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Учреждение образования
«Белорусский государственный университет
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Факультет компьютерного проектирования

Кафедра иностранных языков №1

АНГЛИЙСКИЙ ЯЗЫК: ПОСОБИЕ ПО ОБУЧЕНИЮ ЧТЕНИЮ И ПОНИМАНИЮ НАУЧНО-ТЕХНИЧЕСКОЙ ЛИТЕРАТУРЫ (НА ОСНОВЕ МОДУЛЬНОЙ ТЕХНОЛОГИИ)

THE ENGLISH LANGUAGE: PRACTICAL HAND-BOOK FOR TEACHING STUDENTS TO READ AND UNDERSTAND SCIENCE LITERATURE WITH THE USE OF MODULE TECHNOLOGY

Рекомендовано УМО по образованию в области информатики и радиоэлектроники в качестве пособия для специальностей 1 ступени высшего образования, закрепленных за УМО по образованию в области информатики и радиоэлектроники

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Английский язык: пособие по обучению чтению и пониманию
А64 научно-технической литературы (на основе модульной технологии) = The English Language: Practical Hand-book for Teaching Students to Read and Understand Science Literature with the Use of Module Technology : пособие / Е. И. Лозицкая [и др.]. – Минск : БГУИР, 2016. – 136 с.
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Предназначено для студентов дневной, заочной и дистанционной форм обучения. Цель пособия – в сжатые сроки научить студентов читать и понимать англоязычную научно-техническую литературу. В основу пособия положена модульная технология формирования лексико-грамматических навыков и развития умения читать специальную литературу. Включает следующие модули: глагол-сказуемое; расширение простого повествовательного предложения; сложное предложение; инфинитивные и причастные обороты.

Структура, организация и презентация учебного материала позволяют использовать данное пособие как для аудиторной, так и для самостоятельной работы студентов.

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ВВЕДЕНИЕ

В основу пособия положена модульная технология формирования лексико-грамматических навыков и развития умения читать англоязычную литературу. Такой подход предполагает тщательный отбор языкового материала, объединение логически связанных относительно самостоятельных частей в модули с последующим выделением дифференциальных признаков и созданием адекватных упражнений, что находит свое отражение в структуре четырёх модулей.

Каждый из модулей включает:

– схемы, в которых выделяются функции и значения логически связанных грамматических явлений на основе совокупности их инвариантных дифференциальных признаков, помогающих установить сходство и различие изучаемых явлений. Роль этих признаков велика, т. к. понимание речи при зрительном восприятии затрудняется отсутствием звуковых пауз, логического ударения, интонации, смыслового членения;

– дифференцированные упражнения на уровне абстракции, где лексические единицы заменены символом «х», к которому присоединяется дифференциальный признак, что позволяет чётко видеть изучаемую модель;

– дифференцированные упражнения на уровне разрозненных предложений с включением оппозиционного противопоставления интерферирующих грамматических явлений;

– речевые упражнения на уровне текстов, предназначенные для развития умения читать и понимать литературу по профилю вуза (изучающее, ознакомительное, просмотровое, поисковое чтение, реферирование и аннотирование);

– итоговые тесты.

В пособие включены следующие модули:

1) глагол-сказуемое;

2) расширение простого повествовательного предложения и его структура;

3) сложное предложение;

4) инфинитивные и причастные обороты.

В пособии модули расположены по принципу доминантности. Первым изучается модуль «глагол-сказуемое». Это объясняется ролью сказуемого как организующего центра предложения, подчиняющего себе остальные члены предложения.

Соблюдается принцип преемственности, т. е. в каждый последующий модуль включаются грамматические явления, изученные в предыдущем, что способствует их лучшему распознаванию и пониманию.

МОДУЛЬ 1

ГЛАГОЛ-СКАЗУЕМОЕ
THE PREDICATE

1.1. Исходные структурные элементы сказуемого

[1]Символ «x» обозначает любое незнакомое английское слово.
[2]3-я форма неправильного глагола. Список основных неправильных глаголов находится в конце пособия.

