

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
МИКОЛАЇВСЬКИЙ НАЦІОНАЛЬНИЙ АГРАРНИЙ УНІВЕРСИТЕТ

Факультет культури й виховання

Кафедра іноземних мов

АНГЛІЙСЬКА МОВА

методичні рекомендації

та навчальний матеріал для самостійної роботи для здобувачів
другого (магістерського) рівня вищої освіти ОПП «Біотехнології та
біоінженерія» спеціальності 162 «Біотехнології та біоінженерія»
денної форми здобуття вищої освіти 1 року навчання

МИКОЛАЇВ
2024

УДК 811.111
А64

Друкується за рішенням науково-методичної комісії факультету культури й виховання Миколаївського національного аграрного університету від 25.09.2024 р., протокол №1.

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Передмова

Методичні рекомендації та навчальний матеріал призначені для самостійної роботи здобувачів другого (магістерського) рівня вищої освіти 1 року очної (денної) форми навчання ОПІ «Біотехнології та біоінженерія» з дисципліни «Іноземна мова (за фахом) (англійська)».

Видання підготовлено згідно з трансферно-модульною системою.

Всього на самостійне опрацювання дисципліни виділено 120 годин (4 кредити). Завдання для самостійної роботи здобувачів містять 10 варіантів, структура кожного з яких є однаковою: тест із граматики, текст зі спеціальності та текст із загальнокультурної тематики. Метою завдань для самостійної роботи є систематизація та контроль знань здобувачів вищої освіти із граматики, розвиток навичок читання і перекладу текстів із фаху, розвиток навичок говоріння. За кожне завдання для самостійної роботи здобувач може отримати 5-10 балів.

Для підготовки методичних рекомендацій використовувались матеріали із новітніх підручників, автентичних джерел та періодичних видань.

Робота з даними методичними рекомендаціями допоможе здобувачам вищої освіти у вдосконаленні та подальшому розвитку знань з іноземної мови, набутих під час навчання в університеті та в процесі різних видів мовленнєвої діяльності. Дані методичні рекомендації можуть бути використані на курсах з англійської мови для підготовки до міжнародних іспитів, аспірантами та магістрами всіх напрямів підготовки.

Завдання для самостійної роботи здобувачів

Варіант I.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) I... she ... you.

A think, likes

B am thinking, is liking

C think, is liking

2) What ... ?

A does she want

B does she wants

C she wants

3) Grandmother is in the kitchen. She ... a cake now.

A is making

B makes

C make

4) We ... a holiday last year.

A did not have

B have not had

C had not have

5) Dad ... on Saturdays.

A is usually work

B usually works

C are usually working

6) – Where is Jane? – She ...the shops. She will be back soon.

A went

B has gone to

C goes

7) I ... glad to see you. How ... you?

A is, are

B am, are

C are, is

8) Mag and her sister ... live in Rome.

A are not

B does not

C do not

9) ...it raining yet?

A Did it stop

B Is it stopped

C Has it stopped

10) – Where is John? – He ... in the garden.

A is working

B works

C does work

11) I ... a book at 5 o'clock yesterday.

A was reading

B reads

C read

12) I ...early and got out of bed.

A woke up

B had woken up

C waked up

13) The Hills managed to arrive exactly in time because they ... a taxi.

A took

B had taken

C taked

14) The sun ..., it ... dark, and we went home.

A set, got

B had set, got

C had got, set

15) – What ...? – She is a secretary at our college.

A is she doing

B she does

C does she do

16) I think I ...it tomorrow.

A does

B do

C shall do

17) Who ...the window?

A open

B opened

C did opened

18) I did not ... he was at home.

A to think

B think

C thought

19) My friend is a writer. He ...6 stories.

A has already written

B wrote already

C writed

20) ... you like swimming?

A Do

B Does

C Are

II. Перекласти текст “Cytology as a Science” українською мовою:

Cytology as a Science

Cytology means “the study of cells”. Cytology is that branch of life science, which deals with the study of cells in terms of structure, function and chemistry. Based on usage it can refer to cell biology.

Cell biology is a scientific discipline that studies cells – their physiological properties, their structure, the organelles they contain, interactions with their environment, their life cycle, division and death. This is done both on a microscopic and molecular level. Cell biology research encompasses both the great diversity of single-celled organisms like bacteria, as well as the many specialized cells in multicellular organisms such as humans.

The cell is the functional basic unit of life discovered by Robert Hooke. It is the smallest unit of life that is classified as a living thing, and is often called the building block of life. Some organisms, such as most bacteria, are unicellular (consist of a single cell). Other organisms, such as humans, are multicellular. Humans have about 100 trillion cells; a typical cell size is 10 micrometers and a typical cell mass is 1 nanogram. The largest known cells are unfertilized ostrich egg cells, which weigh 3.3 pounds.

The cell theory, first developed in 1839 by Matthias Jakob Schleiden and Theodor Schwann, states that all organisms are composed of one or more cells, that all cells come from preexisting cells, that vital functions of an organism occur within cells, and that all cells contain the hereditary information necessary for regulating cell functions and for transmitting information to the next generation of cells. The word *cell* comes from the Latin *cellula*, meaning, a small room. The descriptive term for the smallest living biological structure was coined

by Robert Hooke in a book he published in 1665 when he compared the cork cells he saw through his microscope to the small rooms monks lived in.

The cell consists of different proteins. Each type of protein is usually sent to a particular part of the cell. Most proteins are synthesized by ribosomes in the rough endoplasmic reticulum. This process is known as protein biosynthesis.

Appreciating the similarities and differences between cell types is particularly important to cell and molecular biology as well as to biomedical fields such as cancer research and developmental biology. Therefore, research in cell biology is closely related to genetics, biochemistry, molecular biology, immunology and developmental biology.

