груди
spermatozoon	сперматозоїд
pronuclei	пронуклеуси
cervix	шийка матки
cervical canal	цервікальний канал
muscular layer	м'язовий шар
female perineum	жіноча промежина
male perineum	чоловіча промежина
mucous membrane	слизова оболонка
nipple	сосок
circular, pigmented areola	кругла, пігментована ареола
sperm cells	сперматозоїди

testes (or testicles)	яєчка
epididymides	епідидиміди
ductus deferentia	вивідної протоки
urethra	уретра, сечівник
prostate gland	передміхурова залоза
bulbourethral glands	бульбоуретральні залози
scrotum	мошонка
penis	пеніс
testosterone	тестостерон
epididymides	придаток яєчка
ejaculate	еякулят
ejaculation	еякуляція
sexual intercourse	статевий акт
to fertilize an egg	запліднити яйцеклітину
maturation	дозрівання
menstruation (menses)	менструація (менструація)
menstrual cycles	менструальні цикли
disturbed sleep	порушений сон
hot flashes	припливи
mood swings	зміни настрою

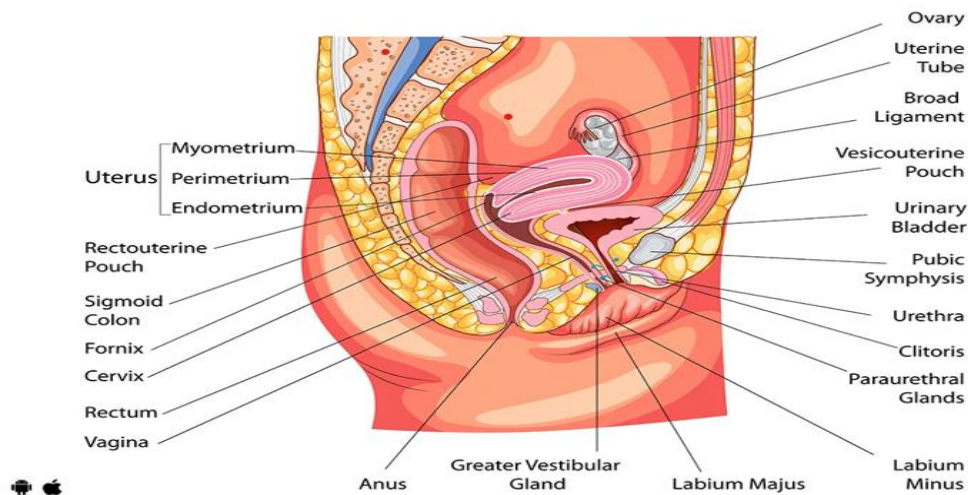
Exercise. 5. 210. Translate the following words and word-combinations into Ukrainian:

Female reproduction, hormonal and nervous regulation, female reproductive organs, ovaries, fallopian tubes, external genital organs, internal reproductive organs, mammary glands, fertilized oocyte, between puberty and menopause, pelvic cavity, male and female sex cells, spermatozoon, a medium-sized pear, fusion of the male and female pronuclei, cervix, cervical opening, discharge of the endometrial lining, unfertilized egg, maturation, transition phase, regular menstrual periods.

5.7.2. FEMALE REPRODUCTIVE SYSTEM

Exercise 5. 211. Read and translate the following text.

Female Reproductive System



As in the male, female reproduction is under the control of hormonal and nervous regulation. Development of the female reproductive organs and normal function depend on the relative levels of a number of hormones in the body.

The female reproductive system consists of ovaries, uterine tubes, uterus, vagina, external genital organs, and mammary glands. The female reproductive system produces ova and provides a place for the embryo growth.

There are two fallopian tubes (also called uterine tubes) one on each side of the uterus. Each of these tubes contains a passageway no wider than a needle. The fallopian tubes transport the oocyte or zygote (the fertilized oocyte) from the ovary to the uterus.

Two ovaries are small organs approximately 2 to 3.5 cm long and 1 to 1.5 cm wide. They are located in pelvic cavity. Between puberty and menopause, the ovaries generally release one egg each month. They also produce the female sex hormones (estrogen and progesterone). The union of the male and female sex cells in humans takes place within the female body.

Fertilization is the process of penetrating the secondary oocyte by the spermatozoon. It is completed with the fusion of the male and female pronuclei. If fertilization takes place, the new cell formed begins a nine-month period of development within the uterus.

The size and shape of the uterus is as a medium-sized pear and is approximately 7.5 cm long and 5 cm wide. The walls of uterus are thick and consist of three layers: serous, muscular, and mucous. The powerful muscles contract during childbirth to push the baby out.

The narrow neck of the uterus is called the cervix, and it also has thick walls. The mucus fills the cervical canal and acts as a barrier to substances that could pass from the vagina into the uterus. Ordinarily, the opening of the cervix is exceedingly small. During childbirth, the cervical opening expands to allow passage of the baby.

The cervix extends into vagina, which is a muscular tube about 10 cm long. The wall of the vagina consists of an outer muscular layer and an inner mucous membrane. Most of the time the walls of vagina touch, but they can expand to accommodate a baby. The internal reproductive organs are held in place within the pelvis by a group of ligaments.

The opening to vagina is protected by external genitals.

Mammary glands are the organs of milk production and are located within breasts. The mammary glands are modified sweat glands. Externally, the breasts of both males and females have a raised nipple surrounded by a circular, pigmented areola (pl. areolae). The female breasts begin enlarging during puberty under the influence of estrogen and progesterone.

Menstruation. Menstruation (men-stroo-AY-shun), also known as menses, is the normal periodic discharge of the endometrial lining and unfertilized egg from uterus. The average menstrual cycle consists of 28 days. These days are grouped into four phases. *Menarche* (*MEN-ar-kee*) is the beginning of menstruation (men means menstruation, and -arche means beginning). This begins after the maturation that occurs during puberty. In the United States the average age of menarche is 12. *Menopause* (*MEN-oh-pawz*) is the normal termination of menstruation in a woman during middle age (men/o means menstruation, and -pause means stopping). Menopause is considered to be confirmed when a woman has gone 1 year without having a period. *Perimenopause* (*pehr-ih-MEN-oh-pawz*) is the term

used to designate the transition phase between regular menstrual periods and no periods at all (peri- means surrounding, men/o means menstruation, and -pause means stopping). During this phase, which can last as long as 10 years, changes in hormone production can cause symptoms, including irregular menstrual cycles, hot flashes, mood swings, and disturbed sleep.

Exercise 5. 212. Complete the following sentences.

1. The female reproduction is under the control of ...
2. The female reproductive system consists of ...
3. The female reproductive system produces...
4. Each of the fallopian tubes contains ...
5. Two ovaries are
6. The ovaries produce such sex hormones as
7. Fertilization is ...
8. The walls of uterus are ...
9. The cervix is ...
10. Mammary glands are ...
11. The external genitals protect ...
12. Mammary glands are located
13. Menstrual cycle is grouped into such four phases: ...

Exercise 5. 213. Answer the questions.

1. What does development of the female reproductive organs and its normal function depend on?
2. What is the main organs of the female reproductive system?
3. What is the structure and function of the fallopian tubes?
4. What is the location of the ovaries? What is their major function?
5. What is fertilization?
6. What is the structure, shape and size of the uterus?
7. What is the cervix and what is its main function?
8. What is the structure of the vagina?
9. What are the organs of milk production?

10. What is menstruation?
11. What is the duration of the average menstrual cycle?
12. What are the main phases of the menstrual cycle?

Exercise 5. 214. Read and translate the following text.

MALE REPRODUCTIVE SYSTEM

The main function of the male reproductive system is producing sperm cells and transporting them to the female reproductive system. The male reproductive system consists of the testes (or testicles), epididymides, ductus deferentia, urethra, seminal vesicles, prostate gland, bulbourethral glands, scrotum, and penis. Sperm cells are very temperature sensitive and do not develop normally at usual body temperatures. The testes and epididymides are located outside the body cavity where the temperature is low. The testes are contained in a pouch of skin, called the scrotum. In each testis there is a tightly packed mass of coiled tubes surrounded by a protective capsule. At puberty the testes begin to produce the sperm cells (spermatozoa) that are used in reproduction. This process continues throughout life. In addition to producing sperm cells the testes secrete the male hormone testosterone, which plays an important role in the development and maintenance of the typical masculine physical characteristics, such as facial hair, greater muscle mass and strength, and a deeper voice. The sperm cells are constantly being produced within each testis. They are transported through the epididymides and the ductus deferentia and then stored in the seminal vesicles. The mixture of the sperm cells with the fluids formed by the seminal vesicles and the prostate gland forms the semen that is ejaculated during sexual activity. Although sperm cells make up only a small portion of the semen, a single ejaculation contains as many as 500 million sperm. After sexual intercourse, one of these cells may reach and fertilize an egg in the female. The prostate gland contributes fluids to the semen. As a man ages, the prostate gland frequently enlarges. The urethra, which runs the length of the penis through its center, carries urine during voiding and semen during

ejaculation. The urethra exits from the pelvis and passes through the penis to the outside of the body.

Exercise 5. 215. Answer the following questions.

1. What is the main function of the male reproductive system?
2. What is the structure of the mail reproductive system?
3. What are the main characteristics of sperm cells?
4. What is the major function of sperm cells?
5. Where are the the testes located?
6. Speak on the main organs of the male reproductive system (their structure and functions).

Exercise 5. 216. Inser the missing word or words.

1. The main function of the male reproductive system is producing _____.
2. Sperm cells are very temperature _____ and do not develop normally at usual body temperatures.
3. The testes are contained in a pouch of skin, called _____.
4. _____ the testes begin to produce the sperm cells (spermatozoa).
5. The male hormone _____ plays an important role in the development and maintenance of the typical masculine physical characteristics.
6. The sperm cells are constantly being produced within _____.
7. The mixture of the sperm cells with the fluids formed by _____.
8. The prostate gland forms the semen that is ejaculated during _____.
9. A single ejaculation contains as many as _____.
10. After sexual intercourse, one of sperm cells may reach and _____ in the female.

Exercise 5. 217. Select the correct answer, and write it on the line provided.

1. The term that describes the inner layer of the uterus is ...
a) corpus b) endometrium c) myometrium d) perimetrium
2. The term describing the single cells formed immediately after conception is...
a) embryo b) fetus c) gamete d) zygote
3. The mucus that lubricates the vagina is produced by the...
a) Bartholin's glands b) bulbourethral glands c) Cowper's glands d) hymen
4. The finger-like structures of the fallopian tube that catch the ovum are the..
a) fimbriae b) fundus c) infundibulum d) oviducts
5. The term is used to designate the transition phase between regular menstrual periods and no periods at all....
a) menarche b) menopause c) perimenopause d) puberty
6. The medical term for the condition also known as a yeast infection is...
a) colporrhoea b) leukorrhoea c) pruritus vulvae d) vaginal candidiasis
7. Sperm are formed within the..... of each testicle.
a) ejaculatory ducts b) epididymis c) seminiferous tubules d) urethra
8. During puberty, the term describes the beginning of the menstrual function.
a) menarche b) menopause c) menses d) menstruation
9. In the female, the region between the vaginal orifice and the anus is known as the..
a) clitoris b) mons pubis c) perineum d) vulva
10. The release of a mature egg by the ovary is known as...
a) coitus b) fertilization c) menstruation d) ovulation

Exercise 5. 218. Write the correct answer in the middle column.

Definition	Correct Answer	Possible Answers
carry milk from the mammary		vulva

glands		
surrounds the testicles		scrotum
external female genitalia		lactiferous ducts
protects the tip of the penis		foreskin
sensitive tissue near the vaginal opening		clitoris

5.7.3. PREGNANCY

pregnancy	вагітність
childbirth (delivery, labor, parturition)	пологи
expulsion of the afterbirth	вигнання посліду
fetus	плід
gravida	вагітна
embryo	зародок, ембріон
trimester	триместр, тримісячний термін
assault	негативне явище
rudiment	рудимент, зачаток
mammal	ссавець
bud	брунька, зачаток
gestation	вагітність; період вагітності
mature	дозрівати, розвиватися
fertilization	запліднення
placenta	послід
vernix	сироподібна змазка, першородна змазка

Exercise 5. 219. Translate the following words and word-combinations into Ukrainian:

Pregnancy; a growing fetus; pregnant female; embryo; the embryo is sensitive to assaults; burrow; rudiments of a spinal cord; arm and leg buds; gestational week; it can kick; less transparent; beyond the fingers.

Exercise 5. 220. Read the following words and word-combinations:

Initial; para; similarly; particularly; doubling; miniature; previous; beyond vertebrae; more noticeable; trimester; heart. Embryo at 4 weeks after fertilization Fetus at 8 weeks after fertilization Fetus at 18 weeks after fertilization Fetus at 38 weeks after fertilization Development of Fetus

Exercise 5. 221. Read and memorize the following medical terms and their definitions:

embryo – conceptus between time of fertilization to 10 weeks of gestation;

fetus – from 10 weeks of gestation to time of birth;

gravidity (G) – number of times the woman has been pregnant;

infant – time of birth to 1 year of age;

preterm infant – delivered between 24-37 weeks;

preivable infant – delivered prior to 24 weeks;

term infant – delivered between 37-42 weeks ;

first trimester – up to 14 weeks of gestation;

second trimester – 14 to 28 weeks of gestation;

third trimester – 28th week to delivery (*пологу*) full term refers to the end of 36 weeks (nine months) from the first day of the woman's last menstrual period – the end of gestation. If a woman gives birth earlier than this, it is classed as a premature birth.

Exercise 5. 222. Read and translate the following text:

PREGNANCY

Pregnancy is the term used to describe when a woman has a growing fetus inside of her. Human pregnancy lasts about 40 weeks, or just more than 9 months. The medical term for a pregnant female is *gravida*, which is a word rarely used in

common speech. The term embryo is used to describe the developing human during the initial weeks, and the term fetus is used from 110 about two months of development until birth. A woman who is pregnant for the first time is known medically as a primigravida or "gravida 1", while a woman who has never been pregnant is known as "gravida 0". Similarly, the terms "para 0", "para 1" and so on are used for the number of times a woman has given birth. Pregnancy is typically divided into three periods, or trimesters. Trimester means about three months.

First Trimester. The first 3 months of fetal development are in many ways the most important. During this time, all the major organs in the body are formed. The embryo is particularly sensitive to assaults from the outside. By the end of this period the baby is not more than 3 inches long and weighs little more than 1 ounce. The time from fertilization to implantation in the uterus is about 5 to 7 days. After burrowing deep within the uterus, the egg begins to grow, doubling in size every day. The placenta has begun to form. In another week, the rudiments of a spinal cord are evident and, within days, five to eight vertebrae are in place. In addition, the eyes and heart have begun to form. Over the next few weeks the components of a human being develop, although at first the human baby is similar in appearance to the developing babies of some other mammals. The heart begins to form, as does the intestinal tract. At the end of the sixth week the brain becomes more noticeable, and arm and leg buds begin to appear. By the seventh week, the chest and abdomen are fully formed and the lungs are beginning to develop. The baby's face and features are forming in the eighth gestational week. Fingers and toes are beginning to develop. At the end of the second month of pregnancy, the baby looks like a human infant, albeit in miniature. By the tenth week, the baby's face is well developed. The heart has four chambers and beats 120 to 160 beats per minute. At this point, the embryo is considered a fetus.

Second Trimester. During the second trimester the fetus grows and the organs formed during the previous weeks mature. At 13 weeks the fetus can kick and move its toes. The mouth can open and close, and the fetus is capable of bending its arms and a fist. The fetus's skin is slightly pink and less transparent

than it was previously. Fine hair covers the entire body. The first eyelashes and eyebrows begin to appear. Once month later, the fetus may have hair in its head. It is now 12 inches long and weighs about 1 pound.

Third Trimester. The fetus takes on most of its weight during its last 13 weeks of development. The baby is covered with a thick white protective coating called vernix. The infant's eyes are open, and a baby born at this time can cry weakly and move its limbs. The infant now weighs 3 pounds 12 ounces. The skin may or may not still be covered with vernix. Most of the body hair is gone, although the shoulders and arms may still have a light covering. The fingernails and toenails may extend beyond the fingers and toes.

Exercise 5. 223. Translate the following words and word-combinations into English:

Прозорий; триместр, тримісячний термін; дозрівати, розвиватися; плід; вагітність; зародок, ембріон; сироподібна змазка, першородна змазка; вагітна; помітний; з'являтися; чутливий; брунька, зачаток; запліднення; грудна клітка; черевна порожнина; ділитися, підрозділятися; закривати(ся); покривати.

Exercise 5. 224. Insert the missing words:

1. Human _ lasts about 40 weeks, or just more than 9 months. 2. Pregnancy is typically _ into three periods, or _, each of about three months. 3. The first 3 months of _ development are the most important. 4. During this time, all the major organs in the body are _. 5. The eyes and _ have begun to form. 6. At the end of the sixth week the brain becomes more _, and arm and leg _ begin to appear. 7. By the seventh week, the _ and abdomen are fully formed and the lungs are beginning to develop. 8. During the second trimester the fetus grows and the organs formed during the previous weeks _. 9. At 13 weeks the fetus can _ and move its toes. 10. The mouth can open and _. 11. The fetus is capable of bending its _ and a fist. 12. Fine hair _ the entire body. 13. The first eyelashes and eyebrows begin to _. 14. During the third _ the infant's eyes are open.

Exercise 5. 225. Answer the following questions:

1. What does a term “pregnancy” mean? 2. How many periods is pregnancy divided into? 3. When are all the major organs in the body formed? 4. What organs and parts of the body are formed during the first trimester? 5. How can you characterize the fetus growth during the second trimester? 6. What is the weight of infant during the third trimester?

Exercise 5. 226. Make up a dialogue on pregnancy.

Exercise 5. 227. Read the beginning of the text “Prenatal Care”. Combine remaining corresponding parts into sentences, paying attention to the meaning of the sentences:

PRENATAL CARE

Prenatal care is the care woman gets during a pregnancy. Getting early and regular prenatal care is important for the health of both mother and the developing baby. In addition, health care providers are now recommending a woman see a health care provider before she is even trying to get pregnant.

Healthcare providers recommend women take the following steps to ensure the best health outcome for mother and baby: Getting at least 400 micrograms of folic acid every day to help prevent many types of neural tube defects.

Healthcare providers recommend taking folic acid both before and during pregnancy.

1. Being properly vaccinated for certain diseases (such as chickenpox and rubella) that could harm a developing fetus _____
2. Maintaining a healthy weight and diet and _____
3. _____ before, during, and after pregnancy.
 - A. getting regular physical activity before, during, and after pregnancy
 - B. it is important to have the vaccinations before becoming pregnant;
 - C. avoiding smoking, alcohol, or drug use.

Exercise 5. 228. Read the following text and list the signs of pregnancy:

SIGNS OF PREGNANCY

Physical symptoms of pregnancy vary. Of the symptoms listed, not all will occur for every woman, and individuals may well experience different symptoms

during different pregnancies. The following is a list of the most common symptoms.

First trimester. Breasts may feel swollen, sore, or tender. Pregnancy sickness may cause nausea and vomiting. It is also known as morning sickness, although it may occur at any time of the day or night. The sense of smell may be heightened. Fatigue is a common symptom in early pregnancy. It results from increased progesterone and may be compounded by increased blood volume, which can result in lower blood pressure and lower blood sugar.

Dizziness and fainting may be experienced, particularly after standing up quickly. These symptoms are caused by lower blood pressure and lower blood sugar. Frequent mild headaches may occur, caused by increased blood circulation. Constipation is a common symptom caused by increased progesterone, which slows the activity of the large intestine. Increased urination is caused by pressure of the growing uterus against the urinary bladder.

Emotional lability, including dysphoria, crying spells, and mood swings, may be experienced. These mood changes are triggered by the effect of pregnancy hormones on mood regulation in the brain.

Other symptoms may be experienced specifically during the later stages, such as: Lower backache. Balance and ease of walking may be affected. Some women report hair loss, others have more body or "facial" hair. Sensitivity in teeth, higher risk for gum disease may occur. Some women during pregnancy experience mental disturbances more severe than typical mood swings. Psychological stress during pregnancy is associated with an increase in other pregnancy symptoms.

SUPPLEMENTARY TEXTS

Text 1. What is Pharmacy?

Pharmacy is the health profession that links the health sciences with the chemical sciences. The scope of pharmacy practice includes more traditional roles such as compounding and dispensing medications, and it also includes more modern services related to health care, including clinical services, reviewing medications for safety and efficacy, and providing drug information. Pharmacists, therefore, are the experts on drug therapy and are the primary health professionals who optimize medication use to provide patients with positive health outcomes.

The word pharmacy is derived from its root word pharma which was a term used since the 15th–17th centuries. However, the original Greek roots from "Pharmakos" imply sorcery or even poison. In addition to pharma responsibilities, the pharma offered general medical advice and a range of services that are now performed solely by other specialist practitioners, such as surgery and midwifery. The pharma often operated through a retail shop which, in addition to ingredients for medicines, sold tobacco and patent medicines. The pharmas also used many other herbs not listed. The Greek word Pharmakeia derives from Greek: φάρμακον (pharmakon), meaning "drug" or "medicine". In its investigation of herbal and chemical ingredients, the work of the pharma may be regarded as a precursor of the modern sciences of chemistry and pharmacology, prior to the formulation of the scientific method.

The field of pharmacy can generally be divided into three main disciplines: Pharmaceutics that concerns on how to convert medication and drugs to

suitable drug dosage forms;

Pharmaceutical Sciences including pharmaceutical and medicinal chemistry, pharmacognosy, pharmacy technology, pharmacy management and economics and pharmacology;

Pharmacy practice that concerns dispensing medication correctly. In the late 20th century, this field has developed into hospital pharmacy and clinical pharmacy. All of these fields are concentrated on optimizing patient care.

The boundaries between these disciplines and with other sciences, such as biochemistry, are not always clear-cut; and often, collaborative teams from various disciplines research together.

Text 2. History of Pharmacy.

The history of pharmacy as an independent science is relatively young. The origins of pharmacy back to the first third of the nineteenth century. The earliest known compilation of medicinal substances was an Indian Ayurvedic treatise [aɪərˈveɪdə

ˈtri:tɪz] (6th century BC). However, the earliest text as preserved dates to the 3rd or 4th century AD. India has a great history of medicine and patient care.

Ancient Egyptian pharmacological knowledge was recorded in various papyri [pəˈpaɪraɪ] such as the Ebers Papyrus of 1550 BC, and the Edwin Smith Papyrus of the 16th century BC. In Ancient Greece there was a group of experts in medicinal plants. Probably the most important representative was Diocles of Carystus (4th century BC). He is considered to be the source for all Greek pharmacotherapeutic treatises between the time of Theophrastus and Dioscorides. The Latin translation *De Materia Medica* (Concerning medical substances) was used as a basis for many medieval texts, and was built upon by many middle eastern scientists during the Islamic Golden Age. The advances made in the Middle East in botany and chemistry led medicine in medieval Islam substantially to develop pharmacology. Muhammad ibn Zakarīya Rāzi (Rhazes) (865-915), for instance, acted to promote the medical uses of chemical compounds. Al-Biruni (973-1050) wrote one of the most valuable

Islamic works on pharmacology entitled *Kitab al-Saydalah* (The Book of Drugs), where he gave detailed knowledge of the properties of drugs and outlined the role of pharmacy and the functions and duties of the pharmacist. Ibn Sina (Avicenna), too, described no less than 700 preparations, their properties, mode of action and their indications.

In Europe pharmacy-like shops began to appear during the 12th century. In 1240 emperor Frederic II issued a decree by which the physician's and the apothecary's [ə'pɒθɪkəri] professions were separated. The first pharmacy in Europe (still working) was opened in 1241 in Trier, Germany. In Europe there are old pharmacies (opened in 1317) still operating in Dubrovnik, Croatia and one in the Town Hall Square of Tallinn, Estonia dating from at least 1422. The oldest is claimed to be set up in 1221 in the Church of Santa Maria Novella in Florence, Italy, which now houses a perfume museum. The medieval Esteve Pharmacy, located in Llívia, a Catalan enclave, is also now a museum dating back to the 15th century, keeping old prescription books and antique drugs.

The earliest drugstores date to the Middle Ages. The first known drugstore was opened by Arabian pharmacists in Baghdad in 754, and many more soon began operating throughout the medieval Islamic world and eventually medieval Europe. By the 19th century, many of the drugstores in Europe and North America had eventually developed into larger pharmaceutical companies.

Most of today's major pharmaceutical companies were founded in the late 19th and early 20th centuries. Key discoveries of the 1920s and 1930s, such as insulin and penicillin, became mass-manufactured and distributed. Switzerland, Germany and Italy had particularly strong industries, with the UK, US, Belgium and the Netherlands following suit.

Text 3. Medication Compounding

The art of preparing medications dates back to the origins of pharmacy. At pharmacies, they still practice the time proven art of compounding using

modern variations of the “mortar and pestle” to prepare unique and individualized medications. Working with doctors, compounding allows pharmacists to customize the strength and dosage form of a medication according to individual needs. This may include making lozenges or preparing a drug that is no longer commercially available or it may involve changing a medication from a pill form into a penetrating skin cream, or adding flavors, or preparing a dye-free or preservative-free medication. The possibilities are endless. Pharmacists can formulate and prepare just about any kind of medicine specifically designed just for you. Compounding services can enhance virtually any area of medicine including natural hormone replacement therapy, children’s dosage forms and flavors, capsule and suppository preparations, etc.

Text 4. Drug Interactions

A drug interaction is a situation in which a substance (usually another drug) affects the activity of a drug when both are administered together. This action can be synergistic (when the drug’s effect is increased) or antagonistic (when the drug’s effect is decreased) or a new effect can be produced that neither produces on its own. Typically, interactions between drugs come to mind (drug-drug interaction). However, interactions may also exist between drugs and foods (drug-food interactions), as well as drugs and medicinal plants or herbs (drug-plant interactions). People taking antidepressant drugs such as monoamine oxidase inhibitors should not take food containing tyramine as hypertensive crisis may occur (an example of a drug-food interaction). These interactions may occur out of accidental misuse or due to lack of knowledge about the active ingredients involved in the relevant substances.