I. Define the meaning of the following parts of the predicate. Use the verb «делать» in the appropriate form instead of «x».

X; xed; xing; to x; xed; x̃; xing; to x; xed; xing; to x; xed; x̃; xing; xed; to x; x; xing; x; xed; to x; x̃; xing; xed; x; xing; to x; x̃; xed; xing; to x; x; xing; x̃; to x; xed; xing; to x; x̃; xed; x; to x; xed; xing; x; xed; to x; xed; x̃; xing; to x; xed; x̃; xing; to x; xed; xing; to x; xed; x̃; x; xing; to x.

II. Name the Infinitive, Participle I, Participle II. Define their specific features:

a) communicate; changed; developing; to get; expressing; expected; to carry; involved; understand; counting; to help; replaced; to meet; installed; changing; calculate; to open; transformed; recording; realized; to read; created; forming; follow.

b) connect – connected – connecting; to block – blocked – blocking; call – called – calling; place – replace – replaced – replacing; to act – activate – activated – activating; to code – encoded – encoding – decoded – decoding; charge – to charge – discharge – discharged – recharged – recharging; to use – reused – misused – using – reusing – misusing.

III. Restore the Infinitive from Participle II.

Begun; seen; held; found; put; caught; fallen; taken; made; hit; frozen; hidden; broken; said; stood; bought; driven; kept; met; spent; known; paid; taught; thrown; left; got; beaten; fed; sent; rung; won; led; written; given; shown; cost; felt; forgiven; let; sold; heard; thought; laid; run; won; gone; become; lost; built; forgotten.

IV. Compare the following pairs of words by form and meaning. Define their similarities and differences. Give their Russian equivalents.

Played – paid; to go – got; rung – using; brought – bought; code – made; placing – to read; send – kept; compared – repeated; thought – teach; visited – to record; placed – plan; to open – known; drive – draw; learned – learnt.

V. Explain the following symbols:* vt, vi. *Give the Russian equivalents of the verbs below:

1) apply vt – apply vi;
2) decide vt – decide vi;
3) drive vt – drive vi;
4) drop vt – drop vi;
5) fail vt – fail vi;
6) grow vt – grow vi;
7) land vt – land vi;
8) refer vt - refer vi;
9) speak vt – speak vi;
10) work vt – work vi.

1.1.1. Признаки сказуемого в форме настоящего (Present Simple) и прошедшего (Past Simple) времени действительного залога

...x**(e)s**… = дела**ет**	⟷ 3-е л., ед. ч. ⟶	...x**ed**...; ...**ẍ**[1]... = дела**л**
...x... = дела**ют**	⟷ 3-е л., мн. ч. ⟶	...x**ed**..; …**ẍ**... = дела**ли**
Настоящее (Present Simple) – форма выражения действия в настоящем времени	⟷ самостоятельное значение ⟶	Прошедшее (Past Simple) – форма выражения действия в прошедшем времени

[1]2-я форма неправильного глагола. Список основных неправильных глаголов находится в конце пособия.

I. Give the meaning of the following predicates. Use the verb «делать» in the appropriate form instead of «x».

Xs; xed; xes; ẍ; xed; xs; xed; x; xes; xed; ẍ; xed; xs; x; xed; xes; x; ẍ; xed; xs; xes; xed; x; ẍ; xed; xes; xs; ẍ; xed; x; ẍ; xes; xs; xed; ẍ; x; xs; xed; x; xes; xed; ẍ; xes; ẍ; xed; xs; x; xed; xes; ẍ; xed; xes; xs; xed; xes; ẍ; x; xs; xed; ẍ; xes; xed; xs; ẍ; x; xs; xed; xes; x; ẍ.

II. Restore the Infinitive of the following predicates. Give their Russian equivalents.

Beat; got; rang; thought; knew; said; rose; taught; bought; kept; lost; felt; broke; left; wrote; forgot; went; brought; cut; had; built; fell; caught; rang; chose; understood; hid; saw; led; came; shook; lay; fought; spoke; shut; took; stood; met; dealt; cost; did; found; drew; won; flew; told; laid; gave; spent; swam; threw; fed; won; began; drove; forecast; froze; grew; heard; made; sought.