VI. Переказати текст із загальнокультурної тематики рідною мовою:

Agriculture in Britain

Farming depends on many physical factors, such as relief, climate and soil. Britain can be divided into “highland” and “lowland” by an irregular line running across the country from Newcastle to Sheffield and Bristol. To the West and North of this line lie most of the mountains and hills. To the East and South lies lowland Britain. As the prevailing rain-bearing winds hit Britain from the West, it is easy to understand that the highland Britain experiences a much higher rainfall than the rest and thus can be used for hill-farming. Areas with much less rainfall and altitude are suitable for arable farming and intensive livestock farming. The increasing use of intensive methods of production in agriculture has led to greater specialization. Three-fifths of the farms in Britain are devoted mainly to dairying or beef cattle and sheep; one in six is a cropping farm and the remainder specialize in pigs, poultry or horticulture, or are mixed farms.

Варіант II.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) It ... again. It... all the time here in winter.
A rains, rains

B rains, is raining

C is raining, rains

2) I... she ... you.

A think, likes

B am thinking, is liking

C think, is liking

3) Who ...the window?

A open

B opened

C did opened

4) What ... ?

A does she want

B does she wants

C she wants

5) I did not ... he was at home.

A to think

B think

C thought

6) I ... glad to see you. How ... you?

A is, are

B am, are

C are, is

7) Mag and her sister ... live in Rome.

A are not

B does not

C do not

8) ... you like swimming?

A Do

B Does

C Are

9) Grandmother is in the kitchen. She ... a cake now.

A is making

B makes

C make

10) Dad ... on Saturdays.

A is usually

B usually works

C are usually working

11) I think I ...it tomorrow.

A does

B do

C shall do

12) We ... a holiday last year.

A did not have

B have not had

C had not have

13) – Where is Jane? – She ...the shops. She will be back soon.

A went

B has gone to

C goes

14) My friend is a writer. He ...6 stories.

A has already written

B wrote already

C writed

15) Mother ... her car keys, so we have to open the door by force.

A has lost

B lost

C losed

16) ...it raining yet?

A Did it stop

B Is it stopped

C Has it stopped

17) – What ...? – She is a secretary at our college.

A is she doing

B she does

C does she do

18) Why ...at my desk?

A you are sitting

B do you sit

C are you sitting

19) – Where is John? – He ... in the garden.

A is working

B works

C does work

20) ... your brother ... in Moscow?

A Is...live

B Does...live

C Does...lives

II. Перекласти текст “What is Embriology” українською мовою:

What is Embryology?

Embryology is the study of the formation of life, part of the studies with which developmental biology is concerned. Developmental biology examines how all forms of life begin, and how they develop into fully formed and functioning organisms.

Embryology looks at the very beginning of life from the one-celled organism, egg or sperm. Embryologists examine fertilization and track the development of the embryo until it bears a resemblance to its progenitors. For example, in human conception, embryologists would be interested in both sperm and egg, and the meeting of the two, and then would follow egg implantation and the growth of an embryo until it reaches the fetal stage. So in humans, the study of an embryo would last until about the second month of a pregnancy.

Aristotle was one of the first to champion the theory of epigenesis, the concept that life forms develop into complex organisms from fertilization. This was not a popular concept and was largely discarded in favor of the theory of preformation, which suggested that each human sperm was already a person in waiting. In the mid 18th century, Caspar Fredriech Wolff again set forth the concept of epigenesis. Through his study of chick embryos, Wolff realized that the body of an organism has stages of development. Through vivisection, he observed the complexity of specific organs and contended that their development could not simply have occurred spontaneously, but must have developed over time.

Later scientists followed his studies, and with the development and subsequent improvements of the microscope, Wolff's theories were found to be quite accurate. Wolff is credited as the “Father of Embryology”, even though he did not first conceptualize epigenesis. Today, the theories of embryology are easier to prove because of the accuracy with which we can examine DNA codes within a cell.

There are several practical applications of embryology in the modern world. Embryology has given doctors the tools to create fertilized eggs for in vitro implantation. Embryology can also identify risk factors for serious genetic conditions within the fertilized egg and select the most

viable eggs for implantation. The study of embryology has led directly to the concept of cloning, either for a whole organism or parts of an organism.

VI. Переказати текст із загальнокультурної тематики рідною мовою:

Economic Development of Great Britain

Great Britain is a highly developed industrial country. Shipbuilding is one of the principal industries of Great Britain. For centuries Britain has been the leading shipbuilder in the world. Coal is the main source for the development of British industry. The biggest centres of iron and steel industries are situated in the neighbourhood of coal basins. They are Middlesborough, Newcastle, Cardiff, Glasgow, Sheffield. The district around Birmingham is a land of factories and mines. Coal-mining, metallurgy, textile, shipbuilding are the older branches of industry. The new industries are the chemical, electrotechnical, automobile, aviation and electronics. The new industries have developed hand in hand with science and technology and are equipped to meet present technical demands.

Варіант III.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) You ... we ... you.

A know, like

B am knowing, is liking

C know, are liking

2) What ... ?

A does he need

B does he needs

C he needs

3) Grandfather is in the kitchen. She ... tee now.

A is drinking

B drinks

C drink

4) We ... a holiday last year.

A did not have

B have not had

C had not have

5) Sam ... on Mondays.

A is usually working

B usually works

C are usually working

6) – Where is Ann? – She ...the shops. She will be back late.

A went

B has gone to

C goes

7) I ... glad to see you. How ... you?

A is, are

B am, are

C are, is

8) Jane and her niece ... live in Kiev.

A are not

B does not

C do not

9) ...it raining yet?

A Did it stop

B Is it stopped

C Has it stopped

10) – Where is John? – He ... in the garden.

A is playing

B plays

C does play

11) He ... a book at 9 o'clock yesterday.

A was reading

B reads

C read

12) I ...early and got out of bed.

A woke up

B had woken up

C waked up

13) The Browns managed to arrive exactly in time because they ... a taxi.

A took

B had taken

C taked

14) The sun ..., it ... dark, and we went home.