It is therefore easy to see the importance of these pharmacological interactions in the practice of medicine. If a patient is taking two drugs and one of them increases the effect of the other it is possible that an overdose may occur. The interaction of the two drugs may also increase the risk that side effects will occur. On the other hand, if the

action of a drug is reduced it may cease to have any therapeutic use

because of under dosage.

The pharmaceutical interactions that are of special interest to the practice of medicine are primarily those that have negative effects for an organism. The risk that a pharmacological interaction will appear increases as a function of the number of drugs administered to a patient at the same time.

It is also possible for interactions to occur outside an organism before administration of the drugs has taken place. This can occur when two drugs are mixed, for example, in a saline solution prior to intravenous injection.

Drug interactions may be the result of various processes. These processes may include alterations in the pharmacokinetics of the drug, such as alterations in the absorption, distribution, metabolism, and excretion (ADME) of a drug. Alternatively, drug interactions may be the result of the pharmacodynamic properties of the drug, e.g. the co-administration of a receptor antagonist and an agonist for the same receptor.

Therapeutic benefits of a drug on the market far outweighs its risks. All drugs are likely to have some side effects – unwanted action of a drug, e.g. drowsiness from an antihistamine given to relieve allergic symptoms, or acceleration of the heart by a drug given for asthma. The term is not usually applied to the toxic effects of an overdose, but to an effect of a standard therapeutic dose.

A side effect is usually regarded as an undesirable secondary effect which occurs in addition to the desired therapeutic effect of a drug or medication. Side effects may vary for each individual depending on the person's disease state, age, weight, gender, ethnicity and general health.

Pharmaceutical products save lives every day. Manufacturers of these important drugs spend many millions of dollars over many years to bring a product to the market. At the beginning of the process that ends with a new pharmaceutical product is the research into a specific ailment. The researchers investigate the specific disorder to understand all aspects and perform experiments to investigate possible methods of controlling it. Depending on the

results of laboratory experiments, some of these will be taken into the development stage. After the laboratory experiments produced

favorable results, the product is then moved to the development stage. The product will undergo a four phase clinic trial, where each stage of the trial is designed to answer a separate research question. To get approval to manufacture and sell a new pharmaceutical product to the public, a company must provide the FDA (Food and Drug Administration) with proof of the quality, efficacy, and safety of the product. In the European Union, each member country has its own regulatory agency.

Text 5. Drug Toxicity

In the context of pharmacology, toxicity occurs when a person has accumulated too much of a drug in his bloodstream, leading to adverse effects within the body. Drug toxicity is the critical or lethal reaction to an erroneous dosage of a medication. It may occur due to human error or intentional overdose in the case of suicide or homicide. The effects of the medication are more pronounced at toxic levels, and side effects may be severe. The reasons for toxicity vary depending on the mixture of drugs. Toxicity may result when the dose is too high, or it may result when the liver or kidneys are unable to remove the drug from the bloodstream. Many commonly prescribed medications can accumulate in the bloodstream and result in toxicity. Symptoms of drug toxicity depends on the drug taken. Treatment for drug toxicity also depends on the drug taken and the blood level of the drug.

All drugs have both primary intended effects and secondary unintended effects, the latter known as side effects or adverse effects. Although side effects can be neutral or even beneficial, side effects are typically undesirable. Adverse effects can range in severity from nuisance to life threatening. These effects make many patients unwilling to take drugs on a regular basis, and this lack of compliance represents a major practical limitation of pharmacotherapy.

Drug toxicity, also called adverse drug reaction (ADR) or adverse drug event (ADE), is defined as the "manifestations of the adverse effects of drugs administered

therapeutically or in the course of diagnostic techniques. It does not include accidental or intentional poisoning..." The meaning of this expression differs from the meaning of "side effect", as this last expression might also imply that the effects can be beneficial.

Text 6. Pharmacy Technicians

A pharmacy technician, also sometimes known as a pharmaceutical technician, is a health care worker who performs pharmacy related functions, generally working under the direct supervision of a licensed pharmacist or other health professional. Pharmacy technicians work in a variety of locations, usually in community and hospital pharmacies but also sometimes in pharmaceutical manufacturers, third-party insurance companies, computer software companies. Job duties include dispensing prescription drugs and other medical devices to patients and instructing on their use. They may also perform administrative duties in pharmaceutical practice, such as reviewing prescription requests with doctor's offices and insurance companies to ensure correct medications are provided and payment is received. In recent times, they also speak directly with the patients on the phone to aid in the awareness of taking medications on time.

In many countries, both developed and developing, the relative importance of pharmacy technicians within the pharmacy workforce has been amplified in recent years, largely as a reaction to pharmacist shortages, resulting in an increase in their numbers and responsibilities. Practical training, such as completing an internship in a pharmacy, is also often required as part of training for employment as a pharmacy technician.

Text 7. Pharmacist Code of Ethics

Pharmacists are health professionals who assist individuals in making the best use of medications. This Code, prepared and supported by pharmacists, is intended to state publicly the principles that form the fundamental basis of the

roles and responsibilities of pharmacists. These principles, based on moral obligations and virtues, are established to guide pharmacists in relationships with patients, health professionals, and society.

I. A pharmacist respects the covenantal relationship between the patient and pharmacist.

II. A pharmacist promotes the good of every patient in a caring, compassionate, and confidential manner. A pharmacist respects the autonomy and dignity of each patient.

III. A pharmacist acts with honesty and integrity in professional relationships.

IV. A pharmacist maintains professional competence.

V. A pharmacist respects the values and abilities of colleagues and other health professionals.

VI. A pharmacist serves individual, community, and societal needs.

VII. A pharmacist seeks justice in the distribution of health resources.

Text 8. Oath of a Pharmacist

At this time, I vow to devote my professional life to the service of all humankind through the profession of pharmacy.

I will consider the welfare of humanity and relief of human suffering my primary concerns.

I will apply my knowledge, experience, and skills to the best of my ability to assure optimal drug therapy outcomes for the patients I serve.

I will keep abreast of developments and maintain professional competency in my profession of pharmacy. I will maintain the highest principles of moral, ethical and legal conduct.

I will embrace and advocate change in the profession of pharmacy that improves patient care.

I take these vows voluntarily with the full realization of the responsibility with which I am entrusted by the public.

Text 9. Types of pharmacies:

Community pharmacies usually consist of a retail storefront with a dispensary where medications are stored and dispensed.

Pharmacies within hospitals differ considerably from community pharmacies. Some pharmacists in hospital pharmacies may have more complex clinical medication management issues whereas pharmacists in community pharmacies often have more complex business and customer relations issues. Hospital pharmacies usually stock a larger range of medications, including more specialized medications. Clinical pharmacy is the branch of Pharmacy where pharmacists provide patient care that optimizes the use of medication and promotes health, wellness, and disease prevention. Clinical pharmacists care for patients in all health care settings but the clinical pharmacy movement initially began inside hospitals and clinics. Clinical pharmacists often collaborate with physicians and other healthcare professionals.

Ambulatory care pharmacy is based primarily on pharmacotherapy services that a pharmacist provides in a clinic. Pharmacists in this setting often do not dispense drugs, but rather see patients in office visits to manage chronic disease states.

Consultant pharmacy practice focuses more on medication regimen review (i.e. "cognitive services") than on actual dispensing of drugs. Consultant pharmacists most typically work in nursing homes.

Since about the year 2000, a growing number of Internet pharmacies have been established worldwide. Many of these pharmacies are similar to community pharmacies, and in fact, many of them are actually operated by brick-and-mortar community pharmacies that serve consumers online and those that walk in their door. The primary difference is the method by which the medications are requested and received.

Text 10. Atherosclerosis

Healthy arteries are like healthy muscles. They are strong, flexible, and

elastic. Atherosclerosis is the condition in which fatty deposits accumulate in and under the lining of the artery walls. The name comes from the Greek word *ather*, meaning "porridge", because the fatty deposits are soft and resemble porridge. Blood cells (platelets) often clump at microscopic sites of injury to the inner wall of the artery. At these sites, fat deposits also collect. Initially, the deposits are only streaks of fat-containing cells but, as they enlarge, they invade some of the deeper layers of the arterial walls, causing scarring and calcium deposits. Large accumulations called atheromas or plaques are the principal characteristic of atherosclerosis. The greatest danger from these deposits is the narrowing of the channel through which the blood flows. When this occurs, the tissues that the artery supplies will not receive their full

quota of blood. Pieces of the fatty deposits may be dislodged, travel with the blood flow, and finally obstruct an artery at some distant point.

Atherosclerosis may be discovered in the course of a routine physical examination. During examination of patient's neck, abdomen, or other parts of the body, the physician may hear a blowing sound if a narrowing of the lining of the arteries at one or more these points causes turbulence of the blood flow. The physician also will estimate the amount of blood flow by feeling for pulsations in the arteries at the wrists, legs, and feet. A decrease in pulsations is a reason to suspect partially obstructed blood flow. More elaborate tests of circulation using sound waves often help in establishing the presence and degree of decreased blood flow. Ultrasound scan of the abdomen often is used to identify a suspected aneurysm of the aorta in the abdomen. Another test for locating the sites of plaques that narrow blood vessels is arteriography. In many cases, the diagnosis is not suspected until the artery is completely obstructed and the person has experienced a stroke, heart attack, or arterial thrombosis. To some extent, the body can protect itself from narrowing of a particular artery by developing, with time, additional arterial connections that detour blood around the narrowed point. This is called collateral circulation. Although atherosclerosis occurs to some extent in all middle-aged and elderly people and

even may occur in certain young people, some people appear more at risk because of high blood cholesterol levels. The best prevention and treatment of atherosclerosis is certain regimen, sound sleep, rest, and proper diet. Vitamins are widely used in the treatment of this disease. Other drugs administered in treating atherosclerosis are so-called lipotropic substances, which prevent fat from accumulating in the organism.

Text 11. Angina Pectoris

If you are having pain or pressure in the middle of your chest, left neck, left shoulder, or left arm, go immediately to the nearest hospital emergency department. Do not drive yourself. Call for emergency transport. Angina, or angina pectoris, is the medical term used to describe the temporary chest discomfort that occurs when the heart is not getting enough blood. The heart is a muscle (myocardium) and gets its blood supply from the coronary arteries. Blood carries the oxygen and nutrients the

heart muscle needs to keep pumping. When the heart does not get enough blood, it can no longer function at its full capacity. When physical exertion, strong emotions, extreme temperatures, or eating increase the demand on the heart, a person with angina feels temporary pain, pressure, fullness, or squeezing in the center of the chest or in the neck, shoulder, jaw, upper arm, or upper back. This is angina, especially if the discomfort is relieved by removing the stressor and/or taking sublingual (under the tongue) nitroglycerin. The discomfort of angina is temporary, meaning a few seconds or minutes, not lasting hours or all day. An episode of angina is not a heart attack. Having angina means you have an increased risk of having a heart attack. A heart attack is when the blood supply to part of the heart is cut off and that part of the muscle dies (infarction). Prolonged or unchecked angina can lead to a heart attack or increase the risk of having a heart rhythm abnormality. Either of those could lead to sudden death. Time is very important in angina. The more time the heart is deprived of adequate blood flow (ischemia), and thus oxygen, the more the heart muscle is

at risk of heart attack or heart rhythm abnormalities. The longer the patient experiences chest pain from angina, the more the heart muscle is at risk of dying or malfunctioning. Not all chest pain is angina. Pain in the chest can come from a number of causes, which range from not serious to very serious. For example, chest pain can be caused by: acid reflux (gastroesophageal reflux disease), upper respiratory infection, asthma, or sore muscles and ligaments in the chest (chest wall pain). If chest pain is severe and/or recurrent, the patient should see a healthcare provider.

Text 12. Peptic ulcer

Peptic ulcers are holes or breaks in the inner lining of the esophagus, stomach, or duodenum. It has been determined that peptic ulcer generally occurs in the lower part of the stomach (gastric ulcer), in the initial portion of the duodenum (duodenal ulcer), and occasionally in the lower esophagus (esophageal). The signs and symptoms of the peptic ulcer are the following: burning, aching, or hunger discomfort in the upper abdomen or lower chest (that is relieved by milk or food); black stools; bloated feeling after meals; and nausea or vomiting. In emergency cases the person has clammy skin and fainting. The cause of ulcers is not fully known. Normally, the linings of the

esophagus, stomach, and duodenum are kept intact by a balance between the acid and stomach juices and the resistance of these linings to injury. When the balance breaks down, the result may be a peptic ulcer. Recent research has shown that many ulcers may be secondary to bacteria called *Helicobacter pylori* (*H pylori*).

Peptic ulcers are not uncommon in our society. It has been estimated that the age at diagnosis peaks between 30 and 50 for duodenal ulcers and between 60 and 70 for gastric ulcers. Frequently, ulcers recur within 1 year after healing, sometimes without symptoms. Some people may have an inherited disposition

to ulcers. Peptic ulcers are 3 times more likely to occur in families of patients with duodenal ulcer than in the general population. And relatives of people with gastric ulcers have the very same kind of ulcer. The goals of treatment are to relieve symptoms, heal the ulcer, prevent relapse, and avoid complications. The vast majority of persons with peptic ulcer disease responds well to medication. The key to treatment is either decreasing the amount of acid present or strengthening the protective lining of the stomach or duodenum. The mainstay of treatment is a class of drugs that decrease the amount of acid produced in the stomach. These drugs are called H₂ blockers. The usual course of therapy lasts approximately 6 weeks. Many people with ulcers harbor H pylori bacteria, which can be effectively treated with antibiotics. Twelve months after treatment, most people show no ulcer recurrence, while recurrence is more common after using standard ulcer medications. However, if the person has an ulcer that does not respond to medical treatment or the person has serious complications such as hemorrhage, obstruction, or perforation, he/she may be a candidate for surgery.

Text 13. Gastritis

“Gastritis” is a general term that means inflammation of the lining of the stomach. It can result from a number of causes, each of which may produce somewhat different symptoms, such as: upper abdominal discomfort, nausea and vomiting, and diarrhea. Gastritis can occur as a result of acid-induced damage to the lining of the stomach when no ulcer is present. Excessive smoking or alcohol consumption are known to produce mild gastritis or to aggravate existing gastritis symptoms. Gastritis also can be a side effect of a number of prescription drugs. Severe stress due to burns, trauma, surgery, or shock may produce gastritis. Gastritis is also seen in some persons whose stomachs do not produce acid. In these cases, the lining of the stomach is atrophied. This condition may be associated with vitamin B₁₂ deficiency and occurs in many older people. Even very healthy people may experience gastritis with some

regularity. In most cases, the symptoms of gastritis are relatively mild and short-lived, pose no real danger, and have no lasting effect. Occasionally, gastritis may cause bleeding, but it is rarely severe. Antacids in liquid or tablet form are a suitable and common treatment of mild gastritis. If a person is troubled by excessive acid and antacids fail to provide relief, the physician may prescribe drugs such as cimetidine, ranitidine, or nizatidine, which decrease the amount of acid produced by the stomach. Medication to protect the lining of the stomach may be used.

Text 14. History of antibiotics

Although potent antibiotic compounds for treatment of human diseases caused by bacteria (such as tuberculosis, bubonic plague, or leprosy) were not isolated and identified until the twentieth century, the first known use of antibiotics was by the ancient Chinese over 2,500 years ago. Many other ancient cultures, including the ancient Egyptians and ancient Greeks already used molds and plants to treat infections, owing to the production of antibiotic substances by these organisms. At that time, however, the compounds having antibiotic activity and present in moulds or plants were unknown. The antibiotic properties of *Penicillium* sp. were first described in France by Ernest Duchesne in 1897. However, his work went by without much notice from the scientific community until Alexander Fleming's discovery of Penicillin. Modern research on antibiotic therapy began in Germany with the development of the narrow-spectrum antibiotic Salvarsan by Paul Ehrlich in 1909, for the first time allowing an efficient treatment of the widespread problem of Syphilis. The drug, which was also effective against other spirochaetal infections, is no longer in use in modern medicine. Antibiotics were further developed in Britain following the re-discovery of Penicillin in 1928 by Alexander Fleming. More than ten years later, Ernst Chain and Howard Florey became interested in his work, and came up with the purified form of penicillin. The term "antibiotic" was originally used to refer only to substances

extracted from a fungus or other microorganism, but has come to include also many synthetic and semi-synthetic drugs that have antibacterial effects.

Text 15. Side Effects.

Possible side effects are varied, depend on the antibiotics used and the microbialorganisms targeted. Adverse effects can range from fever and nausea to major allergicreactions including photodermatitis. One of the more common side effects is diarrhea, sometimes caused by the anaerobic bacterium *Clostridium difficile*, which results from the antibiotic disrupting the normal balance of the intestinal flora. Such overgrowth ofpathogenic bacteria may be alleviated by ingesting probiotics during a course of antibiotics. An antibiotic-induced disruption of the population of the bacteria normally present as constituents of the normal vaginal flora may also occur, and may lead to overgrowth of yeast species of the genus *Candida* in the vulvo-vaginal area. Other sideeffects can result from interaction with other drugs, such as elevated risk of tendon damage from administration of a quinolone antibiotic with a systemic corticosteroid. It is a common assertion that some antibiotics can interfere with the efficiency of birth control pills. Although there remain few known cases of complication, the majority of antibiotics do not interfere with contraception, despite widespread misinformation to the contrary.

Text 16. Infertility

Infertility is a common problem in partners. Fortunately, major advances have been made in recent decades, and the problem of infertility can be solved in many cases. Problems of infertility can include problems with the sperm, problems with egg, or difficulties encountered in their union. Abnormal function of the fallopian tube or uterus, infections, and immunologic and other factors may also cause infertility. Infertility problems also can result from sexual dysfunction. To physicians, the term infertility usually means the inability to become pregnant after 1 year of frequent sexual intercourse without using any contraception. Ten to 15

percent of couples are infertile. Of these couples, the man is the infertile partner in about 30 percent of cases and contributes to the infertility problem in an additional 20 percent of cases; the woman is infertile 50-70 percent of the time. In both men and women, various factors can account for infertility. Forty percent of infertile couples have more than one cause of their infertility. Thus, the physician will begin a comprehensive infertility examination of both partners. The most cause of infertility in men is a low sperm cell count. Normal sperm counts range from 75,000,000 to 400,000,000 sperm cells. If the sperm cell count drops to 20,000,000 sperm cells per milliliter, the male is usually sterile. Decreased sperm cell count can occur because of damage to the testes (e.g., because of mumps, radiation, or trauma), obstruction of the duct system, or inadequate hormone production. In women, the failure to release an egg, is responsible for infertility problems in up to 15 percent of cases. It can be caused by various factors. We know of uterine's and immunologic factors' being a cause of infertility. In some cases the physicians don't know exactly the reasons of infertility's occurring. The numerous treatments for infertility depend on the cause. Recent developments in therapy have increased the number of once-infertile couples who can achieve pregnancy. Various means of insemination or embryo transfer may be possible so that the woman can still become pregnant.

Text 17. Breast Cancer

Breast cancer is the disease women fear most. Experts predict 178,000 women will develop breast cancer in the United States in 2007. Breast cancer can also occur in men, but it's far less common. For 2007, the predicted number of new breast cancers in men is 2,000. 134 Yet there's more reason for optimism than ever before. In the last 30 years, doctors have made great strides in early diagnosis and treatment of the disease and in reducing breast cancer deaths. In 1975, a diagnosis of breast cancer usually meant radical mastectomy – removal of the entire breast along with underarm lymph nodes and muscles underneath the breast. Today, radical mastectomy is rarely performed. Instead, there are more and better treatment options, and many women are candidates for breast-sparing operations.

Knowing the signs and symptoms of breast cancer may help save your life. When the disease is discovered early, you have more treatment options and a better chance for a cure. Most breast lumps aren't cancerous. Yet the most common sign of breast cancer for both men and women is a lump or thickening in the breast. Often, the lump is painless. Other potential signs of breast cancer include: a spontaneous clear or bloody discharge from your nipple, often associated with a breast lump, retraction or indentation of your nipple, a change in the size or contours of your breast, any flattening or indentation of the skin over your breast, redness or pitting of the skin over your breast, like the skin of an orange, a number of conditions other than breast cancer can cause your breasts to change in size or feel. Breast tissue changes naturally during pregnancy and your menstrual cycle. Other possible causes of noncancerous (benign) breast changes include fibrocystic changes, cysts, fibroadenomas, infection or injury. If you find a lump or other change in your breast – even if a recent mammogram was normal – see your doctor for evaluation. If you haven't yet gone through menopause, you may want to wait through one menstrual cycle before seeing your doctor. If the change hasn't gone away after a month, have it evaluated promptly. A diagnosis of breast cancer is one of the most difficult experiences you can face. In addition to coping with a potentially life-threatening illness, you must make complex decisions about treatment. Treatments exist for every type and stage of breast cancer. Most women will have surgery and an additional (adjuvant) therapy such as radiation, chemotherapy or hormone therapy. Experimental treatments are also available at cancer treatment centers.

Text 18. Food and Nutrition During Pregnancy

It is important for a pregnant woman to eat a healthy diet. She has to eat a variety of foods, including dairy products and several fruits and vegetables which contribute to a healthy pregnancy. Some specific nutritional needs for pregnancy include: Folic acid (also called folate or Vitamin B9) is strongly needed at the start of pregnancy. Folic acid is needed for the closing of fetus neural tube. It thus helps prevent spina bifida, a very serious birth defect. Folates (from folia, leaf) are

abundant in spinach (fresh, frozen or canned), and are also found in green vegetables, salads, melon, and eggs. In the United States and Canada, most wheat products (flour, noodles) are supplemented with folic acid. Calcium and iron are particularly needed by the rapidly growing fetus. Pregnant women should eat enough dairy products (for calcium) and red meat (for iron) if they are not lactose intolerant. Women who do not eat dairy or meat can obtain calcium and iron from soy milk and juice, soybeans, and certain leafy greens. Care providers may prescribe iron pills if pregnant women develop iron deficiency anemia. Calcium is effective only if women also obtain enough vitamin D. The best way to get vitamin D is to sunbathe each day for 10-15 minutes. Salmon and fatty fishes are also good sources of vitamin D. Fluoride helps to build strong teeth by changing the nature of calcium crystals: if water or salt does not contain fluoride, it is wise to take fluoride mini-pills at the end of pregnancy and during breast-feeding (but high doses are toxic). Some pregnant women suffer edema, and are told not to eat (too much) salt. Fat (from salmon, trout, tuna, herring, sardine, mackerel, and some chicken eggs) is needed to build neuron membranes. Thus fatty fish intake during pregnancy may provide nutrition for proper brain and retina development of the fetus. However, large fish such as tuna and swordfish 112 may contain too much toxic mercury. Fish two or three times a week seems to bring enough good fat, but not too much mercury. Ex. 22. Pronounce and memorize the words to the theme studied: Derive походити; proceed продовжувати; evagination евагінація, випинання; eventually зрештою; foregut передня кишка; elongate пролонгувати, подовжувати; conjunction з'єднання, об'єднання. Ex. 23. Read the following text and put 10-11 questions on it. Get ready to inform your fellow-students what text deals with.

Text 19. Development of the Organ Systems

The major organ systems appear and begin to develop during the embryonic period. **Skin.** The epidermis of the skin is derived from ectoderm, and the dermis is derived from the mesoderm. Nails, hair, and glands develop from the epidermis. **Skeletal system.** The skeleton develops by intramembranous bone formation or

endochondrial bone formation. **Muscular system.** Myoblasts are multinucleated cells that produce skeletal muscle fibers. The growth of the muscle occurs by an increase in the number of muscle fibers. The total number of muscle fibers is established before birth. Muscle enlargement after birth is due to an increase in the size of individual fibers. **Nervous system.** The nervous system is derived from the neural tube and neural crest cells. Closure of the neural tube begins in the upper-cervical region and proceeds into the head and down the spinal cord. The central cavity of the neural tube becomes the ventricles of the brain and the central canal of the spinal cord. The nerve cells that form the peripheral nervous system are located either within the neural tube or are derived from neural crest cells. **Endocrine system.** The thyroid gland originates as an evagination from the floor of the pharynx in the region of the developing tongue and moves into the lower neck, eventually losing its connection with the pharynx. The parathyroid glands migrate inferiorly and become associated with the thyroid gland. The pancreas originates as two evaginations from the duodenum, which come together to form a single gland. The adrenal medulla arises from neural crest cells, and the adrenal cortex is derived from mesoderm. **Cardiovascular system.** The heart develops from two endothelial tubes, which fuse into a single heart tube. Blood vessels form from small masses of mesoderm that become blood vessels on the outside and blood cells on the inside. These masses fuse to form the cardiovascular system. **Respiratory system.** The lungs begin to develop as a single evagination from the foregut in the region of the future esophagus. This evagination branches to form two lung buds. The lung buds elongate and branch, first forming the bronchi that project to the lobes of the lungs and then the bronchi that project to the lobules of the lungs. This branching continues until approximately 17 generations of branching have occurred. **Urinary system.** The kidneys develop from mesoderm located between the somites and the lateral portion of the embryo. The urinary system develops in three stages from the head to the tail of the embryo. The ducts join the digestive tract. **Reproductive system.** Reproductive system develops in

conjunction with the urinary system. Hormones are very important to sexual development of the human.

Medical English Vocabulary

Word, Part of Speech	Meaning	Example Sentence
Abnormal, adj	not normal for the human body	This amount of weight loss is abnormal for women your age.
ache, noun/verb	pain that won't go away	I can't sleep because my knees ache in the night.
acute. adj	quick to become severe/bad	We knew the baby was coming right away because the woman's labour pains were acute.
allergy noun allergic adj	a body's abnormal reaction to certain foods or environmental substances	Your son is extremely allergic to peanuts.