III. Compare the forms of the following predicates. Define their similarities and differences:

a) 1. Nuclear forces **hold** the atoms together. 2. This hard disk **holds** more information than 100 floppies.

b) 1. In the 1930s Carmas **developed** a successful wire recorder. 2. Companies **develop** commercial websites to sell products or services.

c) 1. Two manuals always **come** with this computer. 2. This computer **came** with a printer yesterday.

d) 1. They **conducted** another experiment in order to determine the properties of the matter. 2. He **conducts** research in the field of plasma physics now.

e) 1. A system analyst **spends** much of a working day interviewing people. 2. To complete this experiment he **spent** much time in the laboratory last week.

IV. Find the predicates and name their specific features. Give the Russian equivalents of these predicates.

1. The researcher carries out the experiments at high temperatures. 2. Many companies introduced new software in the markets. 3. The second half of the twentieth century saw the start of the Computer Age. 4. The computer performs a lot of operations. 5. Bill Gates and Paul Allen wrote an operating program for the Altair, one of the world's first microcomputers. 6. Nuclear power plants provide clean and cheap energy. 7. The specialists came here for aerodynamic tests. 8. The monitor displays text characters and graphics. 9. The invention of the transistor greatly changed the computer's development. 10. Experiments require skill and effort. 11. The Internet began in the USA in 1969 as a military experiment.

V. Define which of the words below are verbs. Give their Russian equivalents (see *Appendix*)**.**

Beautiful, realize, misbehave, character, sympathy, rewrite, theory, badly, communicate, organize, advise, useful, lose, energy, basic, dislike, reread, criticize, heartless, economic, accelerate, electrify, specialist, transform, deepen, discontinue, experiment, special, enlarge, method, movement, complex, mispronounce, emphasize, decontrol, height, greatness, regulate, thicken, wide, unimportant, television, disconnect, reproduce, different, overwork, development.

VI. Match each English word with the correct Russian equivalent.

acquaint	навязывать
adopt	продвижение
advance	устранять
alter	принимать
diverse	расширять
eliminate	знакомить
emerge	вовлекать
expand	появляться
involve	многообразный
impose	изменять

VII. In the text of task IX find a word derived from the verb* to inform. *Give other derivatives of this verb.

VIII. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) access, data, main, barrier, machine, information, develop, obstacle, eliminate, expand, device, principal, reduce, entrance;

b) different, find, narrow, often, disappear, similar, permanent, seldom, expand, sophisticated, alterable, lose, primitive, emerge.

IX. Read the text and choose the most suitable title.

1. The Future of the Internet.
2. The Internet Services.
3. The Internet Users.

1. The mobile technologies are expanding the horizons of communication. By making the Internet mobile we could communicate both inside the city and the country as well as with other countries of the world.

2. What can the Internet give to people? How has it changed our life? With its help we can exchange news, play different interactive games and get news we are interested in. Using the Internet one can also make financial transactions or even get acquainted with other people, sometimes finding a husband or a wife. Nobody knows exactly how many customers may be involved into the web in some years. But according to the information statistics their number might get one billion or even more.

3. When developing the Mobile Internet service we should understand that users will be able to carry their computer terminals anywhere and access all the services they need in every place and in each time.

X. Answer the questions given in the text.

XI. Translate passage 1 of the text.

XII. Look through the text. Define its subject. Entitle the text.

1. Universities have generally been quick to adopt new technologies, often even before their educational value has been proven. Throughout its history, higher education has experimented with technological advances as diverse as the blackboard and the personal computer. Some technologies have become permanent parts of the higher education enterprise. Others, such as the slide rule and the 16-millimeter movie projector, have been replaced as more sophisticated or more cost-effective technologies have emerged to take their place.