A set, got

B had set, got

C had got, set

15) – What ...? – He is a teacher at our college.

A is he doing

B he does

C does he do

16) I think I ...it tomorrow.

A does

B do

C shall do

17) Who ...the door?

A open

B opened

C did opened

18) I did not ... he was here.

A to think

B think

C thought

19) My friend is a poet. He ... 6 poems.

A has already written

B wrote already

C writed

20) ... you like reading?

A Do

B Does

C Are

II. Перекласти текст “*Physiology of Plants and Animals*” українською мовою:

Physiology of Plants and Animals

Although you may place organisms without difficulty in either the plant or the animal kingdom, it is essential to know the basic differences between these two groups. That`s why we can distinguish physiology of plants and animals.

Plant physiology. It is a subdiscipline of botany concerned with the functioning, or physiology of plants. Closely related fields include plant

morphology (structure of plants), plant ecology (interactions with the environment), photochemistry (biochemistry of plants), cell biology, and molecular biology. The scope of plant physiology as a discipline may be divided into several major areas of research. First, the study of photochemistry (plant chemistry) is included within the domain of plant physiology. To function and survive, plants produce a wide array of chemical compounds not found in other organisms. Photosynthesis requires a large array of pigments, enzymes, and other compounds to function. Secondly, plant physiology includes the study of biological and chemical processes of individual plant cells. Plant cells have a number of features that distinguish them from cells of animals, and which lead to major differences in the way that plant life behaves and responds differently from animal life. Thirdly, plant physiology deals with interactions between cells, tissues, and organs within a plant. Different cells and tissues are physically and chemically specialized to perform different functions. Fourthly, plant physiologists study the ways that plants control or regulate internal functions. Like animals, plants produce chemicals called hormones which are produced in one part of the plant to signal cells in another part of the plant to respond. Finally, plant physiology includes the study of how plants respond to conditions and variation in the environment, a field known as environmental physiology.

Animal physiology. It is the study of animal functions. Animal physiology is subdivided into the four main parts, such as general physiology, special physiology, comparative physiology and age physiology.

General physiology deals with the analysis of such universal and important processes as blood circulation, metabolism, respiration etc. Special physiology applies general physiological principles in order to investigate characteristics of a particular animal species. Comparative physiology concentrates on similarities and differences of physiological functions of various living organisms. The problem of how physiological functions change with animal age is of special interest to age physiology. The main approach in animal physiology is to study the evolutionary origins of the physiological mechanisms in order to understand the significance of these mechanisms for modern animals. Modern physiology which is based on chemical, physical and anatomical methods investigates biological organization of the animal body at different levels, that is, cells, tissues, organs.

One of the parts of special physiology is devoted to farm animal physiology. The aim of this science is not only to study physiological functions of the farm animal body, but to control them in order to increase the production of eggs, offspring, milk, meat and wool.

Other major branches of scientific study that have grown out of physiology research include biochemistry, biophysics, biomechanics, pharmacology, cytology as well as genetics which are known as the biological bases for rational animal husbandry.

VII. Переказати текст із загальнокультурної тематики рідною мовою:

Welcome to Ukraine

Ukraine is situated in the south-eastern part of Central Europe and has its own territory, government, national emblem, flag and anthem. It borders on Russia, Byelorussia, Moldova, Slovakia, Romania, Hungary and Poland on land and Russia, Georgia, Bulgaria, Romania and Turkey on sea. The territory of Ukraine is mostly a level, treeless plain, called "steppe". There are the Crimean Mountains in the Crimean peninsula and the Carpathians in the West, but they are not very high. The main Ukrainian river is the Dnieper. It is one of the longest European rivers and one of the main source of hydroelectric power. The climate of the country is moderate. Winter is rather mild, with no severe frosts but with regular snowfalls everywhere except the south. The rivers and lakes freeze in winter. Due to favorable climatic conditions, Ukraine is traditionally an agricultural area.

Варіант IV.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) He ... skating.

A likes

B is liking

C are liking

2) What ... here?

A do you do

B are you doing

C you do

3) My mother ... TV now.

A is watching

B watches

C watch

4) We ... our grandparents last year.

A visit

B have visited

C visited

5) Sam ... an engineer.

A is

B are

C –

6) – Where is Kate? – She ... London.

A went to

B has gone to

C goes to

7) I ... glad to see you. How ... you?

A is, are

B am, are

C are, is

8) Jane and her friends ... speak English.

A do not

B does not

C not

9) ...it raining yet?

A Did it stop

B Is it stopped

C Has it stopped

10) – Where is Dave? – He ... in the kitchen.

A is eating

B eats

C does eat

11) He ... to the radio at 7 o'clock yesterday.

A was listening

B listens

C listen

12) I ...early and had my breakfast.

A woke up

B had woken up

C waked up

13) He managed to arrive exactly in time because he ... a bus.

A took

B had taken

C taked

14) The sun ..., it ... dark, and we went home.

A set, got

B had set, got

C had got, set

15) – What ...? – He is a doctor.

A is he doing

B he does

C does he do

16) I think I ... this book tomorrow.

A reads

B read

C shall read

17) Who ...the window?

A close

B closed

C did closed

18) I did not ... her.

A to know

B know

C knew

19) My friend is a poet. He ... 6 poems.

A has already written

B wrote already

C writed

20) ... she like playing chess?

A Do

B Does

C Are

II. Перекласти текст “Biological chemistry” українською мовою:

Biological Chemistry

Biochemistry, sometimes called biological chemistry, is the study of chemical processes in living organisms, including, but not limited to, living matter. Biochemistry governs all living organisms and living processes. By controlling information flow through biochemical signaling

and the flow of chemical energy through metabolism, biochemical processes give rise to the incredible complexity of life.

Over the last 40 years biochemistry has become so successful at explaining living processes that now almost all areas of the life sciences from botany to medicine are engaged in biochemical research. Today the main focus of pure biochemistry is in understanding how biological molecules give rise to the processes that occur within living cells which in turn relates greatly to the study and understanding of whole organisms.