	(e.g. causes a rash)	
ambulance, noun	emergency vehicle that rushes people to a hospital	We called the ambulance when Josh stopped breathing.
amnesia. noun	a condition that causes people to lose their memory	I can't remember the accident because I had amnesia.
amputation, noun amputate, verb	permanent removal of a limb	We had to amputate his leg because the infection spread so quickly.
anaemia, noun anaemic, adj	occurs when the body doesn't have enough red blood cells	I have low energy because I am anaemic.
antibiotics, noun	medication that kills bacteria and cures infections	My throat infection went away after I started the antibiotics.
anti- depressant, noun	medication that helps relieve anxiety and sadness	The anti-depressants helped me get on with life after Lucy died.
appointment, noun	a scheduled meeting with a medical professional	I've made you an appointment with a specialist in three week's time.
arthritis, noun	a disease that causes the joints to become swollen and crippled	My grandmother can't knit anymore because the arthritis in her hands is so bad.
asthma (attack), noun	a condition that causes a blockage of the airway and makes it difficult for a person to breathe	I carry an inhaler when I run because I have asthma.
bacteria, noun	a disease-causing organism	To prevent the spread of bacteria it is important that nurses wash their hands often.
bedsore, noun	wounds that develop on a patient's body from lying in one place for too long	If you don't get up and take a walk, you will develop painful bedsores.
benign, adj	not harmful (not cancerous)	We're hoping that the tests will show that the lump in your breast is benign.
biopsy, noun	removal of human tissue in order to conduct certain medical tests	The biopsy ruled out a number of illnesses.
blood count, noun	the amount of red and white blood cells a person	You will be happy to know that your blood count is

	has	almost back to normal.
blood donor, noun	a person who gives blood to a blood bank or other person	Blood donors have to answer questions about their medical history.
blood pressure, noun	the rate at which blood flows through the body (high/low)	High blood pressure puts you at risk of having a heart attack.
brace, noun	a device that holds injured body parts in place	You will probably always have to wear a brace on your ankle when you jog.
breech, adj	position of an unborn baby in which the feet are down and the head is up	We thought it was going to be a breech birth, but the baby turned himself around.
broken, adj	a bone that is divided in two or more pieces as a result of an injury	We thought it was just a sprain, but it turned out his leg was broken.
bruise, noun bruised, adj	injured body tissue that is visible underneath the skin	The woman was badly bruised when she came into the emergency room.
Caesarean section, C-section, noun	procedure that involves removing a baby from its mother through an incision in the woman's lower abdomen	The baby was so large that we had to perform a Caesarean section.
cancer, noun	disease caused by the uncontrollable growth of cells	There are many different options when it comes to treating cancer.
cardiopulmonary resuscitation (CPR), noun	restoring a person's breath and circulation	You saved your brother's life by performing CPR
cast, noun	a hard bandage that is wrapped around a broken bone to keep it in place	My leg was in a cast for graduation.
chapel, chapelaine, noun	a place where loved ones can go to pray for a patient's recovery; a priest who visits patients in the hospital	If you want a place to pray, the chapel is on the third floor.
chemotherapy, noun	type of treatment used on cancer patients	My mother has already had three rounds of

		chemotherapy.
chickenpox, noun	a virus commonly contracted by children, characterized by itchy spots all over the body	It is best to get chickenpox as a child so that you don't get it worse as an adult.
coroner, noun	a person who determines the cause of death after a person dies	We only call the coroner if we think a death is suspicious.
critical condition, noun	requiring immediate and constant medical attention	You can't see her right now; she's in critical condition.
crutches, noun	objects that people with injured legs or feet use to help them walk	I'd rather hop on one foot than use crutches.
cyst, noun	A sac in the body-tissue filled with fluid (sometimes diseased)	We're going to remove the cysts just to be on the safe side.
deaf, adj	unable to hear	The accident left the patient both deaf and blind.
deficiency, noun	a lack of something necessary for one's health	The tests show that you have an iron deficiency.
dehydrated, adj	in need of water	It is easy for the elderly to become dehydrated in this heat.
dementia, noun	loss of mental capacity	It is hard to watch a loved one suffering with dementia.
diabetes, noun	type of disease typically involving insulin deficiency	People with diabetes have to constantly check their blood sugar levels.
diagnosis, noun	medical explanation of an illness or condition	The doctor would prefer to share the diagnosis with the patient himself.
discomfort, noun	experiencing pain	This pain medication should relieve some of your discomfort.
disease, noun	a medical disorder that is harmful to a person's health	I understand that this disease runs in your family.
dislocated, adj	when a bone is temporarily separated from its joint	You will have to wear a sling because of your dislocated shoulder.

emergency, noun	a medical problem that needs immediate attention	It is important that children know which number to dial in case of an emergency.
ER (emergency room), noun	the hospital room used for treating patients with immediate and life- threatening injuries	The child was rushed into the ER after he had a severe allergic reaction to a bee sting.
external, adj	on the outside	This cream is for external use only. Do not get it near your ears, eyes, or mouth.
false, noun, adj	a test that incorrectly comes back negative	We had two false negative pregnancy tests, so we didn't know we were having a baby.
family history, noun	medical background of a person's family members	The doctor was concerned about my family history of skin cancer.
fatal, adj	causing death	The doctor made a fatal error when he wrote the wrong prescription.
fever, noun feverish , adj	higher than normal body temperature	He is very feverish, and his temperature is near danger point.
flu (influenza), noun	many types of respiratory or intestinal infections passed on through a virus	People who have the flu should not visit hospital patients.
fracture, noun fractured, adj	broken or cracked bone	Your wrist is fractured and needs a cast.
germ, noun	a micro-organism, especially one that causes disease	Flowers are not allowed in the ward to avoid the risk of germs being brought in.
genetic, adj	a medical condition or physical feature that is passed on in the family	The disease is part genetic and part environmental.
growth, noun	a ball of tissue that grows bigger than normal, either on or under the skin	That growth on your shoulder is starting to worry me.
heart attack, noun	instance in which blood stops pumping through the heart	People who smoke are at greater risk of having a heart attack.
HIV, noun	the virus that infects the human T-cells and leads to AIDS	HIV can be passed down from the mother to her fetus.

hives, noun	bumps that appear on the surface of the skin during an allergic reaction	I broke out in hives after I ate that potato casserole.
illness, noun ill, adj	general term for any condition that makes a person feel sick for a certain period of time	Her illness went away when she started eating better.
immune system, noun	the parts of the body that fight diseases, infections, and viruses	You can't have visitors because your immune system is low.
immunization, noun immunize, verb	an injection that protects against a specific disease	Babies are immunized three times in their first year.
incision, noun	cut in the body made during surgery	I had to have stitches to close the incision.
inconclusive, adj	unclear	We have to do more x-rays because the first ones were inconclusive.
infant, noun	young baby	The nurse will demonstrate how to bathe an infant.
infection, noun infected, adj	diseased area of the body (viral or bacterial)	The wound should be covered when you swim to prevent it from becoming infected.
inflamed, adj	appearance (red and swollen) of an injured body part	My right ankle was so inflamed it was twice the size of my left one.
injury, noun	damage to the body	Her injuries were minor; just a few cuts and bruises.
intensive care unit (ICU), noun	section of the hospital where patients get constant attention and doctors rely on specialized equipment	She will remain in the ICU until she can breathe on her own.
internal, adj	under the skin, inside the organs	The doctors will be monitoring her for any internal bleeding.
Itchy, adj	feeling discomfort on the skin's surface	If you are allergic to this medication your skin will get red and itchy.
IV, noun	a tube that pumps liquids and medication into	The toddler was so dehydrated that the doctor

	a patient's body	decided to get him on an IV.
lab results, noun	tests that come back from a laboratory and help doctors make a diagnosis	The lab results have come in and you are free to go home.
lab (laboratory), noun	place where samples of blood/urine etc. are taken for testing	I'll take these samples down to the lab on my way out.
life support, noun	a machine that keeps patients alive by helping them breathe	The woman has severe brain damage and is currently on life support.
life-threatening, adj	when injuries and conditions are extremely serious	The victim was shot in two places but the bullet wounds are not life-threatening.
light-headed, adj	feeling of dizziness and being off-balance, caused by lack of oxygen in the brain	If you are feeling light-headed again, lie down and call me.
malignant, adj	expected to grow and get much worse (especially related to cancerous cells)	I'm afraid at least one of the tumours is malignant.
medical school (med. school), noun	place where someone trains to be a doctor	After eight years of medical school I can finally practice medicine.
newborn, noun	an infant that is less than three months old	You have to support her neck because she is still a newborn.
numb, adj	no feeling in a certain body part	The needle will make your lower body feel numb.
OR (operating room), noun	the place where major surgeries and operations take place	You must wear a face mask and gloves while you are in the OR.
operation, noun operate on, verb	a medical procedure that involves going inside a person's body in an attempt to fix a problem	The operation lasted seven hours, but it was successful.
pain, noun	strong discomfort in certain areas of the body	We gave your husband some medicine to relieve some of the pain.
pain killer, pain reliever, noun	type of medicine that takes away some or all of the discomfort of an illness	You can take two pain killers every four hours.

	or injury	
paralyzed, adj	unable to move certain areas of the body	We thought her legs were paralyzed for life, but she is learning how to walk.
patient, noun	a person staying in a hospital or medical facility	The patients in Room 4 are not getting along.
pharmacist, noun	a person who fills a doctor's prescription and gives people advice about medication	Ask the pharmacist if there is a generic brand of this medication.
pharmacy, drugstore, noun	a place where people go to buy medication and other medical supplies	You should be able to buy a bandage at the pharmacy.
physician, noun	doctor	Ask your family physician to refer you to a specialist.
poison, noun poisonous, adj	a substance that is very dangerous if it enters the human body	The child was bitten by a poisonous snake.
prenatal, adj	of the time period leading up to giving birth	The woman was well prepared for labour because she took the prenatal classes.
prescription, noun prescribe, verb	the correct amount and type of medication needed to cure an illness or relieve symptoms	You will need to visit your doctor to get another prescription.
privacy, noun private, adj	being alone; personal (e.g. test results)	You will have to pay for a private hospital room if you don't want a room-mate.
radiation, noun	high energy X-rays that destroy cancer cells	If the radiation doesn't kill all of the abnormal cells, the cancer will come back.
residency resident, noun	part of a doctor's training that takes place in the hospital; a student working under a doctor	John is a resident under Dr Brown.
routine check-up, noun	a doctor's appointment to check a person's general health	I'd like to see you a year from now for a routine check-up.
scrubs, noun	plain uniform (usually green, white, or blue) worn by medical professionals	I have some extra scrubs in my locker.
scrub up, verb	carefully wash hands before and after seeing a	I have to scrub up and get ready for surgery.

	patient	
second opinion, noun	input from a second doctor about an illness or symptom	I went to another doctor to get a second opinion about these headaches.
seizure, noun	sudden violent movements or unconsciousness caused by electrical signal malfunction in the brain	People who suffer from epilepsy are prone to seizures.
shock, noun	body not getting enough blood flow	The woman was in shock after being pulled from the river.
side effects, noun	other symptoms that might occur as a result of a certain medication or procedure	One of the side effects of antidepressants is a loss of appetite.
sore, adj	painful	I have a sore throat and a runny nose
spasm, noun	the uncontrollable tightening of a muscle	Ever since I injured my leg I've been having muscle spasms in my upper thigh.
specialist, noun	a doctor that is an expert in a certain kind of medicine	My family doctor is sending me to a specialist.
sprain, noun/verb	an injury (less serious than a break) to a joint (ankle, wrist, knee etc	I sprained my knee playing soccer.
stable condition, noun	a patient is stable if their medical condition is no longer changing rapidly	You can see your husband now; he is in a stable condition.
sting, noun/verb	sharp, temporary pain	It may sting when I insert the needle.
stress, noun stressed, adj	worry that causes muscles to tighten and blood pressure to rise	You need to take some time off work and relieve some of your stress.
swelling, noun swollen, adj	ligaments (parts that hold the joints together) growing bigger and rounder after an injury to a joint	I knew my ankle was sprained because it was so swollen.
symptoms, noun	pain or physical changes that occur because of an illness or disease	You have all of the symptoms of a diabetic.
temperature,	amount of heat	We brought Jesse to

noun	measured in a body; higher than normal temperature	emergency because he was running a (high) temperature.
tender, adj	painful when touched or used	The incision was tender after the surgery.
test results, noun	medical information that helps doctors understand a patient's condition or body	The test results came back negative. You aren't pregnant.
therapy, noun	treatment aimed at improving a person's mental or physical condition	I was able to go back to work a few weeks after starting the therapy.
transplant, noun	moving of an organ from one human to another	The heart transplant saved your life.
ultrasound, noun	a test that examines the body's internal organs and processes using sound waves (often used during pregnancies)	The ultrasound shows that we are expecting a baby boy.
umbilical cord, noun	the lifeline from the mother to the fetus (when cut at birth this forms the belly button)	I had an emergency C-section because the umbilical cord was wrapped around the baby's neck.
unconscious, adj	alive, but appearing to be asleep and unaware of the surroundings	I hit my head on the steering wheel and was still unconscious when the ambulance arrived
urine sample, noun	a small amount of the body's liquid waste that is tested for different medical reasons	The urine sample tells us how much alcohol is in your blood.
vein, noun	the thin tubes that transport blood around the body and back to the heart	I'm just looking for the best vein in which to insert the needle.
virus, noun	a dangerous organism that causes the spread of minor and major diseases	The virus is contractable through the exchange of bodily fluids.
visiting hours, noun	time of day when friends and family are allowed to visit patients in hospital	I'm afraid you'll have to come back during visiting hours.
vomit, noun/verb	discharge of a person stomach contents through	The pregnant woman can't stop vomiting.

	the mouth	
ward, noun	a section of a hospital or health facility where patients stay	I should warn you that we're entering the mental health ward.
wheelchair, noun	a chair on wheels used for transporting patients from place to place	If you get in the wheelchair I'll take you down to see the garden.
wound, noun wounded, adj	injury to body ("flesh wound" means not deep)	The wounded soldiers are being airlifted to the hospital.
X-ray, noun/verb	a photograph of a person's bones and organs	The technician took x-rays of my shoulder to make sure it wasn't broken.

GRAMMAR

NOUN

Nouns are: **abstract** (*happiness, freedom, etc*), **proper** (*Mark, Africa, Japan, etc*), **group** (*team, family, government, etc*) and **common** (*table, hat, sofa, etc*).

Most common nouns referring to people have the same form for men and women, (*teacher, doctor, etc*) Others have different forms:

<i>actor - actress</i>	<i>husband - wife</i>	<i>widower - widow</i>
<i>uncle - aunt</i>		
<i>bridegroom - bride</i>	<i>king - queen</i>	<i>father - mother</i>
<i>lord - lady</i>		
<i>duke - duchess</i>	<i>monk - nun</i>	<i>nephew - niece</i>
<i>policeman - policewoman</i>		
<i>hero - heroine</i>	<i>prince - princess</i>	<i>son - daughter</i>
<i>host-hostess</i>	<i>waiter - waitress</i>	<i>emperor - empress, etc</i>

The Plural of Nouns

<i>Nouns are made plural by adding:</i>	
-s to the noun (<i>table - tables, etc</i>).	<ul style="list-style-type: none"> • -s to nouns ending in: <ul style="list-style-type: none"> vowel + -o (<i>radio - radios</i>), double -o (<i>zoo - zoos</i>), abbreviations (<i>photograph/photo - photos</i>), musical instruments (<i>cello - cellos</i>) and proper nouns (<i>Navajo - Navajos</i>). Some nouns ending in -o can take either -es or -s. These are:
-es to nouns ending in -s, -ss, -x, -ch, -sh <i>(bus - buses, glass - glasses, fox - foxes,</i>	
-ies to nouns ending in consonant + y <i>(city - cities, party - parties, etc).</i>	
-s to nouns ending in vowel + y (<i>toy - toys, day - days, etc</i>).	
-es to nouns ending in o (<i>tomato - tomatoes, etc</i>).	
Compound nouns form their plural by adding -s/-es:	
to the second noun if the compound consists of two nouns (<i>bedroom - bedrooms</i>).	to the first noun if the compound consists of two nouns connected with a preposition or to the noun if the compound has only one noun (<i>mathematics - mathematicians</i>).
to the noun if the compound consists of an adjective and a noun (<i>ironing board - ironing boards</i>).	at the end of the compound if this is not made up of any nouns (<i>breakdown - breakdowns</i>).

Irregular Plurals: *man - men, woman - women, person - people, foot - feet, tooth - teeth, louse - lice, mouse - mice, child - children, goose - geese, sheep - sheep, deer - deer, fish - fish, trout - trout, ox - oxen, salmon - salmon, spacecraft - spacecraft, aircraft - aircraft, means - means, species - species, hovercraft - hovercraft*

Remember: **When using numbers with plural nouns, the numbers do not take an -s**

unless they are followed by the preposition *of*. *three hundred years/hundreds of years*

Countable - Uncountable nouns

Nouns can be **countable** (those that can be counted) *one pen - two pens*, etc or **uncountable** (those that can't be counted) *milk, homework*, etc. **Uncountable nouns** take a singular verb and are not used with **a/an**.

Some, any, no, much, etc can be used with them. *Can I have some apple juice, please?*

BUT we use *a* in phrases like *a relief, a pity, a shame, a wonder, a knowledge (of sth), a help* even though they are uncountable. *What a help you've been! What a pity! What a shame!*

Nouns

Uncountable nouns are:

- **Mass nouns (fluids, solids, gases, particles):** *milk, bread, air, oxygen, sugar, rice* etc.
- **Subjects of study:** *History, Math, Physics, Chemistry, Science* etc.
- **Languages:** *Spanish, German, Japanese, Portuguese, Italian*, etc.
- **Games:** *billiards, basketball, golf, darts, hockey, cricket*, etc.
- **Diseases:** *flu, pneumonia, measles, mumps*, etc.
- **Natural phenomena:** *darkness, wind, snow, sunlight*, etc.
- **Some nouns:** *accommodation, advice, anger, behavior, business, countryside, courage, dirt, education, homework, housework, information, intelligence, knowledge, luck, music, news, peace, progress, seaside, shopping, traffic, trouble, truth, work*, etc.
- **Collective nouns:** *cutlery, furniture, jewelry, luggage, machinery, money, rubbish*, etc.

Note: With expressions of duration, distance or money meaning "a whole amount" we use a singular verb: *Three thousand euros was what the second-hand car cost*

Many uncountable nouns can be made countable.

a **piece** of paper/cake/information/advice/furniture; a **glass/bottle** of water; a **jar** of jam; a **rasher** of bacon; a **box/sheet** of paper; a **packet** of tea; a **slice/loaf** of bread; a **pot** of yoghurt; a **pot/cup** of tea; a **kilo/pound** of meat; a **tube** of toothpaste; a **bar** of chocolate/soap; an ice **cube**; a **lump** of sugar; a **bag** of flour; a **can** of soda; a **carton** of milk; a **pair** of trousers; a **game** of soccer

PLURAL NOUNS

Some nouns represent a group of people or things and are usually followed by a

plural verb. These are:

- objects consisting of two parts: **garments** (*jeans, pyjamas, etc*) **instruments** (*glasses, etc*) **tools** (*scissors, etc*)
- nouns like: *clothes, congratulations, earnings, outskirts, people, police, stairs, surroundings, wages, etc.* *The people who live next door are friendly.*

Group nouns

Group nouns (*army, audience, class, club, committee, company, council, crew, crowd, headquarters, family, jury, government, press, public, staff, team, etc*) can take either a singular or a plural verb depending on whether we see the group as a whole or as individuals. *The audience has enjoyed the performance,* (the audience as a group) *The audience were given an autograph at the end of the play,* (each person in the audience separately as individuals)

Note how certain nouns can be used in the singular and plural with a difference in meaning.

Singular	Plural
<i>Could I have a glass of water, please?</i>	<i>I broke my glasses last night,</i> (spectacles)
<i>I bought my mum a vase made of glass (the)</i>	
<i>He walked past the newsstand and bought a paper (newspaper)</i>	<i>I left some important papers at home,</i> (documents)
<i>Write your name and telephone number on a</i>	
<i>Tracy has got short blonde hair (all the hair)</i>	<i>I found a hair in my food,</i> (a single)
<i>Helen starts work at 9.00.</i>	<i>We saw beautiful works of art at the</i>
<i>Ted likes dark chocolate</i>	<i>I got some chocolates for my</i>
<i>The light rain has stopped</i>	<i>The rains came later on in the year.</i>
<i>The desk is made of wood (the material)</i>	<i>We had a picnic in the woods,</i>
<i>She has a lot of experience in public speaking.</i> (length of time doing it) _____	<i>We enjoyed listening to him describing his experiences as a nature photographer (events)</i>
<i>John wants to spend more time with his children.</i>	<i>How many times did you take the driving test? (occasion)</i>
<i>I met some friendly people in the park.</i>	<i>All the peoples of the world should have food and clean water (nations)</i>

Exercise 1.. Put in a / an or the. Sometimes you don't need either word – you leave it blank.

1. There was _____ waiter standing at _____ entrance of _____ restaurant. I ordered him _____ glass of _____ vodka with some juice in it.

2. There was _____ question I wanted to ask _____ biology teacher about _____ kangaroo. She had said _____ kangaroo carried her baby in _____ kind of bag in _____ front part of _____ her body. I wanted to know how many baby kangaroos it could carry at _____ time.
3. "Is that your wife?" - "No, my wife's _____ woman in _____ red dress."
4. I work with _____ man and two women. _____ man is quite nice, but _____ women are not very friendly.
5. What's in _____ newspaper?
6. Can you show me _____ that book, please?
7. What's _____ name of _____ woman in _____ blue dress?
8. _____ water turns into _____ ice at 0 degree C.
9. I like _____ steak, but I don't like _____ eggs.
10. She lives in _____ nice flat on _____ fifth floor of _____ old house.
11. It's terrible - _____ eggs are \$ 2 _____ dozen.
12. There was _____ boy and _____ girl in the room. _____ boy was Japanese but _____ girl looked foreign. She was wearing _____ fur coat.
13. This morning I bought _____ newspaper and _____ magazine. _____ newspaper is in my bag but I don't know where _____ magazine is.
14. "Have you got _____ car?" - "No, I've never had _____ car in my life."
15. We don't go to _____ cinema very much these days. In fact, in _____ town where we live there isn't _____ cinema.
16. Don't stay in that hotel. _____ beds are very uncomfortable.
17. After I leave _____ school, I want to go to _____ university.

Exercise. 2 Insert the right article (a/an/the) if necessary.

1. Do you still live in ... Bristol?
2. Carol's father works as ... electrician. Wednesday.
3. After this tour you have ... whole afternoon free to explore the city.
4. The tomatoes are 99 pence ... kilo.
5. My grandmother likes ... flowers very much.
6. I always listen to the radio in ... morning.
7. What about going to Australia in ... February?
8. There is ... new English book on the desk.
9. Loch Ness is ... most famous lake in Scotland.
10. Peter has ... aunt in Berlin.
11. Look! There's ... bird flying.
12. ... most children like sweets.
13. Great Britain consists of ... three parts.
14. We celebrate New Year on ... 31st of December.

15. Last year I gave my mother ... bracelet for her birthday.
16. Britain is ... island.
17. What is ... name of this village?
18. Montreal is a large city in ... Canada.
19. When I went to Milan, I stayed with ... Italian friend of mine.
20. Tom is in ... bathroom. He's having a bath.

Exercise 3. Make following nouns plural.

1. Postcard. 2. Dish. 3. Watch. 4. Box. 5. Potato. 6. Man. 7. Child. 8. Foot. 9. Sheep. 10. Country.

Exercise 4. Use following sentences in the plural form.

1. This is my foot. 2. Is this an ox? – No? it isn't. 3. That lady doesn't play the piano. 4. This wolf is eating a sheep. 5. This hobby is not bad. 6. Is this a mouse? 7. This child is looking at the falling leaf. 8. This man is doctor. 9. This deer lives in the forest. 10. I like this tomato.

Exercise 5. Define whether these nouns countable or uncountable.

1. water ___ 2. fruit ___ 3. coconut ___ 4. bread ___ 5. DVD ___ 6. meat ___ 7. ball ___ 8. snack ___ 9. glasses ___ 10. pen ___ 11. milk ___ 12. chair ___ 13. gasoline ___ 14. table ___ 15. cream ___ 16. money ___ 17. oil ___ 18. insect ___ 19. sofa ___ 20. yogurt ___ 21. school ___ 22. bus ___ 23. food ___ 24. chocolate ___ 25. ship ___.

Exercise 6. Fill in the blank spaces with some, any, no.

1. Can you see _____ cars in front of the restaurant? No, _____ cars.
2. Have you got _____ cold juice in the fridge? Yes, I have got _____.
3. We'd like _____ crisps. Are there _____? - I'm sorry. There are _____ crisps today.
4. I'd like _____ chocolate but there isn't _____.
5. We'd like _____ bread but there is _____ butter.
6. We'd like hamburgers. Are there _____?
7. Is there much cheese on the plate? No, there isn't _____ cheese.
8. Have you got _____ CDs? - No, I haven't _____ but I've got _____ DVDs.
9. Have you got _____ money? - No, I've got _____ money.
10. There are _____ good films on TV tonight. Shall we listen to the radio?
11. Have they got _____ children? - No, they haven't got _____ but they've got _____ nephews.

Exercise 7. Fill in the blanks with many, much, a lot of or lots of.

1. We don't have _____ bread, so we'll have to buy some.
2. There aren't _____ students in my class.
3. He's very busy; he has _____ work to do.
4. Lisbon has _____ interesting places to visit.
5. I can't buy a new car. I don't have _____ money.
6. Hurry up! We don't have _____ time.
7. Your garden's got _____ pretty flowers.
8. There weren't _____ people at the party.
9. "Do you have _____ friends?" "Not _____, but they're good friends."
10. I think you eat too _____ sugar.
11. He gave me _____ chocolates and nice things.

Degrees of comparison of adjectives

 Positive	Comparative	Superlative
I syllable	old	old+er	the old+est
+ -er/+ -est	cheap	cheap+er	the cheap+est
	high	high+er	the high+est
I syllable cons. -vowel -cons. double consonant +er/+est	hot big thin	hotter bigger thinner	the hottest the biggest the thinnest
II syllable ending -y, -ow -y → -ier/-iest	healthy	healthier	the healthiest
	happy	happier	the happiest
	noisy	noisier	the noisiest
	narrow	narrower	the narrowest
Adverbs → more/most more slowly	truly	more truly	the most truly

II syllable and others	interesting	more interesting less interesting	the most interesting the least interesting
more the most less the least	beautiful	more beautiful	the most beautiful

THE COMPARATIVE FORM

We use the comparative form of the adjective to compare **two things**.