2. Technology has the potential to revolutionize the traditional teaching and learning process. It can eliminate the barriers to education imposed by space and time

and dramatically expand access to lifelong learning. Students no longer have to meet in the same place at the same time to learn together from an instructor.

3. Computers and telecommunications are the principal. Due to advances in each of these domains, electronic mail, fax machines, the World Wide Web, CD ROMs, and commercially developed simulations and courseware are altering the daily operations and expanding the missions of universities.

XIII. Say which of the statements below are true. Correct the false ones.

1. Universities are very conservative to adopt new technologies quickly.
2. Some technologies have become out of date.
3. Every day students have to meet at the classrooms.
4. New technologies reshaping higher education.

XIV. Translate passage 1 into Russian.

1.2. Сказуемое с глаголом have. Признаки распознавания функций и значений глагола have

1

… has ... = имеет ⟵ 3-е л., ед. ч. ⟶ **… had ... = имел**

… have ... = имеют ⟵ 3-е л., мн. ч. ⟶ **… had ... = имели**

Настоящее (Present Simple) ⟵ самостоятельное значение ⟶ Прошедшее (Past Simple)

2

$$\frac{\text{...has/had}}{\text{...have/had}} + \textbf{xed/}\tilde{\textbf{x}}\textbf{ ...} = \frac{\textbf{сделал}}{\textbf{сделали}}$$

$$\frac{\text{...has/had}}{\text{...have/had}} + \textbf{been + xing...} = \frac{\textbf{делает/делал}}{\textbf{делают/делали}}$$

вспомогательная функция для образования перфектных форм (Perfect и Perfect Continuous)

3

$$\frac{\text{...has/had}}{\text{...have/had}} + \textbf{to + x...} = \frac{\textbf{должен/должен был}}{\textbf{должны/должны были}} + \textbf{(с)делать}$$

модальное значение в активной форме

I. Compare points 2 and 3 of the table. Define their similarities and differences.

II. Give the meaning of the following predicates. Use the verb «делать» in the appropriate form instead of «x».

Has; have; had been xing; had; has x̃; have xed; have been xing; had x̃; has been xing; have x̃; had xed; has to x; have to x; had to x; has xed; have; has xed; had x̃; has; have xed; have x̃; had; had xed; had to x; has been xing; has x̃; have been xing; has to x; have to x; had been xing; have to x; has been xing; has xed; has x̃; have xed; had been xing; have x̃; has; had xed; had x̃; have; have been xing; has to x; had to x; had.

III. Give the Russian equivalents of the predicates below.

Has asked; had to ask; had asked; have to ask; has been asking; have been asking; have asked; had been asking; has to ask; have to ask; have been asking; has asked; had asked; had to ask; has been asking; had been asking; has to ask; have asked; have to ask; have asked; had been asking; has asked; has to ask; had asked; have been asking; had to ask; has been asking; has asked; had to ask; have asked; had been asking; has to ask; has been asking; have to ask; have been asking; had asked.

***IV. Define the function and meaning of the verb* have.**

1. The microprocessor has a sophisticated instrument set. 2. They had to change the driver. 3. He has been working on the computer since 10 o'clock. 4. They have accepted the scientist's suggestion. 5. The actual device had far less amplification than predicted. 6. The design has to be simple and of low cost. 7. My assistant had done all the preparatory work by 9 o'clock.

V. Give the Russian equivalents of the sentences below.

1. TV technology has become more sophisticated than ever. 2. Due to the Sun people have immense supplies of energy. 3. Modern engineers have to deal with a lot of technological innovations. 4. The scientists of our laboratory had been carrying out new experiments for several months before they got positive results. 5. The conductor has to withstand extremes of temperature and resist corrosion. 6. This unit of the machine has only a small memory or storage. 7. Our scientists had to solve many complicated practical problems in the construction of the first atomic power plant. 8. The computers have created entirely new technical possibilities. 9. Today's microcomputer has more computing capacity than the first large electronic computer. 10. He has been working for a company providing support services for the last three years. 11. Clearly the various forms of nanotechnology have the potential to make a very significant impact on society.12. People had started doing chemical experiments long before they thought of the word «chemistry». 13. In cosmic investigations electronics has a key role of ever-increasing importance.