Among the vast number of different biomolecules, many are complex and large molecules (called biopolymers), which are composed of similar repeating subunits (called monomers). Each class of polymeric biomolecule has a different set of subunit types. For example, a protein is a polymer whose subunits are selected from a set of 20 or more amino acids. Biochemistry studies the chemical properties of important biological molecules, like proteins, and in particular the chemistry of enzyme-catalyzed reactions.

The biochemistry of cell metabolism and the endocrine system has been extensively described. Other areas of biochemistry include the genetic code (DNA, RNA), protein synthesis, cell membrane transport, and signal transduction.

Researchers in biochemistry use specific techniques native to biochemistry, but increasingly combine these with techniques and ideas from genetics, molecular biology and biophysics. There has never been a hard-line between these disciplines in terms of content and technique. Today the terms molecular biology and biochemistry are nearly interchangeable.

VII. Переказати текст із загальнокультурної тематики рідною мовою:

Some Figures in the Agricultural Production of Ukraine

Ukraine covers the area of 603,700 square km. It has diverse soil types. Most of them are highly fertile and productive what applies especially to numerous types of black soils. The climate is temperate-continental all over the county, excluding southern shore of Crimea which has subtropical characteristics. All the above factors are very favorable for agricultural production. Nowadays Ukraine is in the process of structural disintegration, what is characterized by a long-term decrease of production efficiency expressed in lowering of labor productivity and surplus of material production. The reforms initiated during the last years in Agro-Industrial complex (AIC) not only have helped to overcome the crisis but have also resulted in misbalance of interrelation between the AIC's spheres and branches of national economy.

Варіант V.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) It ... again. It... all the time here in winter.

A rains, rains

B rains, is raining

C is raining, rains

2) I... she ... you.

A think, likes

B am thinking, is liking

C think, is liking

3) Tom and Jane phone ... every day.

A them

B themselves

C each other

4) What ... ?

A does he need

B does he needs

C he needs

5) Her eyes ... a very light blue.

A are

B have

C has

6) The Hills managed to arrive exactly in time because they ... a taxi.

A took

B had taken

C taked

7) The sun ..., it ... dark, and we went home.

A set, got

B had set, got

C had got, set

8) This is ... autumn for 10 years.

A the more cold

B colder

C the coldest

9) I think I ... you next year.

A visits

B visit

C shall visit

10) Grandfather is in the kitchen. She ... tee now.

A is drinking

B drinks

C drink

11) Is this notebook ...?

A his

B he

C the his

12) Dad ... on Saturdays.

A is usually work

B usually works

C are usually working

13) What ... here?

A do you do

B are you doing

C you do

14) My mother ... TV now.

A is watching

B watches

C watch

15) She's ... university teacher.

A a

B an

C the

16) Is this coat ...?

A yours

B you

C the yours

17) I like ... small animals.

A the

B every

C all

18) We ... supper today.

A did not have

B have not had

C had not have

19) My friend is a writer. He ...6 stories.

A has already written

B wrote already

C writed

20) ... you like swimming?

A Do

B Does

C Are

II. Перекласти текст "The Bridge Between Biology and Physics" українською мовою:

The Bridge Between Biology and Physics

Biology studies life in its variety and complexity. It describes how organisms go about getting food, communicating, sensing the environment, and reproducing. On the other hand, physics looks for mathematical laws of nature and makes detailed predictions about the forces that drive idealized systems. Spanning the distance between the complexity of life and the simplicity of physical laws is the challenge of biophysics. Biophysicists study life at every level, from atoms and molecules to cells, organisms, and environments.

Biophysics discovers such questions as how atoms are arranged to work in DNA and proteins. Protein molecules perform the body's chemical reactions. They push and pull in the muscles that move your limbs. Proteins make the parts of your eyes, ears, nose, and skin that sense your environment. They turn food into energy and light into vision. They are your immunity to illness. Proteins repair what is broken inside of cells, and regulate growth. They fire the electrical signals in your brain. They

read the DNA blueprints in your body and copy the DNA for future generations. So, biophysicists discover how proteins work. Understanding these differences in people's respond to proteins opens new possibilities in drug design, diagnosis, and disease control.

Biophysics is a wellspring of innovation for our high-tech economy. The applications of biophysics depend on society's needs. In the 20th century, great progress was made in treating disease. Biophysics helped to create powerful vaccines against infectious diseases. It described and controlled diseases of metabolism, such as diabetes. And biophysics provided both the tools and the understanding for treating the diseases of growth as cancers. Today we are learning more about the biology of health and society is deeply concerned about the health of our planet.

Advanced instruments created by biophysicists provide the life-saving treatment methods of kidney dialysis, radiation therapy, cardiac defibrillators, and pacemakers. Biophysicists invented instruments for detecting, purifying, imaging, and manipulating chemicals and materials.

Nowadays society is facing physical and biological problems of global proportions. How will we continue to get sufficient energy? How can we feed the world's population? How do we remediate global warming? How do we preserve biological diversity? How do we secure clean and plentiful water? Biophysics provides the insight and technologies for meeting these challenges, based on the principles of physics and the mechanisms of biology.

Biophysics discovers how to modify microorganisms for biofuel (replacing gasoline and diesel fuel) and bioelectricity (replacing petroleum products and coal for producing electricity). Biophysics discovers the biological cycles of heat, light, water, carbon, nitrogen, oxygen, heat, and organisms throughout our planet. Biophysics harnesses microorganisms to clean our water and to produce lifesaving drugs.