- *White meat is **healthier than** red meat.*
- *Travelling by bus is **more comfortable than** travelling by train.*

less ... than

We can also use the form **less + adjective + than**. **Less** is the opposite of **more**.

- *Peter is **less considerate than** Marta. (=Marta is more considerate)*

(not) as ... as

not so ... as

We can also use the form **(not) as + adjective + as**.

- *Peter is **n't as considerate as** Marta. (=Marta is more considerate)*

than me / than I am

After **than** or **as ... as** we use an object pronoun (**me, you, him, etc.**) or a subject pronoun (**I, you, he, she, etc.**) + auxiliary verb.

- *My sister is taller **than me**.*
- *My sister is taller **than I am**.*
- *His brother is cleverer **than him**. / His brother is cleverer than **he is**.*
- *My mother is older **than her**. / My mother is older than **she is**.*

much/a lot/a bit more...

Before the comparative (**more** or **-er**) we can use **much, a lot** or **a bit**.

- *He's **a bit taller** than me.*
- *Florence is **much more** interesting than Pisa.*
- *This car is **a lot more** expensive.*

any/no more than

We can use **any/no** + comparative (*any better, no faster, any more expensive, etc.*).

We use **any** in negative sentences and **no** with positive verbs.

- *Your performance was **no better** than mine.*
- *Your performance wasn't **any better** than mine.*

SUPERLATIVE ADJECTIVES

We use the superlative form of an adjective or adverb to compare more than two

things.

the most ... in ...

After the superlative we use **in** + names of **places** or **singular words for groups of people** (class, school, team, family, etc.)

- *She is **the best** student **in** the class.*
- *He's **the tallest in** the family.*
- *Messi is **the best player in** the world. (NOT of the class, etc.)*

We normally use **of** + periods of time or a number of people (*of the year, of my life, of my brothers, of the students, etc.*).

- *It was the best evening **of my life**.*
- *I am the tallest **of my brothers**.*

the most ... I have ever ...

We often use the superlative with the **present perfect tense** and **ever**.

- *This is **the best** movie **I've ever watched**.*
- *She is **the most beautiful** woman **I have ever seen**.*

the/my/Tom's best ...

Before the superlative we always use **the**, or **my/your/his/etc.** or **Tom's/Jenny's/etc.**)

- *He is **the best**.*
- *This is **my most expensive** jacket.*
- *This is **Paul's best** friend.*

the least

The opposite of **the most** is **the least**

- *He is **the least hardworking** student in the class.*

COMPARING ACTIONS WITH ADVERBS

We can use the comparative or superlative form of **adverbs** to compare **actions**.

- *She drives fast, but I drive **faster**.*
- *He plays well, but I play **better** than him.*

With adverbs ending in **-ly**, you must always use **more** to form the comparative, and **most** to form the superlative

- *She speaks **more quietly** than her boss. (NOT)*
- *He cooks well, but **more slowly** than his workmates. (NOT)*

For adverbs that have the **same form as adjectives**, the comparative and superlative forms are like adjectives: add **-er** to form the comparative and **-est** to form the superlative. The most common of these adverbs are: **late-later, early-earlier, fast-faster, hard-harder, long-longer**.

- *He works **harder than** me.*
- *She always arrives **earlier than** her boss.*
- *It took us **longer than** usual to arrive because of the traffic.*

Types of comparisons

- **as + positive adjective + as** (to show that two people or things are similar/different in some way). In negative sentences we use **not as/so as ... as**.

as.....as

- **less + positive adjective + than** (express the difference between two people or things). The opposite is **more...than**.

- **the least + positive adjective + of/in** (compares one person or thing to two or more people or things in the same group). The opposite is **the most ...of/in**.

- **even/much/a lot/far/a little/a bit/slightly + comparative** (expresses the degree of difference between two people or things).

*a lot **faster than***

*even **more interesting than***

*slightly **better than***

- **comparative + and + comparative** (to show that something is increasing or decreasing).

*....**more and more**....*

*Something is getting **bigger and bigger***

- **the comparative ..., the + comparative** (shows that two things change together, or that one thing depends on another thing).

The more, the more

- **by far + the + superlative** (emphasizes the difference between one person or thing and two or more people or things in the same group)

by far the cleverest

good/well – **better** – **the best**

bad – worse – **the worst**

much/many – **more** – **the most**

little – less – **the least**

far – further/farther – **the furthest/the farthest**

Exercise 8. Write the appropriate comparative and superlative form of these adjectives:

1 light _____

2 clever _____

- 3 sunny _____
- 4 hard _____
- 5 thin _____
- 6 good _____
- 7 poor _____
- 8 short _____
- 9 late _____
- 10 happy _____
- 11 shady _____
- 12 stupid _____
- 13 rainy _____
- 14 soft _____
- 15 fat _____
- 16 bad _____
- 17 rich _____
- 18 long _____
- 19 early _____
- 20 sad _____

Exercise 9. Underline the best word.

1. Don't eat the fish. It smells *bad* / *badly*.
2. It's a *two-hours* / *two-hour* train journey from here to Manchester.
3. I stumbled across *an asleep* / *a sleeping* man in the doorway.
- 4 They ran home through the rain, and when they arrived were *sheer* / *soaking* wet.
5. As far as Maria was concerned, it was a *losing* / *lost* opportunity.
6. Tom opened the door and found a very *large* / *enormous* parcel on the doorstep.
- 7 I read that article, but I thought it was *mere* / *complete* rubbish!
8. The smell of *baking-fresh* / *freshly baked* bread made me feel hungry.
9. That suitcase looks really *heavy* / *heavily*.
10. What's the matter with you? You look *worrying* / *worried*.

Exercise 10. Put *very* in front of the adjective where possible, or leave blank (-).

e.g. I put my foot in the water, and it was - freezing!

1. Please don't make that silly noise! It's _____ annoying!
2. When we first saw the wave we were shocked, because it was _____ enormous.
3. You really should read this book. It's _____ interesting.
- 4 Jeff has been missing for two days, and we're _____ worried.
5. Unfortunately, the ring I found turned out to be _____ worthless.
6. At the end of the race, most of the runners felt _____ exhausted.
7. By the end of the second week, many of the villagers were _____ starving.
8. It's _____ unusual for so much rain to fall here in July.

9. I've checked the figures again, and I can assure you that they are _____ correct.

10. How do you do. I'm _____ pleased to meet you.

11. When I realized what she had said, I was _____ upset.

Exercise 11. Complete the sentences using the correct forms.

1. The president hopes that people of all races will live together _____
(*peaceful*)

2. She told us that the streets in the capital city were ____ (*dirty, ugly*)

3. Do you think nuclear energy is _____? (*safe*)

4. I get all the food _____ from the farmers. (*direct*)

5. The minister was _____ worried that the deal would not pass parliament. (*deep*)

6. Marty drove home from the party as _____ as he could and got there. (*fast, safe*)

7. When the director found out about the scandal he shouted _____ at his employees.
(*angry*)

8. The old woman walked across the street very _____. (*careful*)

9. She didn't see me. She _____ knocked me down with her brand-new car! (*near*)

10. After a few weeks people forgot about him _____. (*complete*)

11. He _____ works anymore, because he already has enough money. (*hard*)

12. She _____ climbed down from the tree as soon as the bear had disappeared.
(*slow*)

13. He is a very _____ volleyball player. (*good*)

14. Bob excused himself _____ and went home. (*polite*)

15. English is an _____ language to learn, however he couldn't learn grammar rules so
_____. (*easy, easy*)

16. The sun shone _____ in the sky. (*bright*)

17. The new colleague seems to be _____ intelligent. (*high*)

18. The boy felt _____ because he knew what he had done. (*guilty*)

Exercise 12. Fill in *too* or *enough*.

1. I can't carry this suitcase. It's _____ heavy.

2. This bag isn't big _____. I can't put all my possessions in it.

3. Is your meal warm _____? If not, I'll put it in the microwave.

4. Mom was _____ worried to go to sleep, so she stayed up all night.

5. I don't like this fizzy drink. It's much _____ sweet.

6. I'll ring you up later. I haven't got _____ time at the moment.

7. She's _____ young to drink alcohol. She's not even 15 yet.

8. We weren't able to buy tickets for both games because we didn't have _____
money.

9. I couldn't see her anywhere because it was getting _____ foggy.

10. You can't play in our first team. You're not good _____

Exercise 13. Fill in the correct form: Adjective or Adverb

1. If anything goes _____, someone must be blamed. (*wrong*)
2. The parliament was _____elected. (*free*)
3. You shouldn't go up that ladder. It's not _____. (*safe*)
4. Coffee in the morning smells _____. (*fantastic*)
5. The western part of the US was colonized _____by the Spanish. (*main*)
6. The sun was shining _____in the sky. (*bright*)
7. She likes to wear _____clothes when she goes out. (*colorful*)
8. My son was _____disappointed because he didn't get the job. (*bitter*)
9. Don't be so _____when you leave and close the door _____, please. (*noisy, quiet*)
10. The plane was able to land _____ on the main runway. (*safe*)

Exercise 14. Use *as....as* or *so....as*.

1. These houses are ... high...those.
2. Peter is ... thin ... his brother.
3. This room is not ... comfortable ... that one on the first floor.
4. I'm not ... strong ... a horse.
5. Their apartment is twice ... big ... ours.
6. The blue car is ...fast ...the red car.
7. Peter is not ... tall ... Fred.
8. The violin is not ... low ... the cello.
9. This copy is ... bad ... the other one.
10. Oliver is ... optimistic ... Ivan.

Exercise15. Choose the correct variant.

1. She has never seen ... a small house.
a) so b) such c) what d) as
2. Some people are working ... others.
a) hard as b) hardly c) harder than d) as hardest than
3. Grandmother can't hear them
a) very good b) very well c) much good d)much well
- 4) The film was funnier than I expected.
a) so b) by far c) very d) even
5. His car is not as mine.
a) moderner b) more modern c) most modern d) so modern
6. He's a good guitarist, but he plays the piano ...
a) very good b) quite well c) much better d) too hardly
7. The teacher complains: 'The others were bad, but these pupils are ... of all'
a) worse b) more bad c) the worst d) baddest
8. He knew he had to get there....
a) quickly b) more quick c) quicker d) quicklier
9. I don't watch TV ... you.
a) as much as b) so much as c) more as d) much then

10. Her behavior is getting ... to understand.
 a) stranger and stranger c) most and most strange
 b) more and more strange d) the most strange

PERSONAL PRONOUNS

Personal Pronouns	Objective Pronouns
I	me
you	you
he	him
she	her
it	it
we	us
they	them

Exercise 16. Rewrite the sentences and change the underlined nouns into personal or objective pronouns.

1. Jane told Alice to help Mary and Peter.
2. I met Betty in the library yesterday.
3. My mother came out. My mother was surprised to see Peter and I there.
4. Kate will phone David in the evening.
5. Charles gave I the book as a present.
6. The flowers were in the vase.
7. Robert and Mark met Lucy in the cinema yesterday.
8. Mike must go to see Jane and Marta.
9. Mrs. Swift always gives the students homework.
10. Mary works at National Bank.
11. The cups are in the cupboard.
12. Derek lives in Oakland, California.
13. My brother and I enjoy watching movies on Friday evenings.
14. Tom was speaking to Jim and Mike.
15. Our colleagues usually attend all our meetings.

Exercise 17. Fill in objective pronouns.

1. Who is that woman? Why are you looking at _____?
2. Do you know that man? Yes, I work with _____.
3. I am talking to you. Please listen to _____.
4. These photos are nice. Do you want to look at _____?
5. I like that camera. I am going to buy _____.
6. I don't know Peter's girlfriend. Do you know _____?
7. Where are the tickets? I can't find _____.

8. We are going to the disco. Can you come with _____?
9. I don't like dogs. I'm afraid of _____.
10. Where is she? I want to talk to _____.
11. Those apples are bad. Don't eat _____
12. I don't know this girl. Do you know _____?
13. Alan never drinks milk. He doesn't like _____.
14. Where are the children? Have you seen _____?
15. I can't find my pencil. Can you give one to _____?

Exercise 18. Circle the correct word.

1. *He/Him* didn't want to tell *we/us* about his problem.
2. *I/Me* was very grateful for what *she/her* had done for *I/me*.
3. *She/Her* saw *they/them* as *they/them* were crossing the street.
4. I can't see my sunglasses. Where are *they/them*? - I've put *they/them* on the shelf.
5. I'd like to speak to *he/him*, but I don't know if *he/him* is in the office.
6. This letter isn't for *I/me*, it's for *she/her*.
7. Are those flowers for *I/me*?
8. He reported *we/us* about the results of the conference.
9. Can you pass *they/them* the salt, please?
10. I couldn't visit *she/her* yesterday but I phoned *she/her*.

Exercise 19. Complete the sentences with the correct pronouns.

1. I don't know her phone number. Can you tell _____ to _____, please?
2. Your grandparents are so kind! I always enjoy my visits to _____
3. Is Helen in the gym? We can't see _____ anywhere.
4. Excuse us, can you help _____? We don't know the way to the station.
5. I didn't answer the teacher's question and he gave _____ a bad mark.
6. She asked Den to phone _____ as she wanted to tell _____ some news.
7. Where is your father? I need _____ help.
8. The secretary told _____ that we had to wait for some minutes.
9. John is a hardworking employee. She often sees _____ in the office.
10. We like this teacher. He explains the rule to _____ very often.

Exercise 20. Use the correct pronouns to complete the sentences.

1. Josh lost the purse. _____ doesn't know when it happened.
2. We met girls in the café, but Bob hadn't met _____ before.
3. Kate was there too. I talked to _____ for twenty minutes.
4. Carol bought a new car. _____ is a Mercedes.
5. I need some help. Please, help _____.
6. My friend and I sold all the trees. _____ need some new flowers now.
7. He looked at me. _____ couldn't help him.

8. They invited us. _____ agreed to come.
9. I want to send _____ this present. They will be glad.
10. We locked his documents. _____ was very angry.

Exercise 21. Use the correct personal pronouns (subject and object).

1. _____ is dreaming. (*George*)
2. The teacher always gives _____ homework. (*The students*)
3. _____ is green. (*The book*)
4. _____ are on the wall. (*The posters*)
5. I am reading the book to _____. (*My sister*)
6. Open _____, please. (*The window*)
7. _____ are watching TV. (*My mother and I*)
8. _____ are in the garden. (*The flowers*)
9. _____ has got a brother. (*Diana*)
10. Can you help _____, please? (*My sister and I*)

POSSESSIVE PRONOUNS

Possessive Pronouns	Absolute Form of Possessive Pronouns
my	mine
your	yours
his	his
her	hers
its	-
our	ours
their	theirs

Possessive pronouns are used with corresponding nouns. Absolute Form of Possessive Pronouns doesn't require the use of the noun, it is clear from the context. Study the examples:

*This is **his** car. – The car is **his**.*

*I told her **my** story and she told me **hers**.*

Exercise 22. Circle the correct word.

1. I'm sure *her/hers* brother is at home.
2. This disc is *my/mine*. It isn't *your/yours*.
3. She put *her/hers* report on the table and started to read *my/mine*.
4. Let's leave *my/mine* car at the car park and take *your/yours*.
5. This is *her/hers* house and *their/theirs* is near the river.
6. Mary gave Peter *her/hers* address and wrote down *him/his*.
7. Grilled chicken is *their/theirs* favourite dish.
8. This phone number is *our/ours*.
9. They bought a new house. Now it's *their/theirs*.
10. I don't need this eraser. I have *my/mine*.

Exercise 23. Use the correct possessive pronoun.

1. The bus stop is near _____ house. (*We*)
2. How is _____ new school? (*You*)
3. This is my bag and that is _____. (*He*)
4. Sophia's hair is longer than _____. (*I*)
5. It's _____ turn now. (*I*)
6. The bike on the right is _____. (*You*)
7. Which desk is _____? (*We*)
8. Here are _____ tickets. (*She*)
9. The children brushed _____ teeth. (*They*)
10. Our school is much nicer than _____. (*They*)

Exercise 24. Complete the sentences with the correct form of possessive pronouns in brackets.

- 1). Frank showed me photos of ... family and I showed.... (*mine, his*). 2) I spent ... day doing shopping and Jane spent ... in the swimming-pool (*my, hers*). 3) We described ... adventures to Mr. Harris and he told about.... (*his, our*). 4) They didn't know that was ... car. They were surprised to know that it's.... (*your, yours*). 5) I returned them ... key. ... Granny told the key was.... (*my, their, theirs*). 6) Has she found ... pen? If not, you can use ... then (*mine, your*). 7) We don't need ... help because he didn't accept.... (*his, ours*). 8) Dogs are ... favourite animals and what are...? (*my, yours*) 9) She took ... hands into ... and smiled at me (*my, hers*). 10) We gave ... passes to the guard. He gave me ... pass back but didn't return Bob.... (*my, his, our*).

Exercise 25. Circle the correct item.

- 1) Could you tell ... the time, please?
a) I b) my c) me
- 2) This dog is
a) she b) her c) hers
- 3) We left ... things in the room of the hotel,
a) us b) our c) ours
- 4) Thomas often phones
a) they b) their c) them
- 5) Ann didn't see ... at school yesterday,
a) you b) your c) yours
- 6) Pass me ... phone, please.
a) I b) my c) mine
- 7) John always has the driven license with
a) he b) his c) him
- 8) The ring is really beautiful, but ... price is too high for me.

- a) it b) its c) my

Exercise 26. Translate into English.

- 1) Він учора розповів нам про свої плани.
- 2) Я хочу повернути тобі твою книгу.
- 3) Ми зустріли їх вчора біля метро.
- 4) Вона бачила вас у лікарні минулого тижня.
- 5) Вчитель виправив наші помилки та повернув нам зошити.
- 6) Де мої черевики? — Вони під стільцем.
- 7) Ми щойно показали їй наше чудове місто.
- 8) Я не зрозумів його слів та попросив його повторити запитання.
- 9) Вона не могла зателефонувати вам, бо загубила ваш номер.
- 10) Я щойно поклав олівець на стіл, але не можу його зараз знайти.

DEMONSTRATIVE PRONOUNS

A demonstrative pronoun represents a thing or things:

- near in distance or time (**this, these**)
- far in distance or time (**that, those**)

	near •	far ⇒
singular ■	this	that
plural ■ ■ ■	these	those

Exercise 27. Complete the sentences with the demonstrative pronouns.

- 1) Can you see ... building in the distance?
- 2) ... pen doesn't write. Give me another one, please.
- 3) I don't recognize ... people. They are too far from us.
- 4) Here you are! Take ... flowers. I've bought them for you.
- 5) ... castle far away looks mysterious.
- 6) I'm really enjoying _____ (experience that's happening now).
- 7) _____ painting (that we saw yesterday) was really beautiful.
- 8) I really liked _____ cakes. (I'm talking about the cakes we ate last week.)
- 9) _____'s a great idea! (the idea you explained to me.)
- 10) David, _____ is Lukas.
- 11) Who is _____ woman by the door?
- 12) _____ are fabulous trousers! (That you're wearing.)
- 13) I really like _____ chocolates (that I'm eating now).

- 14) _____ people we met last night were really nice.
15) Could I please try on _____ t-shirts? (I'm holding the t-shirts).

REFLEXIVE PRONOUNS

Reflexive pronouns are words ending in *-self* or *-selves* that are used when the subject and the object of a sentence are the same (e.g., *I believe in myself*). They can act as either objects or indirect objects. The nine English reflexive pronouns are *myself*, *yourself*, *himself*, *herself*, *oneself*, *itself*, *ourselves*, *yourselves*, and *themselves*.

Exercise 28. Circle the correct item.

1) She calls *yourself/herself* the smartest girl in the class. 2) We have organized the festival *ourselves/myself*. 3) I *herself/ myself* wanted to check all the details of the plan. 4) My parents grow these wonderful tomatoes *yourselves/themselves*. 5) He couldn't see it, but I saw it *himself/myself*. 6) Our mother needs help, she can't do all the housework *herself/ourselves*. 7) Sam couldn't phone *herself/himself* and asked me to phone you. 8) I'm awfully sorry to tell this, but the computer destroyed the programme *itself/himself*. 9) The children made the New Year toys *yourselves/themselves*. 10) Bob and Ron will make the project *themselves/ourselves*.

Exercise 29. Complete the sentences with the reflexive pronouns.

1) Ted solved the problem... . 2) Vicky and Albert are going to paint the car... . 3) I ... have given you the promise. 4) Did Patricia write the letter...? 5) You, children, must tidy this room... 6) I won't be able to come ..., but my wife will. 7) This programme has to check the mistakes... . 8) Have you, Nancy, cooked this meat... ? 9) Hilda... doesn't understand the meaning of that word. 10) The room ... was very comfortable, and the service was excellent.

Exercise 30. Translate into English.

1. Ті книги ваші чи їхні? — Вони — наші.
2. Де ваша кішка? — Наша — на вікні.
3. Яблука її чи твої? — Вони наші.
4. Цей сік його чи Тома? — Його.
5. Той сад — малий. Наш більший. А ваш? — Наш — такий самий.
6. Ті квіти ваші чи її? — Вони — наші.
7. Це авто Теда чи ваше? — Воно — його.
8. Сумка твоя чи Анни? — Її. — А де твоя?
9. Персики їхні чи твої? — Вони її.
10. Книги студентів чи ваші? — Вони їхні.
11. Цуценя ваше чи сусідів? — Ні, воно їхнє.
12. Де твій кашкет? — Мій — на полиці, а його — на столі.

13. Де ваші зошити? — Наші — у школі, а його — вдома.
 14. Бутерброд мій чи її? — Твій — на тарілці, а її — у портфелі.
 15. Квіти ваші чи її? — Її. Наші — у вазі.

NOTE! We do not use reflexive pronouns with the verbs: *concentrate, feel, relax and meet.*

Exercise 31. Insert reflexive pronouns where it is possible.

1. Tom cut _____ while he was shaving this morning.
2. We really enjoyed _____ very much.
3. I repaired my bike _____
5. He felt _____ tired.
6. Why don't you clean the windows _____?
7. Jack and I introduced _____ to our new neighbor.
8. They are relaxing _____ at the SPA center.
9. Let's paint the house _____?
10. The children cleaned their room _____.
11. John used to concentrate _____ on different affairs.
12. The cat caught the mouse _____.
13. Tell me a little about _____.
14. We met _____ at the train station.
15. She did all the work by _____.

INDEFINITE PRONOUNS

Indefinite pronouns do not refer to a specific person, place, or thing. In English, there is a particular group of indefinite pronouns formed with a quantifier or distributive proceeded by *any, some, every* and *no*.

	Person	Place	Thing
All	everyone everybody	everywhere	everything
Part (positive)	someone somebody	somewhere	something
Part (negative)	anyone anybody	anywhere	anything

	Person	Place	Thing
None	no one nobody	nowhere	nothing

Exercise 32. Choose the appropriate pronoun from the box.

Any, anybody, anything, every, everybody, everything

1. She does morning exercises _____ day.
2. You can meet her _____ time between 1 and 2.
3. This is a small town where _____ knows _____ about _____
4. He will do _____ to save her.
5. There are a lot of carpets here. You can choose _____ colour you need.
6. They told us _____ they wanted and there isn't _____ else to say.
7. He seemed to know _____ about music.
8. She doesn't know _____ about this gossip.
9. We know _____ person in this club.
10. _____ knows him as a very talented writer.

Exercise 33. Translate the following sentences into English.

1. Чи бачив хто-небудь дітей?
2. Ми не можемо ніде знайти цю книгу.
3. Там хтось ходить на горі.
4. Є що-небудь поїсти в холодильнику?
5. Щось велике лежало на столі.
6. Я десь поклала олівець і не можу знайти.
7. Хтось ходив по садку і співав пісеньку.
8. Ви бачили що-небудь цікаве на виставці?
9. Покличте кого-небудь, щоб допоміг нам.
10. Чи є у тебе щось цікаве почитати?

Exercise 34. Fill in the gaps with *none, nobody, and nothing*.

1. _____ of us will go there. It's not the place we should go.
2. _____ has happened. Don't worry
3. It was too dark outside and we could see _____
4. He found two copies but _____ of them was correct.
5. Kate had watched _____ of the two films I told her to watch.
6. There was _____ in the hall when we entered.
7. He will buy _____ today because it is Sunday and the shops are closed.

8. There was _____ at the counter.
9. You can see _____ out of the window. It is snowing heavily.
10. _____ of them is rigid.

Exercise 35. Supply necessary indefinite pronouns.

1. There is _____ in the clothes basket. It is empty.
2. I've tried phoning but every time I tried there was _____ in.
3. I have prepared _____ for dinner which you will like very much.
4. Would you like _____ to start with before the main meal?
5. He sat at the table but didn't have _____ to eat.
6. You can do _____. I don't really care.
7. I met _____ you know last night. She told me she had missed you very much.
8. That's a very easy job. _____ can do it.
9. Did you turn the oven off? I think I can smell _____ burning.
10. _____ offered help. They probably didn't have time.
11. _____ arrived in good time and the meeting started promptly at 3:30.
12. When the show finished there was complete silence. _____ clapped.
13. _____ likes being poor

THE ENGLISH SENTENCE: ITS TYPES AND PARTS. TYPES OF QUESTIONS. WORD ORDER

Exercise 36. Match the English and Ukrainian terms, denoting parts of the sentences:

- | | |
|-----------------------|--------------|
| 1) Subject | a) означення |
| 2) Predicate | b) підмет |
| 3) Object | c) обставина |
| 4) Attribute | d) присудок |
| 5) Adverbial Modifier | e) додаток |

Exercise 37. Match the English and Ukrainian terms, denoting parts of speech:

- | | |
|--------------|---------------|
| 1) Noun | a) іменник |
| 2) Verb | b) прислівник |
| 3) Adjective | c) прийменник |

- | | |
|----------------|---------------------------------|
| 4) Adverb | d) дієслово |
| 5) Pronoun | e) сполучник |
| 6) Numeral | f) числівник |
| 7) Preposition | g) прикметник |
| 8) Conjunction | h) займенник |
| 9) Participle | i) дієприкметник, дієприслівник |

Exercise 38. Match the English and Ukrainian terms, denoting types of sentences:

- | | |
|---------------------------|---------------------------|
| 1) Declarative sentence | a) питальне речення |
| 2) Interrogative sentence | b) окличне речення |
| 3) Imperative sentence | c) розповідне речення |
| 4) Exclamatory sentence | d) спонукальне речення |
| 5) Positive sentence | e) заперечне речення |
| 6) Negative sentence | f) стверджувальне речення |

Exercise 39. Match the English and Ukrainian terms, denoting structural types of sentences:

- | | |
|----------------|--------------------|
| 1) Simple | a) складнопідрядне |
| 2) Composite | b) просте |
| 3) Compound | c) складне |
| 4) Complex | d) складносурядне |
| 5) Complete | e) неповне |
| 6) Incomplete | f) поширене |
| 7) Extended | g) повне |
| 8) Unextended | h) особове |
| 9) Personal | i) безособове |
| 10) Impersonal | j) непоширене |

DECLARATIVE SENTENCE

(positive or negative)

Word order in English is of great importance. As English words have hardly any inflexions and their relation to each other is shown by their place in the sentence and not by their form, word order in English is fixed. We cannot change the position of different parts of sentence at will, especially that of the subject and the object. It will lead to misunderstanding.