1.3. Сказуемое с глаголом be.
Признаки распознавания функций и значений глагола be

1

is/was; are/were

...is... = есть ⟷ 3-е л., ед. ч. ⟷ **...was... = был**

...are... = есть ⟷ 3-е л., мн. ч. ⟷ **...were... = были**

Настоящее (Present Simple) ⟷ самостоятельное значение (связка) ⟷ Прошедшее (Past Simple)

2

$$\frac{\text{...is/was}}{\text{...are/were}} + \textbf{xing...} = \frac{\textbf{делает/делал}}{\textbf{делают/делали}}$$

вспомогательная функция для образования настоящего длительного времени (Present Continuous)

3

$$\frac{\text{...is/was}}{\text{...are/were}} + \textbf{xed/ } \tilde{\textbf{x}} \textbf{ ...} = \frac{\textbf{есть/был}}{\textbf{есть/были}} + \frac{\textbf{сделан}}{\textbf{сделаны}}$$

$$\frac{\text{...is/was}}{\text{...are/were}} + \textbf{being + xed/}\tilde{\textbf{x}} \textbf{ ...} = \frac{\textbf{делается/делался}}{\textbf{делаются/делались}}$$

вспомогательная функция для образования пассива

4

$$\frac{\text{...is/was}}{\text{...are/were}} + \textbf{to + x ...} = \frac{\textbf{должен/должен был}}{\textbf{должны/должны были}} + \textbf{делаться}$$

модальное значение в пассивной форме

I. Compare points 3 and 4 of the table. Define their similarities and differences.

II. Give the meaning of the following predicates. Use the verb «делать» in the appropriate form instead of «x».

Is; are; was xing; were; is $\tilde{x}$; are xed; were xing; are $\tilde{x}$; is xing; was $\tilde{x}$; is xed; being is to x; are to x; was to x; was xed; was; were being xed; were $\tilde{x}$; is; is xed; is $\tilde{x}$; was; being was xed; was to x; are xing; is being $\tilde{x}$; is xing; are to x; were to x; are xing; was to x; was xing; is xed; are being $\tilde{x}$; are xed; were xing; were $\tilde{x}$; are; were xed; are $\tilde{x}$; were; is xing; is to x; was to x; was.

III. Give the Russian equivalents of the predicates below.

Is asked; was to ask; was asked; is to ask; is asking; are asking; are being asked; were asking; were to ask; are to ask; are asking; are being asked; were asked; were asking; were to ask; was asking; was to ask; was being asked; are to ask; are asked; are asking; is asked; is to ask; was asked; was asking; was to ask; is asking; is being asked; was to ask; are asked; were asking; were to ask; are asking; are to ask; were asking; were being asked.

***IV. Define the function and meaning of the verb* be.**

1. Mathematics is of great importance for engineers. 2. Automation is being introduced on a wide scale in all branches of industry and agriculture as well as in medicine and everyday life. 3. In close cooperation with industrial workers our scientists and engineers are developing a lot of new types of electronic and cybernetic devices. 4. They are to become the basis for the solution of a great number of economic and scientific problems. 5. Various techniques are used to model data structure. 6. The results of the last experiment were very important for our further work. 7. The results of the last experiment were used to improve the reliability of the device.

V. Give the Russian equivalents of the sentences below.

1. Our task is to raise temperature. 2. A preliminary test of the system aided by a preloaded map was run last month. 3. This method, previously mentioned as affording good results, is being widely used. 4. The purpose of this catalyst is to accelerate the process of chemical reaction. 5. Thanks to computers we are processing information millions times quicker now. 6. The accuracy capabilities of these automatic machines are very high. 7. The experts are to take into account the results of the test. 8. Mankind was entering an age of high speeds, pressures and temperatures at the beginning of last century. 9. Metallurgists were to study a new class of alloys used in rocket engineering. 10. These particles are too small to be seen but experiments show that they do exist.