VII. Переказати текст із загальнокультурної тематики рідною мовою:

Agriculture of Ukraine

Ukraine is an independent state. The total geographic area of Ukraine is

about 603,700 square km. Ukraine is an agrarian country. Its agriculture is a basis of the national economy. Ukraine's land fund amounts 60.4 million hectares, including 41.9 million hectares for agriculture. The territory of the farmers' lands is 21,576 hectares with 38,428 farms. The top soils are mainly black. They are the biggest treasure of Ukraine. 25 % of the world's rich black soils are in Ukraine. Ukraine's climate is moderately continental. The sediments are 300—600 millimetres a year. There are favourable conditions for the development of agriculture. Ukraine's farmers grow wheat, fruit, sunflowers, cereals, beetroots, potatoes, tomatoes, onions, carrots, cabbages and others for sale and their own use. They occupy an important place in Ukrainian diet and are grown everywhere.

Варіант VI.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) It ... again. It... all the time here in winter.

A snows, snows

B snows, is snowing

C is snowing, snows

2) She... I ... you.

A understand, likes

B am understanding , is liking

C understands, like

3) What ... that girl?

A is

B –

C are

4) What ... ?

A do you have

B have you

C you have

5) She's ... agronomist.

A a

B an

C the

6) Is this bag ...?

A yours

B you

C the yours

7) I like ... flowers.

A the

B every

C all

8) Ann and Peter phone ... every day.

A them

B themselves

C each other

9) it's ... story.

A terrible

B a terrible

C the terrible

10) This is ... weather for 20 years.

A the more bad

B worse

C the worst

11) I think I ...it next year.

A does

B do

C shall do

12) We ... a holiday last year.

A did not have

B have not had

C had not have

13) Her eyes ... a very dark brown.

A are

B have

C has

14) ... help me?

A Can you to

B Do you can

C Can you

15) Mother ... her keys, so we have to open the door by force.

A has lost

B lost

C losed

16) ...it snowing yet?

A Did it stop

B Is it stopped

C Has it stopped

17) What time did you arrive ... my place?

A at

B to

C –

18) Why ... my newspaper?

A you are reading

B do you read

C are you reading

19) – Where is Tom? – He ... in the garden.

A is sitting

B sits

C does sit

20) I went out without ... money.

A some

B any

C no

II. Перекласти українською мовою текст “Three Branches of Biophysics”:

Three Branches of Biophysics

Medical Biophysics studies physics to describe or affect biological process for the purpose of medical application. Like many areas of study that have emerged in recent times, it relies on broad interdisciplinary knowledge between the so-called traditional fields such as physics (i.e. medical physics, radiation physics or imaging physics) and advanced biology fields such as biochemistry, biophysics, physiology, neuroscience etc. Some important areas of research in medical biophysics include medical imaging (e.g. MRI, computed tomography, and PET), oncology and cancerdiagnosis, and vasculature and circulatory system function.

Molecular biophysics is an evolving interdisciplinary area of research that combines concepts in physics, chemistry, engineering, mathematics and biology. It studies biomolecular systems and explain biological function in terms of molecular structure, structural organization, and

dynamic behavior at various levels of complexity (from single molecules to supramolecular structures, viruses and small living systems). The discipline requires specialized equipment and procedures capable of imaging and manipulating minute living structures, as well as novel experimental approaches.

Biophysical chemistry is a relatively new branch of chemistry that covers a broad spectrum of research activities involving biological systems. The most common feature of the research in this subject is to seek explanation of the various phenomena in biological systems in terms of either the molecules that make up the system or the supramolecular structure of these systems.

Biophysical chemists employ various techniques used in physical chemistry to probe the structure of biological systems. These techniques include spectroscopic methods like nuclear magnetic resonance (NMR) and X-ray diffraction. Also biophysical chemists study protein structure and the functional structure of cell membranes. For example, enzyme action can be explained in terms of the shape of a pocket in the protein molecule that matches the shape of the substrate molecule or its modification due to binding of a metal ion. Similarly the structure and function of the biomembranes may be understood through the study of model supramolecular structures as liposomes or phospholipid vesicles of different compositions and sizes.

VI. Переказати текст із загальнокультурної тематики рідною мовою:

American Farms

American farmers are famous all over the world for gathering big crops. On the one hand it is explained by the generosity of the nature. Little rainfalls are observed just in particular regions of the United States — especially in the West, where there are even deserts. On the rest of the territory there are big rainfalls, and rivers and underground waters perfectly water the soil. In the Middle West a considerable part of the most fertile soils of the world is situated. On the other hand the success of American farmers is caused by the considerable investments in the agriculture and the rise of workers' qualification. Due to the constant selective-breeding, the increase of productiveness and stableness of cereals was achieved. The agricultural machinery decreases the cost of the labor

force and the expenditures on the degree of products.

Варіант VII.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) There is the man ... took your coat.

A which

B who

C that

2) Try ... be late.

A not to

B to not

C don't

3) This picture ... by a friend of my mother.

A is painting

B was painting

C was painted

4) What ... ?

A do you have

B have you

C you have

5) She's ... accountant.

A a

B an

C the

6) Is this notebook ...?

A his

B he

C the his

7) I like ... birds.

A the

B every

C all

8) Tom and Jane phone ... every day.

A them

B themselves

C each other

9) it's ... story.

A interesting

B an interesting

C the interesting

10) This is ... autumn for 10 years.

A the more cold

B colder

C the coldest

11) I think I ... you next year.

A visits

B visit

C shall visit

12) We ... supper today.

A did not have

B have not had

C had not have

13) Her eyes ... a very dark brown.

A are

B have

C has

14) ... help me?

A Can you to

B Do you can

C Can you

15) I went to London ... clothes.

A for buy

B for to buy

C to buy

16) ...it snowing yet?

A Did it stop

B Is it stopped

C Has it stopped

17) What time did you arrive ... my place?

A at

B to

C –

18) Why ... my book?

A you are reading

B do you read

C are you reading

19) – Where is Tom? – He ... at school.

A is

B are

C be

20) I went out with ... friends.

A my

B mine

C me

II. Перекласти текст “*Physicochemical Methods of Analysis: What Are These?*” українською мовою:

Physicochemical Methods of Analysis: What Are These?