Subject	Predicate	Objects			Adverbial Modifier		
		Indirect	Direct	Prepositional indirect	of manner	of place	of time
The boy	bought		a book.				
We	gave	her	an advice.				
I	sent		a letter	to my friend			last week.
She	met	him			by chance	at the theatre	two days ago.
I	drew		a picture	for him			yesterday.

Negative sentences are formed with the help of 'not' and 'no':

NOT+Verb

+many/ much/ a lot of

NO+ Adjective

+Noun

+negative short answer

Exercise 40. Determine parts of the sentence in the following sentences and fill in the chart. The first has been done for you.

1. We learn Medicine.

2. Ann is a pediatrician.
3. Pharmacist is explaining instruction to the customer.
4. He has been teaching English at this University for ten years.
5. John and Mary don't live in Liverpool.
6. Twice a week I have my practical training at the hospital.
7. I have a coffee break at my office in the afternoon.
8. Sarah and her friends were talking loudly in the hospital hall.
9. Yesterday we sunbathed and swam in the ocean the whole day long.
10. They'll get no help from people.

	Adverbi al modifier	Subje ct	Predicat e	Object 1	Objec t 2	Adverbi al modifier of manner	Adverbi al modifier of place	Adverbi al modifier of time
	(0)	(1)	(2)	(3)	(3)	(4)	(4)	(4)
1.		We	learn	medicin e				
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								

10								
----	--	--	--	--	--	--	--	--

The word order of words in which the predicate is placed before the subject is called inversion.

Inversion is full when the whole predicate is placed before the subject or partial when only the auxiliary or modal verb precedes the subject.

Eg. Have you any ideas?

Haven't you any family?

Certain types of sentences require the inverted order of words. These are:

1) Interrogative sentences. In most of them the inversion is partial as only part of the predicate is placed before the subject.

Eg. What did they research?

2) Sentences with the introductory **there**.

Eg. There are many candidates in the room.

There exist different opinions on this question.

3) Exclamatory sentences expressing wish.

Eg. Be it so!

4) Inversion occurs when an adverbial modifier opens the sentence.

Eg. At some distance from the factories stands their hospital.

Exercise 41. Mark and comment on the word order and explain the cases of inversion.

1. I have read this book with great pleasure. _____

2. She met me in the park on Friday. _____

3. I told the news to him. _____

4. Show the book to your brother. _____

5. There is your book. _____
6. They lived in an old wooden house near a short deep river. _____
7. Yesterday I received a long letter from him. _____
8. She bought a nice red dress some days ago. _____
9. From the window came sounds of music. _____
10. Here he comes! _____
11. There is a small garden near my house. _____
12. I returned the magazine to the library last week. _____
13. Never in my life have I seen such a beautiful flower. _____
14. From the window came sounds of music. _____
15. On the left is our town museum. _____

Exercise 42. Make up sentences from the given words. Find the subject and the predicate of the sentences. Comment on the word order.

1. A / STUDENT / DEPARTMENT / OF / AM / I / FIRST / MEDICAL / YEAR.

_____.

2. PHARMACISTS / DRUGS / AND DISPENSE / PRESCRIPTION / ON / PREPARE / CUSTOMERS / TO.

_____.

3. CHARGE / THE SICK / TREATING / OF / DOCTORS / TAKE.

_____.

4. AND HEALTH / CLINICAL / PROTECTION / TIMES / ROMAN / DEVELOPED / MEDICINE / GREATLY / IN.

_____.

5. TOOK / THE DOCTOR / AND PULSE / THE PATIENT'S / TEMPERATURE.

_____.

6. AND FOOD / MAKES / BODY / FROM / VITAMIN D / SUNLIGHT / YOUR.

_____.

7. OF / PHARMACY / TO / THE FIRST / BACK / THIRD / OF / THE ORIGIN / CENTURY / THE 19TH.

8. PATIENT / EXAMINED / MEDICINES / AND / CAREFULLY / PRESCRIBED / SOME DOCTOR /.

9. LASTS / THE / OF / FOR / INTERNSHIP / COURSE / A YEAR.

10. MEDICINE / THIS / FOLLOW / WONDERS / IF / YOU / WILL WORK / THE INSTRUCTION.

THE PRESENT SIMPLE TENSE

Positive Sentences *Subject + Main Verb + _____.*

- **Main Verb** - the present tense of the verb is used.

	Su b j e c t	Main V e r b	
<u>1st Person</u>	I, We	study	at the university.
<u>2st Person</u>	Y o u	live	In Ukraine.
<u>3st Person Singular</u>	Sh e, He	knows	Chemistry well.
<u>3st Person Plural</u>	Th e y	condu c t	the experiment.

Negative Sentences

Subject + Auxiliary Verb + Not + Main Verb + _____.

- **Auxiliary Verb** - "Do/Does " is added after the subject.
- **"Not"** - is added after the auxiliary verb "do/does".

	Su bject	Auxiliar y Verb	ot	Mai n Verb	
<u>1st Person</u>	I	do	ot	miss	classes.
<u>2st Person</u>	Yo u	do	ot	wor k	at the weekends.
<u>3st Person Singular</u>	Sa m	does	ot	stud y	Surgery.
<u>3st Person Plural</u>	Stu dents	do	ot	spea k	English very well.

Questions

Auxiliary Verb + Subject + Main Verb + _____.

- **Auxiliary verb** - "Do/Does " is added before the subject.
- **Main Verb** - stays in the base form.

Do (I, you, we, they)

Does (he, she, it)

	Auxiliar y Verb	Subje ct	Mai n Verb	
<u>1st person</u> (I, we)	Do	I	spea k	clearly?
<u>2nd person</u> (you)	Do	you	work	in the polyclinic?
<u>3rd person singular</u> (he, she, it)	Does	a doctor	exam ine	patients?

<u>3rd person plural</u> (they)	Do	the graduates	have	a period of internship?
---------------------------------	----	---------------	------	-------------------------

The Present Simple is used:

1. For permanent situations. *She works hard.*
2. For repeated actions in the present? Especially with adverbs of frequency. *They often have practical classes.*
3. For facts which are permanently true. *The sun sets in the west.*
4. For timetables or programs. *The conference starts at 10 o'clock.*

Time expressions used with Present Simple:

Usually, always, never, often, sometimes, seldom, rarely, every day/ week/ month/ year etc.

Adverbs of frequency (**often, always, usually, sometimes etc.**) are placed before main verbs but after auxiliary/ modal verbs **to be**. *He often works in the lab. She is never late.*

Spelling Rules:

Third person singular always takes endings –s, –es. *He swims. It turns.*

Verbs ending in –y, in the third person singular –y changes into –ie. *Fly – flies; supply – supplies.*

Verbs ending in –ss, –sh, –ch, –x and –o take the ending –es. *Kiss – kisses; teach – teaches.*

Verbs ending in a vowel+y take the ending –s. *play – plays; stay – stays.*

Exercise 43. Write the verbs in the third person singular.

1. They pass. He _____.
2. I carry. She _____.
3. We watch. She _____.
4. I dry. He _____.
5. We call. He _____.
6. They go. She _____.
7. We play. It _____.
8. They reach. He _____.

Exercise 44. Choose the correct option:

1. Doctors always (examine / examines) patients.
2. He often (suffer / suffers) from the splitting headache.
3. Architect (design / designs) buildings.
4. This lawyer always (consult / consults) our family.
5. Alice (visits / visit) her family doctor regularly.
6. Students often (decorates / decorate) the hall for parties.

7. They (plays /play) volleyball every Saturday in the university gym.

Exercise 45. Put verb in brackets in the Present Simple:

1. Students of the first year _____ (to study) general subjects.
2. Training of a pharmacist _____ (to include) many subjects common to the medical curriculum.
3. Chemistry _____ (to deal) with the properties of a substance.
4. Our university library _____ (to have) many books on medicine.
5. They _____ (not/ to attend) classes regularly.
6. Physician _____ (to treat) people for different diseases.
7. Dentists say that sweets _____ (to spoil) our teeth.
8. Higher medical institutions of our country _____ (to train) pharmacists and doctors.
9. Students _____ (to have) practical classes four times a week.
10. She _____ (to research) physical and medical properties of the new medicines.

Exercise 46. Read this part of a book review. Put verbs in brackets in the Present Simple tense and underline them. Circle the adverbs of frequency.

COME DOWN!

Dr. Roads

In today's fast-paced world, we never _____ (to escape) stress. Stress always _____ (to affect) us psychologically, but according to Dr. Roads, author of the new bestseller, *Calm Down!*, it also _____ (to affect) us physically. For example stress _____ (to cause) high blood pressure. Doctors often _____ (to prescribe) medication for stress-related illnesses. Medicine usually _____ (to lower) a patient's blood pressure. But, Dr. Roads _____ (to claim), "You don't always need pills. Relaxation exercises _____ (to be) sometimes as effective as pills. For example, breathing exercises both _____ (to relax) you and _____ (to lower) your blood pressure. It only _____ (to take) a few minutes!"

Exercise 47. Put the time expressions in the correct order.

1. Tracy is a hard-working student. (always)
2. Bob works long in the Chemistry Lab. (usually)
3. Students work in the library. (sometimes)
4. She is late. (never)
5. Students take practical classes. (often)
6. The faculty trains students from different countries of the world. (always)
7. Medical students have practical training at the hospital. (usually)
8. The internship lasts longer than a year. (sometimes)

THE USE OF THE VERB TO BE

I am (not) we?	Am I?	We are (not) Are
You are (not) Are you?	Are you?	You are (not)
He is (not) they?	Is he?	They are (not) Are
She is (not)	Is she?	
It is (not)	Is it?	

Note! Time expressions are always used after the subject in the sentence. Only in the sentences with the verb **to be** they are used after the verb **to be**.

Exercise 48. Use the following time expressions usually, never, sometimes, always, seldom, often, rarely in the sentences below.

1. The doctor is angry when patients are late.
2. Nelson is on time for his date.
3. The doctor's advice is useful.
4. His blood pressure is high.
5. He is in poor health.
6. Her reports are informative.
7. The pharmaceutical students have practical training in the drug's store.
8. Nurses look after the patients.
9. Dr. Graham have his dinner in the hospital canteen.
10. Our district doctor is on a sick-leave.

Exercise 49. Put the correct form of the verb to be.

1. It ____ necessary to consult the doctor.
2. We ____ proud of our country.
3. Students _____ at the lab now.
4. The emergency department ____ on the first floor.
5. Larry's parents _____ doctors.
6. They _____ partners.
7. The patient _____ in the examination room.
8. Cytology _____ the study of the cells.
9. The results _____ surprising.
10. Angina pectoris _____ a disease of the heart.

CONSTRUCTION "THERE + TO BE"

(Affirmative Form)

Present Simple	Past Simple	Future Simple
-----------------------	--------------------	----------------------

There is (Singular) There are (Plural)	There was (Singular) There were (Plural)	There will be (Singular, Plural)
---	---	-------------------------------------

Exercise 50. Read and translate the following examples:

1. There is a surgical department in this hospital.
2. There are some departments in the regional hospital.
3. There is a stomatological faculty at our University.
4. There are some students in auditorium 105.
5. There is a new hospital in our city.

Exercise 51. Complete the following sentences:

1. There ____ 320 patients in this clinic.
2. There _____ more than 25 faculties at Oxford University.
3. There _____ my sister and many friends in my party.
4. There _____ a large lab and several classrooms on the first floor.
5. There _____ a doctor on duty and three nurses in the therapeutic department.
6. There _____ an old clinic in our city.
7. There _____ some faculties at the Medical Academy.

Exercise 52. Make the following sentences negative and interrogative:

1. There is a medical faculty at our Academy.
2. There are many clinical chairs at the University.
3. There are many qualified teachers at our Medical University.
4. There are several outstanding scientists at our hospital.
5. There are many medical colleges in our country.
6. There is a very interesting museum in our village.
7. In this residential district there are a lot of parks.

Exercise 53. Correct the mistake if there are any.

1. The teacher corrects our mistakes always.
2. Doctors examines patients in the examination rooms.
3. There is many examination rooms on the second floor.
4. Pharmaceuycial students has their practical training at the chemist's shops.
5. The faculty train doctors and profesionales for chemist's shops.
6. They often are on duty at the weekends.
7. There are the urgent need for physiotherapists in our days.
8. Senior students studies management of medicine.

9. Dr Jones are the best surgeon able to perform difficult operations.
10. They don't never smoke in the consulting room.

Exercise 54. Translate the following sentences into English:

1. У нашій лікарні є декілька відділень.
2. У цьому університеті – дві бібліотеки.
3. У національному університеті налічується близько 25 факультетів.
4. У читальному залі знаходиться викладач та декілька студентів.
5. У районній поліклініці є діагностичний центр та багато лабораторій.
6. В кабінеті багато медичного обладнання.
7. В палаті є чотири ліжка, холодильник, телевізор та кілька крісел.
8. Лікарі роблять щоденний обхід палат, обстежують пацієнтів та призначають лікування.
9. Реєстратура знаходиться на першому поверсі. Запишіться на прийом до лікаря там.
10. Медсестра часто вимірює життєві показники пацієнтів.

FOUR TYPES OF QUESTIONS

GENERAL QUESTIONS – we put questions to the whole sentence.

Students study General subjects during the first two years.

Do students study General subjects during the first two years?

*Does student (**he or she**) study General subjects during the first two years?*

SPECIAL QUESTIONS – we put questions to the certain part of a sentence using special words: WHO, WHAT, WHY, WHEN, WHERE, WHOM, WHOSE, HOW, HOW MANY (MUCH), WHICH.

What do students study during the first two years?

When do students study General subjects?

*Who studies General subjects during the first two years?(In special question to the **subject** we don't use auxiliary verb **DO or DOES**)*

ALTERNATIVE QUESTIONS – we doubt about something and give alternative (something to choose)

*Do students study General **or** Special subjects during the first two years?*

*Do students study General subjects during the first two years **or** during the third year?*

*Does a student study **Medicine or Pharmacology** ?*

DISJUNCTIVE or TAG QUESTIONS – we express doubt and statement.

Students study General subjects during the first two years, don't (do not) they?

Student (he or she) studies General subjects during the first two years, doesn't (does not) he (she)?

Students don't study General subjects during the third year, do they?

She doesn't study Special subjects during the first two years, does she?

Exercise 55. Ask as many questions as possible to the following sentences.

1. Advanced students always get grants at our university.

General question

_____?

Special question

What

_____?

When

_____?

Who

_____?

Alternative question

_____ or _____?

Disjunctive question

_____, _____?

2. A medical course lasts seven years in Ukraine.

3. There are many medical colleges in our countries.

4. This private clinic offers high quality service.

5. Our district doctor sees his patients in the consulting room 3.

Exercise 56. Complete the following disjunctive questions adding the correct tags.

1. Robert looks ill, **doesn't he?**

2. She never does it, _____?

3. There are many people in the reception area, _____?

4. They don't have any facts, _____?

5. You never change your decision, _____?

6. A nurse gives patients a thermometer to take their temperature,
_____?

7. The results of the X-ray examination and blood analysis are normal,
_____?

8. She is a pediatrician, _____?

9. An apple a day keeps doctor away, _____?

10. They have all kinds of medical equipment, _____?

THE USE OF THE VERB TO HAVE

I have (got) haven't got)	We have (got)	I don't have (I
You have (got) haven't got)	You have (got)	You don't have (You
She, he, it has (got) (She, He, It hasn't got)	They have (got)	He (She, It) doesn't have
They don't have (they haven't got)		

Do I have (Have I got)? got)?	Do we have (Have we
Do you have (Have you got)? got)?	Do you have (Have you
Does He (She, It) have (Has she, he, it got?) got)?	Do they have (Have they

Note! 1) *Have got* and *have* mean the same. *Have got* is more informal.

We use ***have (got)*** here to refer to both verbs:

I've got a terrible pain in my back.

I have a terrible pain in my back. (more formal)

2) We use ***have (got)*** to talk about possession, relationships, characteristics and illnesses.

In these contexts, it is not used in the continuous form:

She's got two diplomas.

She has two diplomas.

She's got a delightful voice.

She has a delightful voice. (more formal)

It's got 153 calories and 45g of carbohydrates.

It has 153 calories and 45g of carbohydrates. (more formal)

She has the measles.

He's got a headache.

3) ***Have got*** cannot be used to talk about actions. Only ***have*** is possible in this case.

I usually have dinner at 8 o'clock. (NOT I usually have got dinner at 8 o'clock.)

Note that ***have*** and ***have not*** are only used in the present simple. In the past tense, only ***had*** is used. ***Had not*** is not possible.

I had a strange experience yesterday. (NOT I had got a strange experience yesterday.)

Got forms of have are not normally used to indicate repetition and habit.

I have a meeting on Monday. OR I have got a meeting on Monday.

I often have meetings on Mondays. (BUT NOT I often have got meetings on Mondays.)

Exercise 57. Complete the following sentences with the correct form of verb to have.

1. This substance _____ many properties.
2. We _____ fully equipped laboratory.
3. I _____ terrible toothache. I need to see a dentist.
4. We _____ a big fridge to keep medicines there.
5. The medical students _____ five examinations this term.
6. Many students of our group _____ flu.
7. He _____ a great number of pharmacological books.

Exercise 58. Cross out the unnecessary words.

1. Dr. Boris always fills in the patients cards yet.
2. They don't want to reduce expenses does.
3. Doctors often discuss the plan of treatment in severe cases do.
4. The register on duty writes out a referrals to the specialists if it is necessary.
5. There are many ambulances with full an equipment to render first aid.
6. The professional training involves practice in hospital wards at.
7. The compulsory professional course in pharmacy five years more.
8. There are more than seventy accredited off colleges of pharmacy in the USA.

Exercise 59. Complete the following sentences using the Present Simple.

1. Doctor Brown usually
_____.
2. Anton sometimes
_____.
3. There are
_____.
4. Medical and pharmaceutical students seldom
_____.
5. Doctors always
_____.
6. The patients often
_____.
7. Our university
_____.
8. A nurse
_____.
9. Each drug's store
_____.

10. We

_____ every semester.

Exercise 60. Complete the following sentences using the Present Simple. Put six questions.

Health Smart

The cold and flu season _____ (*to be*) back again, so it's time to brush up on prevention and treatment. Contrary to popular belief, cooler weather _____ (*not/ to cause*) colds. What is more likely is that we _____ (*to stay*) indoors more, giving viruses an opportunity to spread from person to person. In addition, the cold months associated with low humidity, and the dry air _____ (*to make*) the nasal cavity more susceptible to bugs. Consequently, cases of colds and flu _____ (*to surge*) between the beginning of autumn and spring (the average adult _____ (*to get*) two to four respiratory infections a year; children even more). Because the season is upon us, it is a good idea to revise a few cold and flu tactics.

To prevent an infection, the best defense is a good offence. The first step is to limit physical contact with the cold sufferer. When someone with a cold _____, _____, _____ (*to sneeze, to cough or to sniffle*), keep your distance. Hugging, kissing and shaking hands _____ (*to be*) sure ways to catch a cold.

- 1) _____ ?
- 2) What _____ ?
- 3) When _____ ?
- 4) Who _____ ?
- 5) _____ or _____ ?
- 6) _____, _____ ?

THE PRESENT PROGRESSIVE TENSE

Am
Subject + Is + Verb(ing)
Are

I am studying	We are studying
You are studying	You are studying
He (she, it) is studying	They are studying

+ He is studying. ? Is he studying? - He isn't (is not) studying.

THE PRESENT PROGRESSIVE TENSE is used:

1. For temporary situations.

She's staying at the hospital at the moment.

2. For actions happening at or around the time of speaking.

He is looking for a new job this week.

3. With always to express annoyance or criticism.

He's always coming late! It's his weak point.

4. For fixed arrangements in the near future.

They are flying to Warsaw tomorrow to participate in the medical symposium.

(It is all arranged. They have already bought the tickets. The time of the action is always stated or understood.)

Time expressions used with Present Progressive: *now, at the moment, at present, always, tonight.*

Note 1! *The stative (non-action) verbs rarely appear in the progressive tenses. They describe a state or situation, not an action. That is why they are used only in the Present Simple.*

Remember the following verbs!

<i>Appreciate, be, believe, belong, care, cost, contain, doubt, fear, feel, forget, hate, have (in the meaning to possess), hear, include, know, like, love, mean, need, own, prefer, realize, recognize, remember, see, seem, smell, sound, suppose, taste, think, understand, want, weigh.</i>

BUT: *to see (у значенні зустріти) I am seeing them on Sunday. – Я зустріну їх в неділю.*

To have (у значенні мати, володіти не вживається в Present Progressive) as in the example *She has two diplomas.*

In the expressions: *to have a bath (shower), to have a nap, to have fun, to have breakfast (lunch, dinner, supper, tea), to have a lesson – we use the Present Progressive.*

1) He is busy. He is having a shower. 2) We are having English lesson at the moment.

Note 2! *With the verbs to see, to hear, to smell, to taste in the interrogative form we use the modal verb **can**.*

Can you hear? *Somebody is knocking at the door.*

Can you smell the smoke?

Exercise 61. Read this letter. Underline the present progressive verbs that describe something happening right now. Circle the present progressive verbs

that describe things that are happening these days (but not necessarily right now). Answer the questions below the box.

Dear Helen!

I'm working very hard these days, but I have some good news. Right now I'm having my first practical training at the department of Cardiology. I'm taking part in the doctors' daily round. It's very thrilling. I am wearing my new uniform and I hope, my look is perfect. Of course, I'm still taking the Psychology classes at night as well. Medicine and Psychology is very close and I need this knowledge. Many interesting things happen with me and my fellow students this week. I'm always making close of the day notes.

How are you doing? Are you still writing music? Oops! They are calling me, I must go! Write soon!

Your Ann

- 1) What news does Ann have?
- 2) What is she doing right now?
- 3) What is she wearing?
- 4) What classes is she having at night?

Exercise 52. Read Ann's e-mail and find examples of:

- a) A fixed future arrangement;
- b) an action happening around the time of speaking;
- c) a timetable;
- d) a permanent state;
- e) a temporary situation;
- f) a habit / routine;
- g) an action happening now.

Dear Emily,

Thanks for your e-mail. It's always great to hear from you. As for me, I'm really busy. College life is very exciting, but there's so much to do. I get up at 8 o'clock on weekdays because lectures start at 9:30. I spend most of my afternoons in the library as I'm taking six different courses this term and there's lots of reading to do! At the weekend I do some part-time waitressing. So, as you can see, I'm working very hard these days. But it's not all work and no play. Tonight I'm having dinner with some classmates. I can't wait!

I'd better finish here because Sarah, my flat-mate, is calling me to come and help her. Come and visit me soon!

Ann

Exercise 63. Put the verbs in brackets into the present simple or the present progressive tense.

1. A: _____ (you /to do) anything interesting this weekend?

B: No, I _____ (to study) for my Anatomy exam.

2. **A:** Why _____ (you /to be) in such a rush?

B: Because my train _____ (to leave) in ten minutes.

3. **A:** What _____ (James / to do)?

B: He _____ (to work) at the Natural History Museum in the city centre.

4. **A:** _____ (you / to like) your flat?

B: Not really. Actually, I _____ (to look) for a new one at the moment.

5. **A:** Nina _____ (to look) nervous.

B: She is. She _____ (to see) the dentist this afternoon.

6. **A:** _____ (he /to want) to go to the theatre this evening?

B: He can't. He _____ (to have) an important business appointment.

7. **A:** Why _____ (Ann /not/ to come) to work these days? Is she ill?

B: No, she's on leave. She _____ (to get) married next week.

8. **A:** How much _____ (the brain / to weigh)?

B: About 2% of your total body weight, and it _____ (to use) 20 % of your body's energy.

Exercise 64. Complete the dialogue. Use the words under the lines, in the Present Simple or the Present Progressive. Complete the short answers.

The phone rings in the dentist's office.

Assistant: Dr Brown's office.

G: Hello. This is Gloria from the beauty salon next door.

(I / have / a toothache.) (I/ feel / awful / at the moment.) (What / the dentist / do / right now ?) (he / busy /?)

Assistant: Yes,

(He / usually / have time / in the morning.) (He / often / take a break.) (But today / there / several patients / wait / in the waiting room.)

G:

(I / usually / visit the dentist / twice a year.)(But / I / need to see / Dr. Brown / now!)(My tooth / hurt.) (This / be / an emergency!)

Meanwhile, a secretary on the second floor is trying to call Gloria.

S:

(Why / her phone / always / he busy?) (Gloria / talk on the phone/ all the time.)

Exercise 65. Put the verbs in brackets into the present simple or the present progressive tense.

1. You can't see Tom now: he (to have bath).
2. He usually (to drink) coffee but today he (to drink) tea.
3. - What you (to do) in the evening? - I (to play) volleyball with my fellow-students.
4. I won't go out now as it (to rain) and I (not/ to have) an umbrella.
5. The last train (to leave) Lviv station At 11 p. m.
6. He usually (to speak) so quickly that people (not/ to understand) him.
7. Hardly anyone (to wear) a hat nowadays.
8. We (to wear) the sunglasses today because the sun is very bright.
9. I'm busy at the moment. I (to introduce) our new partner.
10. Don't take his remarks too seriously. He's so upset that I (not/ to think) he really (to know) what he (to say).