It seems that this term can be met only in Russian. In the English language literature, they usually speak and write about instrumental methods of analysis. The name instrumental is evidently not ideal; analytical balances or titrimeters used in classical chemical methods also belong to instruments.

Physicochemical methods of analysis have wider application. Without them it is hard to control and manage production processes and research. It should be noted that physicochemical methods of analysis solve the problems of chemical control and analysis; they constitute to one of the parts of analytical chemistry. The essence of the physical and chemical methods of analysis is to study relations between structure and properties of systems. For the analysis of substances chemical reactions are widely used. They are accompanied by changes in the physical properties of the analyzed system, for example, the color intensity of fluorescence, etc. So physicochemical methods of analysis is a field of analytical chemistry that investigates analyses using scientific instruments. There are several types of instrumental analyses.

Spectroscopy measures the interaction of the molecules with electromagnetic radiation. Spectroscopy consists of many different applications such as atomic absorption spectroscopy, atomic emission spectroscopy, ultraviolet-visible spectroscopy, x-ray fluorescence spectroscopy, infrared spectroscopy, Raman spectroscopy, nuclear magnetic resonance spectroscopy, photoemission spectroscopy and so

on.

Mass spectrometry measures mass-to-charge ratio of molecules using electric and magnetic fields. There are several ionization methods: electron ionization, chemical ionization, electrospray, fast atom bombardment, matrix-assisted laser desorption/ionization, and others.

Crystallography is a technique that characterizes the chemical structure of materials at the atomic level by analyzing the diffraction patterns of electromagnetic radiation or particles that have been deflected by atoms in the material. X-rays are most commonly used. From the raw data the relative placement of atoms in space may be determined.

Electroanalytical methods measure the electric potential in volts and/or the electric current in amps in an electrochemical cell containing the analyte. These methods can be categorized according to which aspects of the cell are controlled and which are measured. The three main categories are potentiometry (the difference in electrode potentials is measured), coulometry (the cell's current is measured over time), and voltammetry (the cell's current is measured while actively altering the cell's potential).

Calorimetry and thermogravimetric analysis measure the interaction of a material and heat.

Separation processes are used to decrease the complexity of material mixtures. Chromatography and electrophoresis are representative of this field.

Microscopy. The visualization of single molecules, single biological cells, biological tissues and nanomaterials is very important and attractive approach in analytical science.

Also, hybridization with other traditional analytical tools is revolutionizing analytical science. Microscopy can be categorized into three different fields: optical microscopy, electron microscopy, and scanning probe microscopy. Recently, this field is rapidly progressing because of the rapid development of the computer and camera industries. Combinations of the above techniques produce a "hybrid" or "hyphenated" technique. Several examples are in popular use today and new hybrid techniques are under development, for example, gas chromatography-mass spectrometry, gas chromatography-infrared spectroscopy, liquid chromatography-mass spectrometry and so on.

A general method for analysis of concentration involves the creation of a calibration curve. This allows for determination of the amount of a chemical in a material by comparing the results of unknown sample to

those of a series known standards. If the concentration of element or compound in a sample is too high for the detection range of the technique, it can simply be diluted in a pure solvent. If the amount in the sample is below an instrument's range of measurement, the method of addition can be used. In this method a known quantity of the element or compound under study is added, and the difference between the concentration added, and the concentration observed is the amount actually in the sample.

VI. Переказати текст із загальнокультурної тематики рідною мовою:

Some Geographical Facts about Great Britain

Great Britain, formally known as the United Kingdom of Great Britain and Northern Ireland, is situated on the British Isles, beautifully decorated by nature. The British Isles consist of Great Britain, Ireland and some 5,500 smaller islands. The total area of the United Kingdom is 244,027 square kilometres. Great Britain is divided into 92 administrative counties. It is seventy-fifth in size among the countries of the world and it was less than two percent of the world's land area. The largest island in north-west Europe — Great Britain — is separated from Ireland by the Irish Sea, and from the Continent by the English Channel and the Strait of Dover. The surface of England and Ireland is rather flat. The highest mountain in the United Kingdom is Ben Nevis in Scotland (1343 m). There are many rivers in Great Britain but they are not very long.

Варіант VIII.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) There is the man ... took your coat.

A which

B who

C that

2) I... she ... you.

A think, likes

B am thinking, is liking

C think, is liking

3) Who ...the window?

A open

B opened

C did opened

4) My mother ... TV now.

A is watching

B watches

C watch

5) – Where is Kate? – She ... London.

A went to

B has gone to

C goes to

6) Grandmother is in the kitchen. She ... a cake now.

A is making

B makes

C make

7) Try ... be late.

A not to

B to not

C don't

8) – Where is Tom? – He ... in the garden.

A is sitting

B sits

C does sit

9) We ... a holiday last year.

A did not have

B have not had

C had not have

10) This picture ... by a friend of my mother.

A is painting

B was painting

C was painted

11) Is this notebook ...?

A his

B he

C the his

12) Dad ... on Saturdays.

A is usually work

B usually works

C are usually working

13) Why ...at my desk?

A you are sitting

B do you sit

C are you sitting

14) I ... glad to see you. How ... you?

A is, are

B am, are

C are, is

15) My friend is a poet. He ... 6 poems.

A has already written

B wrote already

C writed

16) Mag and her sister ... live in Rome.

A are not

B does not

C do not

17) I went out without ... money.

A some

B any

C no

18) I ... a book at 5 o'clock yesterday.

A was reading

B reads

C read

19) I like ... birds.

A the

B every

C all

20) I did not ... he was here.

A to think

B think

C thought

II. Перекласти текст "A Magnificent Protector" українською мовою:

A Magnificent Protector

Inside your body there is an amazing protection mechanism called the

immune system. It is designed to defend you against millions of bacteria, microbes, viruses, toxins and parasites that would love to invade your body. To understand the power of the immune system, all that you have to do is to have a look at one's death. That sounds gross, but it will show you important things about your immune system. When something dies, its immune system (along with everything else) shuts down. In a matter of hours, the body is invaded by all sorts of bacteria, microbes, parasites... None of these things are able to get in when your immune system is working, but the moment your immune system stops the door is wide open. Once you die it only takes a few weeks for these organisms to completely dismantle your body and carry it away, until all that's left is a skeleton. Obviously your immune system is doing something amazing to keep all of that dismantling from happening when you are alive.

When a virus or bacteria (also known generically as a germ) invades your body and reproduces, it normally causes problems. Generally the germ's presence produces some side effect that makes you sick. For example, the strep throat bacteria (*Streptococcus*) releases a toxin that causes inflammation in your throat. The polio virus releases toxins that destroy nerve cells (often leading to paralysis). Some bacteria are benign or beneficial (for example, we all have millions of bacteria in our intestines and they help digest food), but many are harmful ones; they get into the body or the bloodstream.

The job of your immune system is to protect your body from these infections. The immune system protects you in three different ways. First and foremost, it creates a barrier that prevents bacteria and viruses from entering your body. Then, if a bacteria or virus does get into the body, the immune system tries to detect and eliminate it before it can make itself at home and reproduce. Thirdly, when the virus or bacteria is able to reproduce and start causing problems, your immune system is in charge of eliminating it.

There are many diseases that, if you catch them once, you will never catch again. Measles is a good example, as is chicken pox. What happens with these diseases is that they make it into your body and start reproducing. The immune system gears up to eliminate them. Cells recognize the virus and produce antibodies for it. This process takes time, but the disease runs its course and is eventually eliminated.

A vaccine is a weakened form of a disease. It is either a killed form of

the disease, or it is a similar but less virulent strain. Once inside your body your immune system mounts the same defense, but because the disease is different or weaker you get few or no symptoms of the disease. Now, when the real disease invades your body, your body is able to eliminate it immediately.

Many diseases cannot be cured by vaccines, however. The common cold and influenza are two good examples. These diseases either mutate so quickly or have so many different strains in the wild that it is impossible to inject all of them into your body. Each time you get the flu, for example, you are getting a different strain of the same disease. Thus, it's only our immune system which helps us to be defended.

VI. Переказати текст із загальнокультурної тематики рідною мовою:

Introducing People

There are some main rules of introduction which are useful to remember: men are introduced to women, young people to older ones, old friends to newcomers, and young girls to married. Usually women are not presented to a man unless he is the Head of State or a member of the Royal family. When introducing one says something like: "Mrs. Johnson, may I introduce Mr. Blake?" and then turning to Mrs. Johnson simply says "Mrs. Johnson". That is all that's necessary, but one can say a bit of information which will help the introduced people to start the conversation. The usual response to the introduction is "How do you do?" which is a kind of greetings and not a question, and the best answer to it is "How do you do?" Sometimes one may say less formally "I am glad to meet you", "Happy to have met you" or just "Hello".

Варіант ІХ.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) You ... we ... you.

A know, like

B am knowing, is liking

C know, are liking

2) I went out without ... money.

A some

B any

C no

3) Why ... my newspaper?

A you are reading

B do you read

C are you reading

4) ...it raining yet?

A Did it stop

B Is it stopped

C Has it stopped

5) ... you like swimming?

A Do

B Does

C Are

6) Grandmother is in the kitchen. She ... a cake now.

A is making

B makes

C make

7) Try ... be late.

A not to

B to not

C don't

8) This picture ... by a friend of my mother.

A is painting

B was painting

C was painted

9) What ... ?

A do you have

B have you

C you have

10) She's ... accountant.

A a

B an

C the

11) Jane and her friends ... speak English.

A do not

B does not

C not

- 12)** What time did you arrive ... the station?
A at
B to
C –
- 13)** Who ...the window?
A open
B opened
C did opened
- 14)** ... help me?
A Can you to
B Do you can
C Can you
- 15)** Mother ... her keys, so we have to open the door by force.
A has lost
B lost
C losed
- 16)** Tom and Jane phone ... every day.
A them
B themselves
C each other
- 17)** it's ... story.
A interesting
B an interesting
C the interesting
- 18)** Her eyes ... a very light blue.
A are
B have
C has
- 19)** I ...early and got out of bed.
A woke up
B had woken up
C waked up
- 20)** The Hills managed to arrive exactly in time because they ... a taxi.
A took
B had taken
C taked

II. Перекласти текст "The Fantastic World" українською мовою:

The Fantastic World

Microbiology is the study of microorganisms, which are microscopic and unicellular organisms. This includes eukaryotes such as fungi and protists, and prokaryotes. Viruses, though not classed as living organisms, are also studied. Microbiology typically includes the study of the immune system, or Immunology. And immune systems obviously interact with pathogenic microbes.

Microbiology includes virology, mycology, parasitology, bacteriology and other branches. Microbiological procedures usually must be aseptic, and use a variety of tools such as light microscopes with a combination of stains and dyes, agar plates in petri dishes, biochemical test and running tests against particular growth conditions.

Microbiology is researched actively. Many microbes are responsible for beneficial processes such as industrial fermentation, antibiotic production and others. Bacteria can be used for the industrial production of amino acids. *Corynebacterium glutamicum* is one of the most important bacterial species with an annual production of more than two million tons of amino acids.

A variety of biopolymers, such as polysaccharides, polyesters, and polyamides, are produced by microorganisms. Microorganisms are used for the biotechnological production of biopolymers with tailored properties suitable for high-value medical application such as tissue engineering and drug delivery.

Microorganisms are beneficial for microbial biodegradation of domestic, agricultural and industrial wastes. The ability of each microorganism to degrade toxic waste depends on the nature of each contaminant.

There are also various claims concerning the contributions to human and animal health by consuming probiotics (bacteria potentially beneficial to the digestive system) and/or prebiotics (substances consumed to promote the growth of probiotic microorganisms). Recent research has suggested that microorganisms could be useful in the treatment of cancer.