Exercise 65. Imagine that some people you know have rather bad habits, which irritate you. Imagine that you are complaining of them. Add some sentences of your own.

1. Ann smokes in the room. – *Ann is always smoking in the room.*
2. Alex borrows money and forgets to return them.
3. They leave their dirty cups in the basin.
4. She leaves the light switched on.
5. He usually messes everywhere.
6. Fiona often comes late.
7. Cecilia usually scribes her tests.
8. _____.
9. _____.
10. _____.

Exercise 66. Complete the following sentences using the Present Simple or Present Progressive:

1. Mr. Bredford _____ now.
2. Douglas _____ at the moment.
3. Doctors _____ every morning.
4. Surgeon _____ now.
5. Look! They _____.
6. Scientists _____ this year.
7. Students usually _____.
8. Jill _____ today.
9. Our graduates always _____.

10. Alexandra _____ every week.

Exercise 67. Put the verbs in the correct tense form. Put questions to the given sentences.

1. Different kinds of medical plants _____ (grow) on the territory of Ukraine.

Where _____?

2. He _____ (work) at the toxicology project this year.

What project _____?

3. The root _____ (have) two main functions.

What _____?

4. Fibrous root systems _____ (be) for absorption of water and minerals.

What for _____?

5. Antibiotics _____ (kill) some of the simple organisms.

_____, _____?

6. Antibiotics _____ (destroy) harmless organisms.

_____ or _____?

7. My mum _____ (take) antibiotics these days.

Who _____?

8. Pharmacist _____ (explain) interaction of the medicine to the patient at the moment.

What _____?

Who _____?

9. There _____ (be) many people who recover after poisoning.

_____?

10. They _____ (produce) new drugs in the laboratories of pharmaceutical plants.

Who _____?

Where _____?

Exercise 68. Describe the picture. Write down 5-6 sentences using the Present Progressive Tense.



- 1) _____.
- 2) _____.
- 3) _____.
- 4) _____.
- 5) _____.
- 6) _____.

Exercise 69. Translate into English:

1. Марк перекладає інструкцію до ліків зараз.
2. Студенти досліджують хімічні властивості деяких речовин в лабораторії в даний момент.
3. В ці дні студенти старших курсів проходять екстенсивну практику під керівництвом досвідчених лікарів.
4. Молоді науковці у галузі медицини прийматимуть участь у конференції у наступну п'ятницю.
5. Він завжди марнує свій час, тому має низькі успіхи у навчанні.

THE PRESENT PERFECT TENSE

Have / has + Past Participle (III форма дієслова або V+ed)

The doctor has examined the patient carefully.

<i>I have done</i>	<i>We have done</i>
<i>You have done</i>	<i>You have done</i>
<i>He (she / it)has done</i>	<i>They have done</i>

+We have just arrived ? Have they just arrived? - They haven't just arrived

THE PRESENT PERFECT TENSE is used to express:

1) Recently completed actions

*He **has finished** cleaning the room. (You can see it is clean now. – evidence in the present)*

2) Actions which happened at an unstated past time and are connected with the present

*She **has lost** her mobile phone. (She is still looking for it)*

3) Personal experiences / changes which have happened

*I've **lost** five kilos of my weight.*

4) Emphasis on number or results

*The register **has written seven** referrals to the dermatologist.*

*GP **has visited ten** patients.*

Time expressions which follow this tense: *yet, already, today, this year (week, month), lately, recently, just, so far, since, ever, never, how long, still (in negative sentences), for.*

Note! The Present Perfect cannot be used for something that happened at a specific time in the past. That is why it cannot be used with the words or phrases of past time, which say (or ask) when something happened. After **WHEN** we always use **the Past Simple**.

Exercise 70. Change the following sentences according to the model.

Model: *I met Ann in the morning. I met her again at 9 o'clock.(today)*

– I have met Ann twice today.

1. Peter met Helen on Monday.

Peter met Helen again on Friday. (this week)

2. They took blood test two weeks ago.

They took blood test last Tuesday. (this month)

3. They organized conference for doctors and pharmacists in April.

They organized conference for doctors and pharmacists in September. (this year)

4. Ann drank two cups of tea in the morning.

Ann drank another cup of tea in the afternoon. (today)

5. Medical students wrote a test at the first lesson.

Medical students wrote a test at the last lesson. (today)

6. Carol went to Poland last Sunday.

Carol went to Poland five months ago. (this year)

7. We went to the theatre yesterday.

We went to the theatre three weeks ago. (this month)

Exercise 71. Use the Present Perfect in the following sentences. Make these sentences negative and interrogative.

1. Alex _____ (to give up) smoking this month.

_____?
_____?

2. Jane _____ (just / to break) her leg.

3. They _____ (to sign) a significant document today.

4. Lilly _____ (already / to pass) three exams.

5. The Doctor _____ (just / to leave).

6. They _____ (to conduct) seven experiments lately.

7. Jim _____ (to loose) his documents today.

8. Mary _____ (to consult) her cardiologist twice this month.

9. He _____ (to miss five classes this week.

10. The scientist _____ (to publish) five articles this year.

Exercise 72. Use the Past Simple or the Present Perfect in the following sentences:

1. John _____ (to write) his scientific report last night.
2. I _____ (never / to be) in the operation theatre during surgery.
3. The train _____ (to arrive) yet.
4. Sarah _____ (just / to phone) me.
5. Polly _____ (to achieve) good results this year.
6. Mr. Williams _____ (to injure) his left leg in the accident two days ago.
7. Jeremy _____ (to complete) his experimental work yesterday.
8. George _____ (to create) three symphonies this year.
9. The students _____ (to pass) the exams in December.
10. We _____ (seldom / to see) them lately.
11. Some students _____ (already / to complete) the first part of their course paper.
12. I _____ (just / to hear) that Peter is in the USA.
13. David Coleman _____ (just / to clean up) after the dissection.
14. It was a gloomy morning. Kent O'Donnell _____ (to get up) courteously from his office desk as the young pathologist and _____ (to enter) the room.
15. I am fully recovered. This medicine _____ (to work) wonders.

Exercise 73. Fill in in these words where necessary: lately, recently, already, just, yet, today. Some of them may be used more than once.

1. They have _____ chosen the answer.
2. The students haven't used their credits _____.
3. They have taken the vital signs twice _____.
4. A doctor has _____ made you diagnosis.
5. The patients have seen the doctor _____.
6. GP has written the prescription _____.
7. The doctors haven't made their daily round _____.
8. A doctor has discharged many patients from the hospital _____.
9. The cough has become worse _____.
10. Dr Jones is tired. He has performed such a difficult operation _____.
- 11.

Exercise 74. Students of Volyn National University are planning the Science Day among students. In pairs ask and answer the questions. Use the MODEL.

Things to be done

- Invite students from other universities to take part +
- Organize participants into groups (sectors) -
- Advertise the event on-line +
- Prepare *the welcoming speech* -
- Prepare the general program of the event with the latest corrections +
- Prepare the agenda of the workshops -
- Prepare the reports -
- Prepare all necessary equipment +
- Make leaflets and posters -

MODEL

Student 1: *Have you invited other students to take part in the Science Day?*

Student 2: *Yes, We have already done it. We invited students from 10 universities of Ukraine some days ago.*

Exercise 75. Put the verbs in brackets into the correct tense: the Present Perfect or the Past Simple.

1. **Ann:** Hello, Jack! I _____ (not / to see) you for ages! Where you _____ (to be)?

Jack: I _____ (to be) in Dresden. I _____ (to mean) to send you a letter and some postcards but I _____ (not / to have) your address with me.

Ann: Never mind. You _____ (to have) a good time in Switzerland? How long you _____ (to be) there?

Jack: I _____ (to be) there for a month. I _____ (to have) my practical training in the private clinic. I Only just _____ (to come) back. My trip _____ (to be) very useful for me I _____ (to get) great experience there.

2. **Nick:** You _____ (just / to agree) to go, so why aren't you getting ready?

Andrew: But I _____ (not / to realize) that you (to want) me to start at once!

3. - I just _____ (to have) my first driving lesson.
 - How it (to go)? You (to enjoy) it?
 - Well, I actually (not / to hit) anything but I (to make) every other possible mistake.

4. My parents (to buy) a new house last year, but they (not / to sell) our old house yet, so at the moment we have two houses.

5. Ann (to go) to Canada six months ago. She (to work) in Canada for a while and then (to go) to the United States.

6. - Mary _____ (to be) in Japan for two years. She is practicing the alternative medicine there.
 - How she _____ (to go) there?

- Due to the International project.

7. When Paul _____(to come) into the room, Ann was sitting in an armchair just behind the door. Paul, not noticing Ann, _____(to go) to the window and _____ (to look) out. Ann _____ (to cough) and Paul _____ (to spin) round. “ Hello, Ann!” he _____ (to claim), “I _____ (not / to see) you !”

8. – You _____(to see) Philip lately? I (to ring) his flat several times last week but _____ (to get) no answer.

- Oh, he _____ (to be) in America for the last month. He _____(to fly) out on the first for a seminar and then (to decide) to stay for six weeks.

9. - You ever _____(to be) to France?

- Yes, I (to spend) last July and August in Grenoble. I _____ (to go) to improve my French but everyone I _____(to meet) _____(to want) to improve his English so I _____ (not / to get) much practice.

10. A woman _____(to come) in with a baby, who just _____ (to swallow) a safety pin.

Exercise 76. Put the sentences into all the other tenses (Past Simple; Present, Past Progressive and the Present Perfect) and mind the time expressions.

1. He takes medicine three times a day.
2. She studies tumors.
3. The pharmacists always dispense drugs on prescription.
4. She suffers from angina pectoris.
5. They wear medical uniform every day.

Exercise 77. Tell your fellow-students what you have ever done /never have done / have already done / just have done / lately, recently have done. Try to use your active vocabulary.

- 1) _____.
- 2) _____.
- 3) _____.
- 4) _____.
- 5) _____.

Exercise 78. Translate into English:

1. Я щойно записалась на прийом до стоматолога.
2. Пацієнт має вже другий серцевий напад сьогодні.
3. Лікар не заповнив історію хвороби ще.
4. Студенти старших курсів мали практику у муніципальній аптеці минулого року.

5. Вчені зробили вагомі відкриття у галузі медицини останнім часом.
6. В давні часи люди знали багато рослин з лікувальними властивостями.
7. Розробники використовують отруйні гриби для виготовлення сильнодіючих препаратів, зокрема при лікуванні онкології.
8. Фізіотерапевти розробили спеціальні курси лікувальної фізкультури для різних категорій пацієнтів в цьому році.
9. Вона не зверталась до свого сімейного лікаря протягом тривалого часу.
10. Розвиток суспільства вплинув на розвиток методів діагностики та лікування.

THE PRESENT PERFECT PROGRESSIVE

Have (has) + been +V ing

e.g. I have been travelling for five days.

+ *It has been raining for two days.*

- *It has not (hasn't) been raining for two days.*

? *Has it been raining for two days?*

TIME EXPRESSIONS:

for, how long, recently, lately, since.

THE PRESENT PERFECT PROGRESSIVE is used to express:

1) Actions started in the past and continuing up to the present

He has been working in the lab for three hours.

2) Past actions of certain duration having visible results or effects in the present.

A child has been crying. (Her eyes are red.)

3) Emphasis on duration (usually with for, since or how long)

They have been compounding medicine since the morning.

4) Actions expressing anger, irritation, annoyance, explanation or criticism.

Who has been using my hairbrush? (annoyance)

Note!

Live, feel and work can be used either in the Present Perfect or the Present Perfect Progressive.

I've been living in Lutsk for twenty years.

I've lived in Lutsk for twenty years.

Exercise 79. Match the sentences with the meaning of the tense used in each of them.

1. He takes medicine every day.	a. <i>emphasis on duration</i>
2. Milk contains a lot of vitamins.	b. <i>temporary situation</i>
3. He is getting stronger.	c. <i>repeated action expressing annoyance</i>
4. She has just passed her exams.	d. <i>emphasis on number</i>
5. Doctor is examining a patient at the moment.	e. <i>habitual action</i>
6. He has been working all day.	f. <i>recently completed action</i>
7. She has phoned her manager three times this morning.	g. <i>permanent truth</i>
8. He is always borrowing money from me.	h. <i>changing or developing situation</i>
9. She has been walking all morning. (Her feet are aching.)	i. <i>fixed arrangement in the near future</i>
10. They are getting married next week. (They've already sent the invitations.)	j. <i>past action of certain duration having visible results in the present</i>

Exercise 80. Use the Present Simple, Present Progressive, Present Perfect or Present Perfect Progressive.

Tom : 1) _____ (you / to see) the state of this kitchen? Someone 2) _____ (to wash) clothes in the sink and they're still there!

Fred: Yes, I know. I usually 3) _____ (to use) the bath, but it 4) _____ (to be) too dirty at the moment.

Tom: Why didn't you clean it? You 5) _____ (to live) here for two months now, and I

6) _____ (never / to see) you do any housework.

Fred: What do you mean? I 7) _____ (to wash) the dishes at least three times and I always

8) _____ (to make) my bed.

Tom: Rubbish! You 9) _____ (always / to make) a mess and not cleaning up afterwards.

Fred: What about you? You 10) _____ (always / to drink) my milk!

Tom: Don't be ridiculous! Where 11) _____ (you / to go)?

Fred: Out! I 12) _____ (to see) my girlfriend this evening.

Tom: What about the kitchen?

Fred: Bye!

Exercise 81. Put the verbs in brackets into the correct form.

1. We 1 _____ (to investigate) the problem since November.
2. Larry _____ (to conduct) the experiments for a year.
3. How long _____ (you / to study) Chemistry?
4. They _____ (to translate) the pharmacological documents for a month.
5. Why _____ (you / to follow) me for an hour? I'll call the police.
6. Carol _____ (not / work) here since December.
7. Naomi _____ (to sit) there for two hours waiting for her doctor.
8. How long _____ (Patrick / to work) for famous pharmacological company abroad?
9. They _____ (to argue) since morning.
10. Alan's leg aches. He _____ (to walk) all day.
11. You _____ (to chat) on the phone for an hour. It's time to stop.
12. The telephone _____ (to ring) for twenty minutes. Can anybody answer it?

Exercise 82. Fill in the correct form of the present perfect tense.

1. I'm so tired because I _____ (to work) so hard lately.
2. The new midfielder _____ (to score) 5 goals so far this season, and we're only halfway through it.
3. There's no apple juice left in the fridge. I _____ (to drink) both bottles.
4. Jenifer is getting fatter and fatter all the time. She _____ (probably / to eat) too much.
5. I _____ (just / to buy) a new pair of shoes. How do you like them?
6. _____ (you / to finish) reading the newspaper? Could you give it to me then?
7. I'm writing a new scientific article at the moment. So far, I _____ (only / to write) the introduction.

8. Look at how she's sweating. She _____ (probably /to run) for hours.
9. How long _____ (you / to learn) Latin?
10. I am not surprised your eyes are hurting. You _____ (work) on computer ever since you got up.
11. We _____ (to study) Anatomy for 2 years.
12. Where is my new watch? I _____ (to look; not /to find) for it for hours and _____ it yet.
13. There's nothing on your exam paper. You started an hour ago. What _____ (you /to do) up to now?
14. I _____ (to find) a new job and I can start next Wednesday.
15. I _____ (not /to see) Patricia since we were in kindergarten together. What _____ (she / to do) all these years?
16. I _____ (to change) all my passwords recently, but I forgot to write them down.

Exercise 83. Put the verbs in brackets into the correct form.

1. _____ (you / to buy) your train ticket yet?
2. You _____ (not / to eat) enough lately. How long _____ (you / to keep) to a diet?
3. Julie _____ (to learn) to drive for six years!
4. Amanda _____ (to have) lunch for an hour, so we are sick and tired waiting for her.
5. How much coffee _____ (she / to drink) this morning?
6. Simon _____ (to write) three articles about influence of homeopathy on the human body recently. He _____ (to research) this problem for two years.
7. I _____ (to do) everything I needed to do today!
8. It _____ (not / to rain) all summer, so the garden is dead.
9. I _____ (to read) your book. I _____ (to find) much useful information.
10. She _____ (to forget) how to get to my house.
11. I _____ (to work) in the lab compounding ointments for soldiers all day and I need a rest.
12. She _____ (to make) two reports this term. She is a hard-working student!
13. David feels great these days. He _____ (to get) up early lately.
14. We _____ (always /to hate) rush hour traffic.

15. Recently, I _____ (to study) a lot. My exams are in a few weeks.
16. We _____ (to write) this book for months and months.
17. I _____ (always / to love) chocolate.
18. I _____ (to want) to go back to university for a long time.
19. What's that delicious smell? _____ (you / to cook)?
20. I _____ (to watch) seven films this week!

Exercise 84. Fill in: yet, already, since, for, usually, tonight, how long, ever, at the moment or still.

1. I don't think Frank has _____ been to a live concert. Why don't we take him to one for his birthday?
2. I haven't seen Louise _____ Jeff's wedding. I wonder what's happened to her.
3. I don't know _____ Jack's been working on that project, but it seems like weeks.
4. Mr. Alex hasn't rung me back about the contract _____ .
5. We're meeting some friends for a meal _____ . Would you like to come along?
6. Pam has _____ finished her test and I've only done half of mine.
7. Patrick gets to school at eight o'clock sharp, but it's half past and he hasn't arrived yet.
8. Is Jill _____ going out with Mark, or have they split up?
9. I'm trying to finish cleaning up _____ . Can you ring back later?
10. My neighbor has lived in that house _____ nearly 60 years.

Exercise 85. Put the verbs in brackets into the correct present forms. Put five questions to the text.

Dear Sir /Madam!

I 1) _____ (to write) on behalf of Midfield School. Every year, our students 2) _____ (to choose) a project on an environmental problem. Then, they 3) _____ (to work) to raise money to help solve this problem. We 4) _____ (recently / to see) your advertisements about protecting dolphins, so, for the last few weeks, we 5) _____ (to try) to learn about the dolphins that 6) _____ (to live) in the sea near here. We 7) _____ (already / to be) on two boat trips and 8) _____ (to persuade) local fishermen to change their fishing nets because the ones they 9) _____ (to use) at the moment can trap dolphins. Could you please send the children some World Wildlife Fund poster to add to the work that they 10) _____ (to do) so far?

Yours faithfully,

- 1) Who _____ ?
- 2) What _____ ?
- 3) Why _____ ?
- 4) _____ or _____ ?
- 5) _____, _____ ?

Exercise 86. Complete the following sentences paying your attention to the adverbial modifier of time :

1. Pharmacologists _____ . (for many years)
2. A nurse _____ . (since the morning)
3. A patient _____ . (for fortnight)
4. They _____ . (some years ago)
5. The doctors _____ . (at the moment)
6. A neurologist _____ . (usually)
7. Dermatologist _____ . (just)
8. Pharmacists _____ . (always)
9. Patients _____ . (every morning)
10. Number of covid infections _____ . (nowadays)

Exercise 87. Translate into English:

1. Дослідження виявило негативний вплив ліків з цією діючою речовиною на травну систему людини.
2. Багато людей страждають від зловживання ліками останнім часом.
3. Над яким проектом ви працюєте з часу останньої нашої зустрічі?
4. Лікар вже прооперував трьох людей сьогодні.

5. Фізіотерапевти працюють над реабілітацією важкопоранених бійців протягом останнього року.
6. Скільки проти ковідних вакцин розробили фармацевтичні компанії за останніх три роки?
7. Які побічні ефекти викликають ці ліки?
8. Лікар Сміт щойно повернувся з щорічної медичної конференції у Празі.
9. Інфікована людина може передати вірус великій кількості людей за короткий проміжок часу.
10. Коли вчені виявили перші випадки ВІЛ інфекції?

THE PAST SIMPLE TENSE

V + ed (або форма неправильного дієслова)

We finished our task in time.

Doctor examined the patient some minutes ago.

Bob was a diligent student.

Verb to be in the Past Simple

I was	We were
You were	You were
He (she, it) was	They were

+	?	=
1. She was a pharmacist.	Was she a pharmacist?	She was not (wasn't) a pharmacist.
2. He passed his exam well.	Did he pass his exam well?	He did not (didn't) pass his exam well.
3. They went abroad.	Did they go abroad?	They did not (didn't) go abroad.

THE PAST SIMPLE TENSE is used:

1) for actions which happened at a stated time in the past.

They conducted the experiment yesterday.

2) To express a past state or habit.

When Alan was a student he lived in a small room.

3) For past actions which happened one after the other.

Helen put on her coat, took her bag and left the room.

Time adverbs and expressions used with Past Simple:

Yesterday, last year/ month/ week/ Monday, ...ago, in 2020, then, when.

We visited Warsaw last spring.

They finished school two years ago.

Exercise 88. Complete the tables below and make up sentences of your own with italicized verbs:

<i>Present</i>	<i>Past</i>	<i>Present</i>	<i>Past</i>
1. Hear		11..	Wrote
2.	Shut	12.	Brought
3. Dig		13. Put	
4.	Stole	14. Ring	
5. Swim		15. Go	
6. Fly		16. Break	
7.	Left	17. Take	
8. See		18.	Woke
9. Run		19.	Slept
10.	Came	20. Dive	

1. _____.
2. _____.
3. _____.
4. _____.
5. _____.

Exercise 89. Choose the correct form of the verb.

1. The sky _____ clear yesterday. (were, was)
2. Students _____ at the theatre last Sunday. (*are, were*)
3. We _____ the chemical properties of the compound last lesson. (*learning, learnt*)
4. He _____ the job, so he felt depressed. (*loosed, lost*)
5. She _____ the exam, so she didn't enter the university. (*didn't passed, didn't pass*)
6. The doctor _____ aspirin to relieve the pain. (*prescribes, prescribed*)
7. _____ you _____ the lecture yesterday? (*did / attended; did / attend*)
8. The nurse _____ the wound before the operation. (*cleand, cleaned*)
9. I looked for my dictionary but I _____ it. (*didn't found; didn't find*)
10. People _____ how to treat many diseases fifty years ago. (*didn't known; didn't know*)

Exercise 90. First, put the verbs in brackets in the Past Simple, than match the beginning of the sentences with their endings.

1. Nick _____ (to work) long	a) she _____ (to catch)
------------------------------	-------------------------

hours, so	<i>cold.</i>
2. I _____(not/ feel) well, so	<i>b) _____(to recover) soon.</i>
3. I _____ (to begin) to take a good care of myself so	<i>c) he _____ (to look) tired.</i>
4. She _____(to stay) at home because	<i>d) they _____(to take) a taxi.</i>
5. Anton and Nelly _____(to miss) their last train so	<i>e) he _____(not/ to find) the necessary word.</i>
6. Students _____(to conduct) the experiment and	<i>f) I _____(to make) an appointment with my doctor.</i>
7. He _____(to consult) the dictionary but	<i>g) we _____(to get) much useful information.</i>
8. Our monitor _____(to prepare) good report so	<i>h) they _____ (to reveal) some properties of the medicine.</i>

Exercise 91. Read about Japanese poet Matsuo Basho and use verbs in the correct tense form. Put six questions to the text.

Matsuo Basho (to write) more than 1,000 three-line poems, or “haiku”. He (to choose) topics from nature, daily life, and human emotions. He (to become) one of Japan's most famous poets, and his work (to establish) haiku as an important art form. Matsuo Basho was born near Kyoto in 1644. His father (to want) him to become a samurai (warrior). Instead, Matsuo (to move) to Edo (present-day Tokyo) and (to study) poetry. By 1681 he (to have) many students and admirers. Basho's home (to burn) down in 1682. Then, in 1683, his mother (to die). After these events, Basho (to feel) restless. Starting in 1684, he (to travel) on foot and on horseback all over Japan. Sometimes his friends (to join) him, and they (to write) poetry together. Travel (to be) difficult in the seventeenth century, and Basho often (to get) sick. He (to die) in 1694, during a journey to Osaka. At that time he (to have) 2,000 students.

1. Who _____ ?
2. Did _____ ?
3. When _____ ?
4. _____ or _____ ?
5. How many _____ ?
6. _____, _____ ?

Exercise 92. Use the Past Simple in the following sentences:

1. The Cardiology department (to get) _____ modern equipment yesterday.

2. A: _____ Dr. Helen (to drive) _____ to work? B: Yes, she _____ . She (to come) some minutes ago.
3. They (to buy) _____ all medicines on the doctor's prescription some minutes ago.
4. They (to go) _____ to Italy to participate in the seminar on Pharmacology last month.
5. A: _____ they (to swim) _____ at the beach? B: No, they _____ . The weather (to be) cold and windy that day.
6. My family and I (to see) _____ a comedy movie last night.
7. First, we (to do) _____ exercise, and then we (to drink) _____ some water.
8. Suddenly, the animal jumped and (to bite) _____ my hand then I (to go) to the First Aid Station.
9. What time _____ (you / to make) an appointment with a doctor last time?
10. The Wright brothers (to fly) _____ the first airplane in 1903.
11. I think I (to hear) _____ a strange sound outside the door one minute ago.
12. When I was ten years old, I (to break) _____ my arm. It really (to hurt) _____ .
13. The police (to catch) _____ all three of the bank robbers last week.
14. How many days _____ (he / to spend) in intensive care when he _____ (to suffer) from heart failure?
15. Unfortunately, I (to forget) _____ to take my prescription with me last morning so I (to return) home.

USED TO

Used to is used to talk about past habits. It has the same form in all persons, singular and plural. It forms its negative and interrogative form with **DID**.

He used to eat a lot of sweets when he was a child.

I didn't use to play computer games.

Did you use to play computer games?

Exercise 93. Make an affirmative sentence, negative sentence or question using 'used to.

1. I / play / volleyball in the local team when I was a student.

2. We / go / to the beach every summer when we were in Greece?

3. She / love / eating chocolate, but now she hates it.

4. He / smoke / 10 cigarettes a day when he was young.

5. I / play / tennis when I was at school.

6. She / speak /French fluently, but she has forgotten it all.

7. He / play /golf every weekend?

8. They / spend / much time with their fellow students last summer holidays.

9. Julie / study /Portuguese when she lived abroad.

10. I / not / hate / my study at school.

Exercise 94. Use the used to in the following sentences:

1. *Not so much as I* _____. (*send*)

Not so much as I used to send.

2. It _____ used to say shocking things about you. (*say*)

3. Such things _____ in this old-fashioned place as running about the streets picking up items from people and asking personal questions for the paper to exploit the replies. (*not/occur*)

4. I remember how I _____ popular detective stories. (*read*)

5. At these Councils we meet in common morning dress, which we _____. (*not/do*)

6. His heart _____ at the imagination. (*burn*)

7. I _____ much of the story of the Good Samaritan, but I believe in it now. (*not/think*)

8. I _____ by the open window so I often had quinsy. (*stand*)

9. She _____ in the glass factory to earn her life in her young years. (*work*)

10. I _____ about it very much, but I suppose I'm growing old now, and living surrounded by the law, as it were, I am too law-abiding. (*not/worry*)

11. I _____ people like that when I taught school. (*see*)

12. I _____ her when she was a girl. (*know*)

13. 17. Children _____ their elders like they do now. (*not/sass*)

14. Little Susie _____ when mother took us in there because mother thought she was too young. (*not/pray*)

15. It _____ so, but it is now. (not/be)

Exercise 95. Complete the dialogue with *used to* or *didn't use to*.

Mrs Mills: Do you want a cup of tea, Jenny?

Alice: No thanks, mum. Have you got any coffee instead?

Mrs Mills: But you _____ like coffee. I remember you _____ drink green tea in the morning.

Alice: Yes, but I like it now. Could you put some sugar in it?

Mrs Mills: You _____ take sugar. You _____ say it would make you put on weight. Do you want some cornflakes?

Alice: Haven't you got any cakes or biscuits? I _____ like cornflakes but I don't now.

Mrs Mills: You _____ be so fussy before you went to Paris.

Exercise 96. Use the proper tense forms according to the adverbial modifier of time.

1. Ancient Egyptians (to record) their knowledge about medicine in various papyri.

2. The goals of medicine (to be) to save lives and to relieve suffering.

3. Many prominent scientists of Ukraine (to work) at the Pharmaceutical and Medical faculties nowadays.

4. When (you / to go) abroad? I know that it was the business trip.

5. I (to fly) over the Black sea two years ago.

6. - (You /to see) the Moon last night? - It (to be) unusual.

7. The lecturers (to arrive) yesterday and (to deliver) three educational lectures to the students.

8. They (to have) a period of internship at the regional hospital some years ago.

9. (You / to hear) the speech of our President on TV last night?

10. - How (you / to get) that scar? - I (to get) it in a car accident in 2021.

11. - (You / to meet) my brother at the university conference yesterday? - Yes, I ... we (to have) coffee together afterwards.

12. Alex (to phone) Alice twice yesterday and (to be) surprised because nobody (to answer).

13. Our government (to shut) many gambling clubs in our city country some years ago.

14. I can't afford to buy this book today, it's a pity, but I (to spend) much money the day before yesterday.

15. At the end of that term attendance at these classes remarkably (to fall down).

Exercise 97. Change the verbs in brackets into the past tense. Some are regular and some are irregular.

Yesterday (to be) _____ a busy day. I (to wake) _____ up at 6 am, (to have) _____ breakfast quickly and then I (to go) _____ to work. I (to finish) _____ at noon and then (to eat) _____ some lunch. Afterwards I (to drive) _____ to the shops, (to buy) _____ some paint and then (to paint) _____ my bedroom. My housemate (to come) _____ home from work so I (to help) _____ him paint his room, then we (to repair) _____ his chair as it (to wobble) _____ a lot. I (to wish) _____ I hadn't, as I hurt my hand! After that I (to clean) _____ my house. I (to vacuum) _____ all the downstairs and then (to tidy) _____ up the living room and the kitchen. I was pretty tired by then so I (to eat) some dinner, (to yawn) _____, and (to go) _____ to bed and soon I (to fall) _____ asleep!

Exercise 98. Read the joke. Use the proper tense form instead of infinitives in brackets and put six questions of different types.

THE DOCTOR'S RECOMMENDATION

Once an old gentleman _____ (to come) to see the doctor. The man _____ (to be) very ill. The doctor _____ (to look) at him and said, "No medicine can help you. If you _____ (to want) to be well again, you must have a good rest. Go to a quiet place for a month, go to bed early, eat more roast beef, drink lots of milk but don't smoke more than one cigarette a day."

A month later the gentleman _____ (to come) into the doctor's office. He _____ (to be) a different man.

"Oh, doctor!"- he _____ (to say). "Thank you very much. Everything _____ (to be) fine and I _____ (to be) well again. But, doctor, It's not easy to begin smoking at my age."

What do you think of such type of patient?

- 1) Who _____ ?
- 2) What _____ ?
- 3) _____ ?
- 4) When _____ ?
- 5) _____, _____ ?
- 6) _____ or _____ ?

Exercise 99. Translate the following questions:

1. Вступна лекція з патології була дуже цікавою.

2. Студенти склали першу свою сесію успішною
3. Всі життєві показники пацієнта були в нормі і лікар виписав його з лікарні.
4. Стан хворого погіршився два дні тому.
5. Фізіотерапевт запропонував мені певний курс лікування на відновлення рухомості суглобів.
6. Пацієнт поскаржився на безсоння і його сімейний лікар приписав йому заспокійливі ліки приймати за 1 годину до сну.
7. Вона відчувала нудоту під час подорожі в горах.

Exercise 100. The Twenty Questions Game. One player chooses a famous person in the field of Chemistry, Medicine or Pharmacology. The others try to guess who he/ she was by asking the first player questions. If they fail to guess correctly, the first player gives them hints.

*Play this game asking: - only general questions;
- all types of questions.*

PAST CONTINUOUS

Утворення	Заперечна форма	Питальна форма	Слова-маркери
be+V_{ing} Was Were V_{ing}	S wasn't V_{ing} weren't	Was Were S V_{ing}?	<u>yesterday</u> <u>at 6</u> <u>o'clock</u> <u>while</u> <u>all</u> <u>day/night/morning</u> <u>when she phoned</u> <u>all day yesterday</u> <u>as</u>

We use **the past continuous** for:

- for an action which was in progress when another action interrupted it. We use the past continuous for the action in progress (the longer action), and the past simple for the action which interrupted it (shorter action). *While our teacher **was giving** us our homework, the bell **rang**.*
- for two or more simultaneous actions in the past. *John **was playing** the keyboard while Jenny **was walking** the dog.*
- for an action which was in progress at a stated time in the past. We don't mention when the action started or finished. *I **was watching** my favourite TV programme at 9:00 last night.*
- to describe the atmosphere, setting, etc and to give background information to a story. *The wind **was blowing** and it **was still raining** when I woke up that morning.*

Note: When there are two past continuous forms in a sentence with the same

subject, we can avoid repetition by just using the present participle (-ing form) and leaving out the subject as well as the verb to be. *He was singing while he was having a shower.* = *He was singing while having a shower.*

Exercise 101. Make the Past Continuous (choose positive, negative or question):

1. (they / take the exam?) _____
2. (when / he / work there?) _____
3. (you / make dinner?) _____
4. (they / drink coffee when you arrived?) _____
- _____
5. (when / we / sleep?) _____
6. (they / study last night) _____
7. (we / talk when the accident happened) _____
- _____
8. (he / not / exercise enough) _____
- _____
9. (I / talk too much?) _____
10. (it / not / snow) _____

Exercise 102. Complete the sentences with the Past Continuous form.

1. I _____ (run) when you saw me because I was late.
2. They _____ (wait) for a bus when the car crashed.
3. Gabi and Laura _____ (dance) at 8pm.
4. Tomek _____ (not / eat) a sandwich when Ben fell into the river.
5. What _____ Carol and Jack _____ (do) when Pedro phoned?
6. _____ Sally _____ (take) a photo when I phoned?
7. Pedro and Tomek _____ (not / laugh) when Ben fell in the river.
8. We _____ (to go) to the mall last night at 8 o'clock.
9. She _____ (to talk) to the police officer last week when I met her.
10. I _____ (to buy) a new bicycle when you called me.

Exercise 103. Put the verbs in the brackets into the Past Simple or Continuous.

1. George ___ off the ladder while he ___ the ceiling. (fall, paint)
2. Last night I ___ in bed when I suddenly ___ a scream. (read, hear)
3. ___ TV when I ___ you? (you watch, phone)

4. Ann ___ for me when I __ . (wait, arrive)
5. Maisie ___ up the kitchen when John ___ her to marry him. (clean, ask)
6. The house ___ £ 150,000 in 2003. (cost)
7. The fire _____ at six in the morning. (still burn)
8. My brother _____ a new job a week ago (get).
9. Columbus _____ America over 500 years ago (discover)
10. She _____ not interested in the book because she _____ it (be ,not understand)
11. _____ at school yesterday? (you be)
12. We ___ in a house near the sea last summer (live)
13. She ___ the piano very well when she _____ young (can play, be)
14. She _____ the office very early last night (leave).
15. I _____ a friend while I ___ the shopping (meet, do)

THE PAST PERFECT Tense

had +past participle of the notional verb (III форма дієслова)

*Eg. The students had completed the test by 2 o'clock.
The students had completed the test before the bell rang.*

+ The seminar had already started by the time he arrived.

-The seminar hadn't (had not) already started by the time he arrived.

? Had the seminar already started by the time he arrived?

THE PAST PERFECT TENSE is used to express:

- 1) an action, which happened before another past action, or before a stated time in the past;

They had left by the time we got there.

She had arrived by 7 p. m.

- 2) a completed past action, which had visible results in the past;

She was upset because she had failed her last exam.

A child had cried, his eyes were red.

- 3) The Past Perfect is the past equivalent of the Present Perfect;

He can't find his key. He has lost it. (actions refer to the present)

He couldn't find his key. He had lost it. (actions refer to the past)

Time expressions: after, before, by, by the time, just, already, never.

Exercise 104 Change the following sentences according to the model.

Model: *The train came at 8. We left at 8.30. – The train had come before we left.*

1. The students wrote the task. Then the dean came.
2. A doctor examined the patient. Then he made a diagnose.
3. A nurse took the vital signs of the patient. Then the doctor came.
4. She made an appointment with a doctor. Then she felt chest discomfort.
5. Cardiologist listened to the patient symptoms. Then he examined the patient carefully.
6. An allergist inspected the person. Then doctor asked her some important questions.
7. Pharmacist took the prescription. Then the pharmacist compounded some lotion for patient.
8. A gastroenterologist palpated the patient's abdomen. Then filled in the patient's card.
9. Doctors made the daily ward round. Then they prescribed some new procedures to the patients.
10. Mark graduated from the university. Then he started to work for famous international pharmaceutical company.

Exercise 104. Put the sentences into the Past Perfect and mind the time expressions.

1. A pharmacist paid her attention to the expiration date.
2. Physiotherapist prescribed the patient the manual therapy to relieve the pain.
3. The nurse wrote out referrals to the dermatologist and the allergist.
4. They conducted pharmaceutical research in pharmacy laboratory.
5. They raised some herbs with healing properties indoor.
6. A stress test showed how the heart performance under stress or work.
7. A child coughed badly.
8. The girl in blue jeans had some bruises on her face.
9. A man spent some days in the hospital.
10. A doctor prescribe a patient some antiviral drugs.

Exercise 105. Make up sentences using verbs in the Past Perfect Tense.

1. I couldn't take the flask because I _____ (to break) it.
2. The laboratory was full of smell. What _____ (to happen)?
3. The apparatus wasn't working because the technician _____ (to spill) water on it.

4. She didn't conduct the experiment because she _____ (not /to have) all necessary reagents.
5. They couldn't publish their report. They _____ (not /to complete) their investigation.
6. Nobody understood how she _____ (to get) her high position in the pharmaceutical company.
7. She was injured because she (not / to study) the rules of work with chemicals.
8. The reaction as shown to the students despite the fact somebody _____ (to break) the apparatus.
9. The skin of the patient was red. What _____ (to inject) you?
10. We _____ (to finish) the important research on analytical chemistry by January, 2.

Exercise 106. Fill in the correct form of the verb in brackets: Past Simple, Past Progressive or Past Perfect Tense.

1. After I _____ the letter, I _____ that I _____ the wrong address on it. (to post, to realize, to write)
2. Dr. John asked me where I _____ the day before. (to be)
3. At this time yesterday, we _____ remedial gymnastics. (to do)
4. When I _____ through the streets of Lutsk, I _____ about the magnificent time I _____ there as a student. (to walk, to think, to spend)
5. It was the first time that she _____ me to dinner. (to invite)
6. As soon as the maid _____ scrubbing the kitchen floor, she _____ working in the garden. (to finish, to start)
7. We started to worry about Jimmy because he _____ some serious traumas in the accident. (to get)
8. They _____ their way out of town before the sun _____. (already / to make; to rise)
9. The surgeon and his assistant _____ the operation theatre after the nurse _____ the patient's skin. (to enter; to prepare)
10. When I _____ home, I saw that my roommate _____.

(to arrive, to leave)

11. I _____ out of the window because I _____ some noises.
(to look, to hear)

12. We _____ TV when we saw that a devastating earthquake

California. (to watch, to hit)

13. The police told me that someone _____ into the neighbor's
house. (to break)

14. When we finally _____ at the airport, he _____
for us. (to arrive, to wait)

15. Patricia _____ English and German before she _____
her position in that company. (to study, to get)

Exercise 107. Fill in the Past Simple or the Past Perfect.

The biggest event in Tom's life _____ (to happen) by chance. He
_____ (to be) 22 and he _____ (just / to leave) college. He
_____ (to get) his degree and he was looking for a job. He _____ (to
want) to be a journalist but he _____ (to know) he _____ (not / to
have) enough experience. You see, as a student, he _____ (to spend) most
of his time in the university theatre. He _____ (to write) to all the
newspapers but he _____ (not/ to receive) any replies. Then one day, the
phone _____ (ring). It was a woman who _____ (to offer) him a job as
an actor. She _____ (to see) him in a play at the university and _____
(to enjoy) the performance. He _____ (to take) the job and since then he's
been very successful. Last night he _____ (to discover) he
_____ (to win) an award for his performance in the play.

Exercise 108. Complete the sentences using any appropriate past forms.

1. She went to the pharmacy and bought all prescribed medicines.
2. What _____ when the fire started?
3. I could tell she _____ because her eyes
were red.
4. She _____ when she slipped
and landed on the ice.
5. My arm _____ for two weeks,
before I went to the doctor.
6. She took her sick-leave and _____
away.

7. He _____ the road when a flower pot fell on his head.
8. While doctor on duty _____ the nurse was taking blood samples.
9. The patient _____ in hospital for five weeks before he fully recovered.
10. He was upset because he _____ the final exam.
11. Nobody knew where Jane _____ the front door key.
12. Tom _____ experiments every day for long time before he made significant scientific report with his conclusions.

Exercise 109. Put the verbs in the brackets into the Past Simple, Past Continuous or Past Perfect tense.

1. When the manager ____ (to come up) to the boss, he ____ (to speak) to somebody on the phone.
2. Jane ____ (to pay) for the dress she ____ (to choose) some minutes before.
3. Jim ____ (to read) the article and ____ (to return) me the magazine.
4. It _____ (still to rain) when we ____ (to get) home yesterday.
5. Dave ____ (to check) the mail before he ____ (to turn off) his computer.
6. While the professor ____ (to give) a lecture he ____ (to realize) that his wife ____ (not to remind) him about one important appointment.
7. While Mrs Simpson ____ (to cook) dinner she ____ (to understand) that she ____ (not to buy) potatoes.
8. When Laura ____ (to come) to the hospital, all the doctors ____ (to discuss) the medicine for cancer which the scientists ____ (to invent) some days before.
9. Sam ____ (to get) to the airport after the plane ... (to fly up).
10. When little Betty ____ (to play) with her toys yesterday evening she ____ (to find) the key her mother ____ (to lose) a week before.

Exercise 110. Fill in the correct form of the verb in brackets.

1. My friend Tim _____ well yesterday because he _____ too many sweets. (not /to feel; to eat)
2. After she _____, she _____ much better. (to rest, to feel)

3. She _____ him for a year before they finally _____ on holidays together. (to know, to go)
4. I asked him what _____ because I _____ strange noise in the hall. (to happen, to hear)
5. That morning I realized that someone _____ our new equipment. (to steal)
6. After she _____ her first major tournament, she _____ from a series of injuries. (to win, to suffer)
7. Our manager told us that the company _____ bankrupt. (to go)
8. I _____ to pass the test because I _____ hard. (to manage, to study)
9. I told the police that I _____ the man in the photo before. (not / to see)
10. Sampson _____ his report by the time Dean _____ home. (to finish, to come)

Exercise 11. Complete the sentences using any appropriate tense forms.

1. Ben couldn't write the letter because _____.
2. His head was bandaged because _____.
3. They were tired because _____.
4. He had a black eye because _____.
5. Jennifer got sunburnt because _____.
6. He had a stomach-ache because _____.
7. He was wet with sweat because _____.
8. A doctor was tired because _____.
9. They couldn't start transcutaneous electrical nerve stimulation because _____.
10. Physiotherapist changed the course of treatment because _____.
- 11.

Exercise 12. Translate into English:

1. Вони зібрали матеріали перед тим, як почати своє дослідження.
2. Професор уважно прочитав історію хвороби до того як оглянув пацієнта і поставив йому кілька запитань.
3. Вони були дуже здивовані, що Еліс ніколи не працювала раніше.
4. Я ніколи не шкодувала, що обрала професію фармацевта.
5. Ми випили каву до того як розпочати нашу розмову.
6. Лаборант помила всі скельця та пробірки, а також вимкнула все обладнання до того як завершила свою роботу.
7. Вони завершили реабілітацію до першого грудня.
8. Хвора прийняла нітрогліцерин до того як викликати лікаря.
9. Стоматолог зробив знеболення пацієнту до того як видалити зуб.

10. Лікар поставив остаточний діагноз після того як вивчив всі результати аналізів та результати томографії мозку.

THE PAST PERFECT PROGRESSIVE TENSE

Had +been +Verb(ing)

Eg. She had been working as a clerk for ten years before she registered.

+ They had been investigating new methods of treatment for five years before they got some positive results.

-They hadn't (had not) been investigating new methods of treatment for five years before they got any positive results.

? Had they been investigating new methods of treatment for five years before they got any positive results.

THE PAST PERFECT PROGRESSIVE TENSE is used to express:

1) Actions continuing over a period up to a specific time in the past.

She had been working as a clerk for ten years before she resigned.

2) Past action of certain duration which had visible results in the

past.

They were wet because they had been walking in the rain.

3) The Past Perfect Progressive is the past equivalent of the present

Perfect Progressive.

(She is going to the doctor. Her leg has been aching for two days.)

She went to the doctor. Her leg had been aching for two days.

TIME EXPRESSIONS: for, since

Exercise 113. Use the Past Perfect Progressive in the following sentences.

1. Sandra's face was red because she _____ .(to cry)

2. It was noon. I _____ (to study) since morning.

3. Henry was hot. He _____. (to jog)

4. He _____ (to study) chemistry for seven years before he entered the pharmaceutical department.

5. Leticia was too tired because she _____ (to write) her course paper for the whole night.

6. I was exhausted. I _____ (to translate) the scientific article for five hours.

7. She looked pale. She _____ (to suffer) from heart failure for many years.

8. They _____ (to shoot) that project for many years before the government stopped financing them.

9. The team of scientists _____ (to carry) out the experiment for two years before they got the results.

10. The bell _____ (to tinkle) for some minutes before the door opened.

Exercise 114. Use the Past Perfect Progressive or the Past Perfect in the following sentences.

1. They _____ (to discuss) the question for an hour when I came to the room.

2. We _____ (to be) in Paris for three days when the head of cardiology department called on.

3. I _____ (to wait) for that letter for a month when I got it.

4. Only she dared to tell him the truth, as she _____ (to know) him for many years.

5. They _____ (to be) married for three years when they graduated from the university.

6. A patient _____ (to unpack) her things for half an hour when a nurse called her to the examination room №3.

7. They left the flat where they _____ (to live) for twenty years.

8. A doctor _____ (to sew) up the wound for half an hour in the manipulation room when somebody knocked the door.

9. They _____ (to serve) in Lutsk military base for five years when the war began.

10. They _____ (to live) in that house for many years before the bomb ruined it.

Exercise 115. Complete the sentences using the simple form of the past or past perfect tense.

1. By the time we _____ to the stadium, the performance _____, so we missed the first two songs. (to get; already / to start)

2. When we _____ in Barcelona the airport management told us that they _____ our luggage. (to arrive, to lose)

3. After a child _____ a large meal, he _____ to feel sick and mum _____ for a doctor. (to have, to start, to call)

4. The shoes were very clean because he _____ hours cleaning them. (to spend)

5. It _____ his first trip to India. He _____ all necessary vaccinations before he left Ukraine. (not / to be; to get)

6. My neighbor told me that she _____ for French Pharmaceutical company for seven years. (to work)

7. Yesterday I _____ downtown to see Peter. I _____ him for months. (go; not / meet)

8. I _____ exhibition of medical equipment in Kyiv for the first time yesterday. I _____ it before. (to visit ; never /to visit)

9. She _____ him for very long when she _____ to get married. (not / to know; to decide)

10. When he _____, the party was over. Everyone _____. (to arrive; already / to leave)

11. I was happy after I _____ my first operation on the patient's knee. (to conduct)

12. I visited the hospital where the ambulance _____ my mother. (to take)

Exercise 116. Complete the following situations using the Past Perfect Progressive.

1. He had a bad backache. He _____.

2. He was angry. _____.

3. They were tired. _____.

4. She had a splitting headache. _____.

5. His leg was in a plaster. _____.

6. He was awarded. _____.

7. She was rather exhausted _____.

8. He achieved great success in the compounding antiviral drugs. _____.

9. A young lady was rather thin and her face was white as a sheet. _____.

10. She appeared to have some blisters on her feet. _____.

Exercise 117. Fill in with Past Perfect or Past Perfect Progressive.

When I entered the house something smell awful. Someone _____ (to cook) and _____ (to burn) the meal. I _____ (to visit) the house once before and _____ (meet) the family but I didn't know what _____ (to happen) since then. The house was a mess. The children _____ (to play) in the living room and _____ (to leave) their toys all over the floor. Someone _____ (to leave) all windows open. It _____ (to rain) for hours and all the curtains _____ (to get) wet and dirty. I asked the children where their parents were. They told me that their mother _____ (to be) in hospital for past two weeks. Their father _____ (to look) after them since then. Obviously he _____ (to

do) his best, he couldn't do any better since he worked all morning and had to leave them alone most of the day. I had to do something to help them.

Exercise 118. Put the verbs in brackets into the correct past form.

I remember when I _____ (to go) on holidays abroad for the first time. I _____ (just /to leave) school. I _____ (to study) very hard for my final exams and I _____ (to feel) that I needed a holiday. A friend of mine _____ (to want) to come as well so we _____ (to look) at some brochure from the travel agent's. We _____ (to read) for about an hour when my friend _____ (to find) perfect holiday – two weeks in Hawaii. We _____ (to be) very excited about it. Finally the day of our holiday _____ (to arrive). We _____ (just / to leave) the house when the phone _____ (to ring). I _____ (to run) back into the house, but the phone _____ (to stop) by the time I _____ (to reach) it. When we _____ (to arrive) at the airport we _____ (to sit) in the cafeteria. The airline _____ (just / to make) an announcement. Our flight was delayed for eight hours. We _____ (to get up) very early and rushed to the airport, all the morning.

Exercise 119. Translate into English.

1. Дитина кашляла і температурила всю ніч поки медсестра не зробила знеболюючий укол.
2. Вчора я була приємно вражена. Всі працювали продуктивно поки не завершили завдання.
3. Анна виглядала стурбованою. Вона годину шукала призначення лікаря поки знайшла його.
4. Ольга сиділа під кабінетом лікаря протягом години, коли медсестра покликала її в оглядову кімнату.
5. У вас були втомлені очі. Як довго ви працювали?
6. Влад був засмучений. Він чекав на результати томографії з ранку.
7. Діагноз був не втішний. Нора плакала з самого ранку, поки лікар не заспокоїв її.
8. Юлія страждала від нестерпного болю протягом години, поки не приїхала швидка допомога.
9. Сандра була дуже роздратована. Хтось гучно хропів у сусідній палаті протягом ночі.
10. Рут була справді щаслива. Вона старанно готувалась до державних іспитів протягом місяців і склала іспити блискуче.

PASSIVE VOICE

To be + Past Participle (3 форма дієслова)

Tense forms in Active and Passive Voice

Tense	Active Voice	Passive Voice	Time Expressions
Present Simple	<i>She conducts the research.</i>	<u>Am/ is/ are + Past Participle</u> <i>The research is conducted</i>	Always, usually, normally, sometimes, rarely, seldom, every (day, week, month, year)
Past Simple	<i>She conducted the research.</i>	<u>Was/ were+ Past Participle</u> <i>The research was conducted</i>	Yesterday, last (week, year, month), ... ago, in 2019
Future Simple	<i>She will conduct the research.</i>	<u>Will be+ Past Participle</u> <i>The research will be conducted</i>	Tomorrow, next (week, month, year)
Present Continuous	<i>She is conducting the research.</i>	<u>Am/is/are +being+ Past Participle</u> <i>The research is being conducted</i>	At present, right now
Past continuous	<i>She was conducting the research.</i>	<u>Was/were +being+ Past Participle</u> <i>The research was being conducted</i>	At that time yesterday, from 10 to 12, when the Dean came
Future Continuous	<i>She will be conducting the research.</i>	—	At noon, (midnight) at that moment tomorrow, at 5 next Sunday
Present Perfect	<i>She has conducted the research</i>	<u>Have/has+be en+ Past Participle</u> <i>The research has been conducted</i>	Ever, never, just, already, yet, (how) many times, before, lately, recently
Present Perfect	<i>She has been conducting the</i>	—	For an hour (month, year, long

Continuous	<i>research</i>		time), since 5 o'clock, all my life
Past perfect	<i>She had conducted the research</i>	<u><i>Had been+ Past Participle</i></u> <i>The research had been conducted</i>	Yet, so far, by then
Past Perfect Continuous	<i>She had been conducting the research</i>	—	For 2 weeks (month, some time)
Future Perfect	<i>She will have conducted the research</i>	<u><i>Will have been+ Past Participle</i></u> <i>The research will have been conducted</i>	By 5 o'clock tomorrow (noon, Sunday, that time)
Future Perfect Continuous	<i>She will have been conducting the research</i>	—	For (2 hours, 10 years, more than hour), since

We use Passive :

1) When the person who carries out the action is unknown, unimportant or obvious from the context.