VI. Перекажати текст із загальнокультурної тематики рідною мовою:

George Bernard Shaw

George Bernard Shaw, the great English playwright was the founder of the

social realistic drama in English literature. Bernard Shaw was born in Dublin in a poor family. His father had retired from the Department of Justice and the family lived on a small pension. The boy took lessons of reading and writing from a governess and his uncle gave him some lessons in Latin. He attended some schools and in 1869 entered the Dublin English Scientific and Commercial Day School. When Shaw left school in 1871 he went to work as a clerk in a Dublin estate office. But he understood that work at an office was impossible for him. From time to time he worked at some offices in London, but his aim was to be a writer. Bernard Shaw described that period: "I bought paper and ordered myself to write five pages of it a day".

Варіант Х.

I. Тест із граматики. Підкреслити правильний варіант відповіді:

1) He ... skating.

A likes

B is liking

C are liking

2) What ... here?

A do you do

B are you doing

C you do

3) The sun ..., it ... dark, and we went home.

A set, got

B had set, got

C had got, set

4) – What ...? – She is a secretary at our college.

A is she doing

B she does

C does she do

5) What time did you arrive ... my place?

A at

B to

C –

6) Why ... my newspaper?

A you are reading

B do you read

C are you reading

7) We ... our grandparents last year.

A visit

B have visited

C visited

8) Sam ... an engineer.

A is

B are

C –

9) I think I ...it tomorrow.

A does

B do

C shall do

10) Who ...the window?

A open

B opened

C did opened

11) I did not ... he was at home.

A to think

B think

C thought

12) – Where is Dave? – He ... in the kitchen.

A is eating

B eats

C does eat

13) He ... to the radio at 7 o'clock yesterday.

A was listening

B listens

C listen

14) ... help me?

A Can you to

B Do you can

C Can you

15) Mother ... her keys, so we have to open the door by force.

A has lost

B lost

C losed

16) Is this bag ...?

A yours

B you

C the yours

17) I like ... flowers.

A the

B every

C all

18) It ... again. It... all the time here in winter.

A snows, snows

B snows, is snowing

C is snowing, snows

19) Is this notebook ...?

A his

B he

C the his

20) Dad ... on Saturdays.

A is usually work

B usually works

C are usually working

II. Перекласти текст "Virology and Viruses" українською мовою:

Virology and Viruses

Virology is the study of viruses and virus-like agents: their structure, classification and evolution, their ways to infect and exploit cells for virus reproduction, the diseases they cause, the techniques to isolate and culture them, and their use in research and therapy. Virology is often considered as a part of microbiology. A major branch of virology is virus classification. Viruses can be classified according to the host cell they infect: animal viruses, plant viruses, fungal viruses, and bacteriophages (viruses infecting bacteria, which include the most complex viruses). Another classification uses the geometrical shape of their capsid (often a helix or an icosahedron) or the virus's structure (e.g. presence or absence of a lipid envelope). Viruses range in size from about 30 nm to about 450 nm, which means that most of them cannot be seen with light microscopes. The shape and structure of viruses has been studied by electron microscopy, NMR spectroscopy, and X-ray crystallography.

A virus is a small infectious agent that can replicate only inside the living cells of organisms. Viruses infect all types of organisms, from animals and plants to bacteria. Since the initial discovery of the tobacco mosaic virus in 1898, about 5,000 viruses have been described in detail, although there are millions of different types. Viruses are found in almost every ecosystem on Earth.

Virus particles (known as virions) consist of two or three parts: the genetic material made from either DNA or RNA, long molecules that carry genetic information; a protein coat that protects these genes; and in some cases an envelope of lipids that surrounds the protein coat when they are outside a cell. The average virus is about one one-hundredth the size of the average bacterium.

Viruses cause a number of diseases in eukaryotes. In humans, smallpox, the common cold, influenza, herpes, polio, rabies and AIDS are examples of viral diseases.

Viral infections in animals provoke an immune response that usually eliminates the infecting virus. Immune responses can also be produced by vaccines. However, some viruses including those causing AIDS and viral hepatitis evade these immune responses and result in chronic infections. Antibiotics have no effect on viruses, but several antiviral drugs have been developed.

The origins of viruses in the evolutionary history of life are unclear: some may have evolved from plasmids – pieces of DNA that can move between cells – while others may have evolved from bacteria.

The evolution of viruses, which often occurs in concert with the evolution of their hosts, is studied in the field of viral evolution.

While viruses reproduce and evolve, they don't engage in metabolism and depend on a host cell for reproduction. The often-debated question of whether they are alive or not is a matter of definition that does not affect the biological reality of viruses.

VI. Переказати текст із загальнокультурної тематики рідною мовою:

Somerset Maugham

Somerset Maugham was an outstanding novelist, short-story playwright. Maugham was the son of a solicitor to the British Embassy in Paris. He

lost his parents at the age of ten and was sent to England under the care of his uncle. He was educated at King's school, Canterbury, and Heidelberg where he studied philosophy for a year. He returned to England to study medicine at St. Thomas's Hospital, Lambeth, and in 1897 he received qualification of a doctor. A small private income allowed him to travel in Europe and he settled in Paris in 1898. From his experience of London Maugham wrote his first novel "Liza of Lambeth" (1897), a story of the slums and Cockney life. In Paris he wrote seven novels, a volume of short stories and a travel book about Andalusia in Spain. Maugham's short stories were published in various collections and include some that have been considered among the best in the language.

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Навчальне видання

АНГЛІЙСЬКА МОВА

методичні рекомендації

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Формат 60x84 1/16. Ум. друк. арк. 13,14.

Тираж 25 прим. Зам. №__

Надруковано у видавничому відділі
Миколаївського національного аграрного університету
54029, м. Миколаїв, вул. Георгія Гонгадзе, 9

Свідоцтво суб'єкта видавничої справи ДК №4490 від 20.02.2013 р.