Eg. You are ordered to send the results of blood tests to the GP.

2) When the action itself is more important than the person who carries it out, as in news headlines, scientific articles, formal notices, instructions, advertisements, processes, etc.

Eg. Water is avaporated carefully by the chemist.

Very few men are allowed to leave the country during the war period.

3) to make more polite or formal statements.

Eg. The car hasn't been cleaned. (more polite)

(You haven't cleaned the car. – less polite)

4) to put emphasis on the agent.

Eg. The new polyclinic will be opened by the President.

When we change a sentence from the Active to Passive:

- The object of the active sentence becomes the subject in the passive sentence.

- The active verb remains in the same tense form, but changes into passive.

The subject of the active sentence becomes the agent and is either introduced with the preposition **by** or omitted.

*Eg. A physiotherapist **examined** a patient
A patient **was examined** by a physiotherapist.*

BY OR WITH?

In the passive voice, we use:

- **by** with the agent to refer to by whom the action is being done.

Eg. The operation was conducted by famous surgeon Mr. Robinson. (Mr. Robinson = agent)

- **with** to refer to the instrument, object or material that was used for something to be done.

Eg. The door was locked with a key. (a key = the object that was used)

DOUBLE OBJECT VERBS

When we have verbs that take two objects like, for example, give somebody something, we can convert the active sentence into a passive one in two ways:

- by making the indirect (animate) object the subject of the passive voice sentence, which is also the way that we usually prefer.
- By making the direct (inanimate) object the subject of the passive voice.

Eg. Rick gave me (indirect object) this book (direct object).

I was given this book by Rick.

This book was given to me by Rick.

Some of the verbs that take two objects are: **give, tell, send, show, bring, write, offer, pay, etc.**

When the indirect object is alone after the verb in the passive voice sentence, it needs the preposition **to**.

If the indirect object of the active voice sentence is a personal pronoun it has to be changed into a subject pronoun to be the subject of the passive voice sentence.

Subje ct	Obje ct
I	me
you	you
he	him
she	her
it	it

Subje ct	Obje ct
we	us
you	you
they	them

the

Some transitive verbs cannot be used in Passive:

Have, fit, suit, resemble, disappear, arrive, sleep, happen, come, cry, exist, go, live, occur, rain, rise, stay, walk.

Exercise 120. Complete the sentences with the correct passive form of the verbs in brackets. Use the Present Simple.

1. English _____ (to speak) in many countries.

2. Solutions _____ (to involve) in most chemical reactions.
3. Plants _____ (to use) for medicine.
4. How often _____ blood pressure (to take)?
5. How _____ (your name / to spell)?
6. My salary _____ (to pay) every month.
7. This medical equipment _____ (to make) in Japan.
8. The name of the people who committed the crime _____ (not / to know).
9. His educational trip expenses _____ (not / to pay) by his company.
10. Homeopathic medicine _____ (to prescribe) according to the law of similarity.

Exercise 121. Transform these sentences into the Passive Voice.

1. Histology studies different kinds of cells.
Different kinds of cells _____.
2. Plants form the base of the natural food chain.
3. Plant pathology uses chemicals to combat diseases.
4. Patients present their symptoms to doctors.
5. Nurses looked after the patients during post operation period.
6. They gave up the search after three hours.
7. They signed the agreement in the presence of two witnesses.
8. They gave him artificial respiration.
9. A doctor explained details to the patient.
10. They declared him “persona non grata” and allowed him only 24 hours to leave Ukraine.
11. We’ll send you medicines as soon as they are available.
12. Students made the diagnose easily.
13. Pharmacists dispense over-the-counter drugs.
14. Plants maintain the living environment.
15. I expect they will present their results of experiment next meeting.

Exercise 122. Transform the sentences into Passive.

1. They are discussing the problem widely. **The problem** _____.
2. They were preparing the suspension when the first customer entered the chemist’s.
3. We’ll be watching the educational film about body regions at the moment tomorrow.

4. Mrs. Kennedy will be interviewing the chief manager at 10 am next Monday.
5. A student is pouring the liquid into a transparent glass.
6. When the professor came, the assistant was dispensing the examination questions to the students.
7. The nurse was taking the patients' vital signs when the doctor came into the ward.
8. They were investigating the problem at the seminar yesterday.
9. Students are carrying on the reaction of neutralization at the moment.
10. They were studying properties of bases the whole evening yesterday.
11. I was shaking the bottle with manganese solution when the telephone rang.
12. The nurse is sterilizing a new set of surgical equipment at the moment.
13. They were cutting the outer layer of skin when the lights went down.
14. They are cleaning the preparatory room now, so it will be ready in a few minutes.
15. A doctor was sewing the cut with catgut threads.

Exercise 123. Fill in the gaps with "by" or "with".

1. The room was cleaned _____ Kathy.
2. The injury was being treated _____ the surgeon.
3. The abrasion is being sterilized _____ the doctor.
4. Her skin is being affected _____ the dress she has on.
5. He was being operated _____ only one instrument.
6. The room is now being equipped _____ all the necessary facilities.
7. The reaction was being performed _____ technician.
8. A new case of acid usage isn't being explained now _____ our teacher.
9. These things are being thoroughly cleaned _____ a special solution.
10. Blood pressure is measured _____ tonometer.

Exercise 124. Put the verbs into the correct form.

1. Kathy _____ a medicine for asthma at the moment. (to compound)
2. The students _____ for their exam by the Professor at 2 pm yesterday. (to consult)
3. The assistant _____ medicine to the patient. (to inject)
4. The reports _____ at the Congress now. (to interpret)
5. Blind Mrs. Chilton _____ by her guide dog now. (to guide)
6. The poem _____ by Judd at the concert tomorrow. (to recite)
7. Documents _____ by the secretary yesterday. (to type)
8. The patient _____ on at the moment. (to operate)
9. Delegates _____ at the moment. (to register)

10. Children in Africa _____ every year. (to vaccinate)

Exercise 125. Put the verbs into the correct form.

1. When he _____ (to come) into the room, the abdominal wall _____ (to dissect) by surgeon.
2. He is crying so loudly because his bones _____ (to break) by the surgeon.
3. The surgical forceps _____ (to sterilize) in the box now.
4. He can't take the receiver as his hands _____ (to disinfect) now.
5. We put on gowns and caps but he didn't because his gown and cap _____ (to steam).
6. The basic safety rules always (keep) in the laboratory to prevent any accidents.
7. When the mother entered , the poisonous plant _____ (to bite) by the boy.
8. The results of the experiment _____ (to present) now.
9. As a doctor came into the room, the medicine _____ (to swallow) by the patient.
10. This medicine _____ (to take) twice a day.

Exercise 126. Rewrite the sentences in the Perfect Passive.

1. The scientists have carried out some new investigations.
2. The surgeon had cut the tissues with scissors by the time the patient regained his consciousness.
3. The doctor has finally inserted the needle into the skin.
4. The surgical nurse had pulled a retractor apart before the surgeon ordered.
5. He has performed the surgical fixation of the stomach to the anterior abdominal wall.
6. Today the patient has interrupted the course of treatment.
7. The doctor has used a hot water bottle.
8. Clinicians have prescribed anticonvulsants to patients with psychosomatic disorders.
9. By the time our pharmacist came, we had broken a few bottles of sedatives.
10. I have just filled in the application form for the position of leading pharmacist.

Exercise 127. Put the verbs into the Passive.

1. The students _____ (to expel) from university for inadequate behavior.
2. He _____ (to praise) for the successful laparotomy before the negative results came.

3. The patient _____ (to examine) by the time the surgeon on duty came.
4. The cancerous tumor already _____ (to resect) when the tomography _____ (to bring).
5. A 15-year old boy _____ (to transport) to the hospital unconscious.
6. The lost children _____ (to find) alive.
7. A dangerous snake bite _____ (to diagnose) in time.
8. A child _____ (to give) a lot of medications, but nothing helped the temperature was rather high.
9. A new chemist's _____ (to open) last week.
10. This case _____ (to classify) and _____ (to record) in the hospital register.

Exercise 128. Match the beginnings with the endings.

1. Thermo therapeutic procedures	a) have been given.
2. The course of treatment	b) penicillin injections.
3. The patient has been treated for	c) cleansed with alcohol sponges.
4. Steroid preparations	d) has been repeated.
5. The patient has received	e) have been ordered by a doctor.
6. The skin has been	f) complicated pneumonia.

Exercise 129. Use verbs in the brackets in the correct tense form. Both passive and active voice is possible.

1. The healing function of plants (know) many years ago.
2. The scientists (make) little progress in fundamental theory lately.
3. The research in the field of toxicology (conduct) for long time by the scientists.
4. He (offer) a good position in the pharmaceutical company last month.
5. I (work) for the pharmaceutical company since 2018.
6. 20 new elements already (discover) by modern scientists.
7. Modern scientists (discover) some new elements ten years ago.
8. Biochemistry and biophysics (achieve) remarkable results in analyzing DNA and RNA recently.
9. People (use) plants and minerals to relieve or cure diseases since ancient times.
10. Plants and minerals (use) to relieve or cure diseases in ancient times.
11. Vitamins often (buy) by customers.
12. These days medicines (become) more and more expensive.

13. A lot of money for necessary medicines (spend) by Ann yesterday.
14. Some years ago we (not/have) enough money for conducting the research.
15. The historical development of toxicology (begin) with early cave dwellers.

Exercise 130. Use verbs in the brackets in the correct tense form. Both passive and active voice is possible.

1. Standards for drugs and drug production (include) into book of Pharmacopeia.
2. Countless hours usually (spend) in the lab by most scientists.
3. Disease-causing bacteria (kill) by a large dose of penicillin or certain other antibiotics.
4. Vitamins (be) necessary for body functioning.
5. A wide range of medicines (produce) by pharmaceutical companies every year.
6. Many substances in the lab (be) hazardous.
7. The experiment just (complete) in the lab.
8. The experiment in the lab with expected results (complete) two days ago.
9. The experiment (complete) tomorrow.
10. I (work) for the pharmaceutical company in 2018.
11. I hope I (offer) a good job on graduation from university.
12. A new project (introduce) by him next meeting.

Exercise 131. You have just entered the examination room. What analyses are being made? Make up sentences in the Passive Voice using the following word combinations.

To fill in a case history; to take the vital signs; to listen to the intestinal tone; to listen to pericardial murmur; to palpate the injured area; to perform examination of feces, sputum, blood; to make X-ray film.

The Future Simple

Positive sentences: I/We/You/He/She/It/They + will + V Negative sentences: I/We/You/He/She/It/They + will not (won't) + V Questions: Will I/we/you/he/she/it/they + V	
Meaning	Example
1. Promising to do something	I won't tell anyone what happened.
2. Offering to do something	That bag is heavy. I ll help you with it.
3. Agreeing to do something	- Can you give Tom this book? - Sure? I ll give it to him when I see him this afternoon.

4. Asking somebody to do something	Will you please turn the radio down? I'm trying to concentrate.
5. Refusing to do something	The car won't start . (= the car 'refuses' to start)
Time expressions	tomorrow, next month, next week, soon, in two days, next year, in a year, some day, in a month

The Future Continuous

Positive sentences: I/We/You/He/She/It/They + will be + Ving	
Negative sentences: I/We/You/He/She/It/They + will not (won't) be + Ving	
Questions: Will I/we/you/he/she/it/they be + Ving	
Meaning	Example
To denote an action which will be going on at a definite moment in the future	I will still be working when you return. At 12 o'clock I will be working . What will you be doing this time tomorrow?
Time expressions	by an adverbial phrase (at 10 o'clock, this time tomorrow / next week / next year) or by another future action expressed by a verb in the Present Indefinite.

The Future Perfect

Positive sentences: I/We/You/He/She/It/They + will + have + Ved	
Negative sentences: I/We/You/He/She/It/They + will not (won't) have + Ved	
Questions: Will I/we/you/he/she/it/they have + Ved	
Meaning	Example
To say that something will already be completed before a definite moment in the future	The film will already have started by the time we get to the cinema. By the time you receive this postcard , I'll be back home.
Time expressions	by that time something happens

Exercise 132. Put the verbs in brackets into The Future Simple or The Future Continuous.

- I want to tour the area today. _____ (you/use) the car?
- Please don't forget your tie because you _____ (meet) the administrators during your visit.
- The taxi driver _____ (take) you to the Savoy Hotel.
- A shuttle _____ (wait) for you outside the airport building at 8:30 p.m.
- There's a big sale at Selfridges tomorrow. I'm sure people _____ (queue) up the street from early morning.

6. Put on something nice for the party. The photographers _____(take) pictures.
7. You can't stay here if you've decided not to go. We _____(look) for you.
8. It's an acceptable suggestion. I _____(think) it over.
9. The price of petrol has gone up again. People _____(ride) their bicycles soon.
10. I'm sure this statue _____(stand) here in the year 2010.
11. _____ you _____ (join) us at 3.00 p.m.? we _____ (discuss) the new plan.
12. Come to the stadium at 4:00 p.m. The world-famous football player _____(sign) the t-shirts.
13. This time tomorrow I _____(fly) across the Pacific.
14. I don't want to call Janet just now. I'm sure she _____(bathe) the baby and she _____ (be able/not) answer the phone.
15. If you need me, you _____(find) me at school. I _____(teach) in pavilion A until the lunch time.
16. The festival begins next Saturday. People _____ (dance) and _____(sing) in the streets all week.
17. I'm sure you _____(pass) your driving test, but I _____(keep) my fingers crossed for you all the same.
18. We _____(not/learn) English this month. Our teacher has left.
19. Our neighbours are having a party tonight. They _____(make) a lot of noise all night as usual.
20. You can use John's computer. He _____(not/work) here anymore.

Exercise 133. Put the verbs in brackets into The Present Simple or the Future Simple Tense.

1. Today after I (get).... out of class, I (go) to a movie with some friends.
2. When you (arrive) in Stockholm, call my friend Gustav. He (show)..... you around the city and help you get situated.
3. A: Do you know what you want to do after you (graduate)?
B: After I (receive) my Master's from Georgetown University, I (go) to graduate school at UCSD in San Diego. I (plan)..... to complete a Ph.D. in cognitive science.
4. If it (snow) this weekend, we (go) skiing near Lake Tahoe.
5. Your father (plan) to pick you up after school today at 3:00 o'clock. He (meet).....you across the street near the ice cream shop. If something happens and he cannot be there, I (pick)..... you up instead.
6. If the people of the world (stop, not) cutting down huge stretches of rain forest, we (experience).....huge changes in the environment during the twenty-first century.
7. If Vera (keep) drinking, she (lose, eventually) her job.

8. I promise you that I (tell, not) your secret to anybody. Even if somebody

(ask)..... me about what happened that day, I (reveal, not) the truth to a single person.

9. She (make) some major changes in her life. She (quit)..... her job and go back to school. After she (finish) studying, she (get)..... a better paying job and buy a house. She is going to improve her life!

10. Tom (call) when he (arrive) in Madrid. He (stay)..... with you for two or three days until his new apartment (be) available.

Exercise 134. Put the verbs in brackets into the Future Simple or the Future Continuous.

1. *Sandra*: Where is Tim going to meet us?

Marcus: He (wait) for us when our train arrives. I am sure he (stand) on the platform when we pull into the station.

Sandra: And then what?

Marcus: We (pick) Michele up at work and go out to dinner.

2. *Ted*: When we get to the party, Jerry (watch) TV, Sam (make)..... drinks, Beth (dance)by herself, and Thad (complain) about his day at work.

Robin: Maybe, this time they won't be doing the same things.

Ted: I am absolutely positive they (do) the same things; they always do the same things.

3. *Florence*: Oh, look at that mountain of dirty dishes! Who (wash)all of those?

Jack: I promise I (do) them when I get home from work.

Florence: Thanks.

Jack: When you get home this evening, that mountain will be gone and nice stacks of sparkling clean dishes (sit) in the cabinets.

4. *Doug*: If you need to contact me next week, I (stay) at the Hoffman Hotel.

Nancy: I (call) you if there are any problems.

Doug: This is the first time I have ever been away from the kids.

Nancy: Don't worry, they (be) fine.

5. *Samantha*: Just think, next week at this time, I (lie) on a tropical beach in Maui drinking Mai Tai's and eating pineapple.

Darren: While you are luxuriating on the beach, I (stress) out over this marketing project. How are you going to enjoy yourself knowing that I am working so hard.

Samantha: I 'll manage somehow.

Darren: You're terrible. Can't you take me with you?

Samantha: No. But I (send) you a postcard of a beautiful, white-sand beach.

Darren: Great, that (make) me feel much better.

Exercise 135. Put the verbs in brackets into the Present Simple, the Future Simple, the Present Continuous or the Future Continuous.

1. Right now I am watching T.V. Tomorrow at this time, I (watch) T.V. as well.
2. Tomorrow after school, I (go) to the beach.
3. I am going on a dream vacation to Tahiti. While you (do) paperwork and (talk)to annoying customers on the phone, I (lie) on a sunny, tropical beach. Are you jealous?
4. We (hiding) when Tony (arrives) at his surprise party. As soon as he opens the door, we (jump) out and (scream) "Surprise!"
5. We work out at the fitness center everyday after work. If you (come)over while we (work)out, we will not be able to let you into the house. Just to be safe, we (leave) a key under the welcome mat so you will not have to wait outside.
6. While you (study) at home, Magda (be)in class.
7. When I (get)to the party, Sally and Doug (dance), John (make)drinks, Sue and Frank (discuss) something controversial, and Mary (complain) about something unimportant. They are always doing the same things. They are so predictable.
8. When you (got) off the plane, I (wait) for you.
9. I am sick of rain and bad weather! Hopefully, when we (wake) up tomorrow morning, the sun (shine)
10. If you (need) to contact me sometime next week, I (stay) at the Sheraton in San Francisco.

Exercise 136. Put the verbs in brackets into the Future Perfect or the Future Perfect Continuous.

1. Margaret: Do you think everything will be finished when I get back from the store?
Jerry: Don't worry. By the time you get back, I (pick) up the living room and (finish)washing the dishes. Everything will be perfect when your parents arrive.
Margaret: I hope so. They (arrive) around 6 o'clock.
Jerry: Everything (be) spotless by the time they get here.
2. Nick: I just have two more courses before I graduate from university. By this time next year, I (graduate)and I will already be looking for a job.
Stacey: Does that scare you? Are you worried about the future?
Nick: Not really. I (go) to a career counselor and get some advice on how to find a good job.
Stacey: That's a good idea.
Nick: I am also going to do an internship so that when I leave school, I (complete, not, only) over 13 business courses, but I (work, also)the real world.

3. Stan: Did you hear that Christine (take) a vacation in South America this winter?

Fred: I can't believe how often she goes abroad. Where exactly does she want to go?

Stan: She (visit)Peru, Bolivia and Ecuador.

Fred: At this rate, she (visit) every country in the world by the time she's 50.

4. Judy: How long have you been in Miami?

Elaine: I have only been here for a couple of weeks.

Judy: How long do you plan on staying?

Elaine: I love Miami, so I (stay)here for an extended period of time. When I go back home, I (be) here for more than three months.

Judy: Wow, that's quite a vacation! You (see, definitely) just about everything there is to see in Miami by then.

5. Jane: I can't believe how late we are! By the time we get to the dinner, everyone (finish) eating.

Jack: It's your own fault. You took way too long in the bathroom.

Jane: I couldn't get my hair to look right.

Jack: Who cares? By the time we get there, everyone (left).....Nobody (see, ever) your hair.

SEQUENCE OF TENSES

Direct speech		Indirect speech
<i>I. Present Tenses</i>		
Present Simple	→	Past Simple
Present Progressive	→	Past Progressive
Present Perfect	→	Past Perfect
Present Perfect Progressive	→	Past Perfect Progressive
<i>II. Past Tenses</i>		
Past Simple	→	Past Perfect
Past Progressive	→	Past Perfect Progressive
Past Perfect	→	Past Perfect
<i>III. Future Simple</i>		
Future Simple	→	Future-in-the-Past
Future Perfect	→	Future-in-the-Past Perfect

Exercise 137. Report the following sentences, using the model.

Model: He said, "I have read this book". He said that he had read that book.

1. The pupils said, "We study English". 2. The girl said, "I learned French at school". 3. The man said, "I am an engineer". 4. She said, "I'll be at home at seven o'clock". 5. Mary said, "I was here with my parents". 6. The boy said, "I have done my homework". 7. His father said, "I do not speak Spanish". 8. The doctor said, "I'll come again in the morning". 9. He said, "I did not see Helen here". 10. They said, "We had lunch at school". 11. She said, "I have three children. 12. Ann said, "I did not buy anything at this shop". 13. The boy said, "I am not hungry at all". 14. The teacher said, "Nick doesn't know this rule at all". 15. She said, "I didn't recognize him". 16. The boy said, "My name is Paul". 17. The girl said, "I'm doing my homework". 18. He said, "I was here in 1995". 19. She said, "I saw him at five o'clock". 20. The teacher said, "London is the capital of Great Britain". 21. He said, "We finished our work". 22. She said, "He is going to Boston tomorrow". 23. I said, "I was ill yesterday". 24. She said, "I met them last year". 25. He said, "This exercise is very easy".

Exercise 138. Render the following sentences in the Reported Speech.

1. "My friend lives in Lindon," said Alec. 2. "You have not done your work well," said the teacher to me. 3. The poor man said to the rich man, "My horse is wild. It can kill your horse." 4. The rich man said to the judge, "This man's horse

has killed my horse." 5. "This man spoke to me on the road," said the woman. 6. "I can't explain this rule to you," said my classmate to me. 7. The teacher said to the class, "We shall discuss this subject tomorrow." 8. The woman said to her son, "I am glad I am here." 9. Mike said, "We have bought these books today." 10. She said to me, "Now I can read your translation," 11. Our teacher said, "Thackeray's novels are very interesting." 12. She said, "You will read this book in the 9th form." 13. Nellie said, "I read 'Jane Eyre' last year." 14. Mary said, "I usually spend my holidays in the south." 15. She said, "I spent my holidays in the Crimea last year." 16. Boris said, "I go to the south every year." 17. He said, "I am going to a rest-home tomorrow." 18. Ann said to us, "They haven't yet come." 19. She said to us, "They arrived in Paris yesterday." 20. I said, "I was in London last year. My friends in London sometimes invite me to spend my holidays with them." 21. Nick said, "I have never been to London. I think I shall go there next year." 22. He said, "I shall not stay with my friends too long." 23. He said to me, "They are staying at the 'Europe' hotel." 24. He said, "They are leaving next Monday." 25. The clerk said to them, "You can leave the key with the maid upstairs."

Exercise 139. Render the following sentences in the *Direct Speech*.

1. He said that while crossing the English Channel they had stayed on deck all the time. 2. The woman said she had felt sick while crossing the Channel. 3. She said she was feeling bad that day. 4. Tom said he would go to see the doctor the next day. 5. He told me he was ill. 6. He told me he had fallen ill. 7. They told me that Tom had not come to school the day before. 8. I told my sister that she might catch cold. 9. She told me she had caught cold. 10. The old man told the doctor that he had pain in his right side. 11. He said he had just been examined by a good doctor. 12. He said he would not come to school until Monday. 13. The man said he had spent a month at a health-resort. 14. He said that his health had greatly improved since then.

Exercise 140. Render the following general questions in *Reported Speech*, using the model.

Model: *He asked, "Is this your book?" He asked if (whether) it was my book.*

1. She asked, "Do you study phonetics?" 2. He asked, "Do you go in for sports?" 3. He asked, "Will they go to the cinema tonight?" 4. She asked, "Are you tired?" 5. The trainer asked, "Did you like to play volley-ball at school?" 6. The teacher asked, "Do your children usually do their homework?" 7. She asked, "Are you hungry?" 8. She asked, "Has he read the novel?" 9. He asked, "Does she play piano?" 10. We asked, "Do you get up early?" 11. They asked, "Will you go skiing today?" 12. She asked, "Was he busy yesterday?" 13. She asked, "Did you play chess two days ago?" 14. We asked, "Has he returned yet?" 15. They asked, "Does she drink tea for breakfast?" 16. He asked, "Do you speak English?" 17. She asked, "Did he like the concert yesterday?" 18. He asked, "Is this Bond Street?" 19. He asked, "Are these your books?" 20. We asked, "Has the rain stopped?" 21. They

asked, "Are we late?" 22. She asked, "Have you been reading long?" 23. He asked, "Is she sleeping?" 24. He asked, "Are you angry with me?" 25. She asked, "Will you do me a favour?"

Exercise 141. Render the following general questions in the Reported Speech.

1. I said to Boris, "Does your friend live in London?" 2. I said to the man, "Are you living in a hotel?" 3. Nick said to his friend, "Will you stay at the 'Hilton'?" 4. He said to me, "Do you often go to see your friends?" 5. He said to me, "Will you see your friends before you leave Hamburg?" 6. Mike said to Jane, "Will you come to the railway station to see me off?" 7. She said to me, "Have you sent them a telegram?" 8. She said to me, "Did you send them a telegram yesterday?" 9. I said to Mike, "Have you packed your suitcase?" 10. I said to Kate, "Did anybody meet you at the station?" 11. I said to her, "Can you give me their address?" 12. I asked Tom, "Have you had breakfast?" 13. I asked my sister, "Will you stay at home or go for a walk after dinner?" 14. I said to my mother, "Did anybody come to see me?" 15. I asked my sister, "Will Nick call for you on the way to school?" 16. She said to the young man, "Can you call a taxi for me?" 17. Mary said to Peter, "Have you shown your photo to Dick?" 18. Oleg said to me, "Will you come here tomorrow?" 19. He said to us, "Did you go to the museum this morning?" 20. She asked, "Have you finished your work yet?"

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