1.4. Сказуемое с глаголом do. Признаки распознавания функций и значений глагола do

1

does/did; do/did

…does... = делает ⟷ (3-е л., ед. ч.) **...did... = делал**

...do... = делают ⟷ (3-е л., мн. ч.) **...did... = делали**

Настоящее (Present Simple) ⟷ (самостоятельное значение) Прошедшее (Past Simple)

2

(…) does/ do/ did ...+ x…? = не переводится

… does/ do/ did + not + x… = не переводится

вспомогательная функция для образования вопроса и отрицания в формах настоящего (Present Simple) и прошедшего (Past Simple) времени

3

… do x... = ведь, же, действительно, несомненно

усилительная функция

4

...x … do = переводится глаголом, который он заменяет или не переводится

слово-заместитель

I. Compare points 2 and 3 of the table. Define their similarities and differences.

II. Give the meaning of the following predicates. Use the verb «делать» in the appropriate form instead of «x».

Do; does; did; do x; does x; didn't x; don't x; doesn't x; did x; do…x?; does…x?; did…x?; x…do; x…does; x…did; doesn't x; do x; did…x?; didn't x; x…did; don't x; did x; do; do…x?; x…do; does…x?; did; does x; does; x…does; did…x?; x…did; doesn't x; do x; does; don't x; x…does; did x; do; did; do…x?; x…do; does…x?; does x; didn't x.

III. Define the meaning of the predicates below.

Do; did; does; don't ask; do ask; does ask; doesn't ask; did ask; didn't ask; do…ask?; does…ask?; did…ask?; ask…do; ask …did; ask…does; ask…does; do; did; do ask; does ask; didn't ask; ask …did; did…ask?; doesn't ask; did ask; do…ask?; does…ask?; does; don't ask; ask…do; did…ask?; didn't ask; does ask; ask …did; do ask; did ask; ask…does; ask…do; ; did; do…ask?; do; doesn't ask; does…ask?; don't ask.

***IV. Define the function and meaning of the verb* do.**

1. These systems do result in new materials having properties not previously available. 2. The electric motor does mechanical work. 3. Do you know how a four cycle diesel works? 4. There is a second approach to the problem that does provide a slight time saving. 5. The amount of the accomplished work does not depend on the time spent on lifting the weight. 6. What kind of methods did they suggest? 7. The ion does have a definite mobility that does not change with time.

V. Give the Russian equivalents of the sentences below.

1. The addition of heat does not increase the weight of metal, however, the combination with air does increase its weight. 2. Semiconductors do possess many wonderful properties.3. Do not change the temperature.4. Semiconductors let electric current pass through them more easily than insulators do. 5. Energy is defined as ability to do work.6. Perfect science does exist.7. I don't understand the action of this device. 8. The engineer should do this construction properly. 9. We do realize what great importance this discovery has for the future work.10. The last experiments gave us much better results than did the previous one.

VI. Explain the way of word formation of the verbs below. Give their Russian equivalents (see *Appendix*)**.**

Change, communicate, control, devise, direct, face, limit, repair, miscarry, differentiate, unfix, humanize, interest, interact, dislocate, mistaken, place, popularize, radioactivate, worsen.

VII. Match each English word with the correct Russian equivalent.

acronym	очевидный
apply	неизменный
constant	увеличивать, усиливать
design	аббревиатура
direction	мгновенный
enhance	удовлетворение
instantaneous	применять
obvious	проектирование
operate	работать
satisfaction	направление

VIII. In the text of task X find a word derived from the verb* to operate. *Give other derivatives of this verb.

IX. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) boring, change, course, conditions, alter, interact, direction, increase, tedious, constant, encourage, design, stable, enhance, inspire, cooperate, circumstances, devise;

b) obvious, worsen, limited, enhance, boundless, dangerous, unclear, satisfaction, forget, reduce, modern, improve, remember, ancient, expensive, safe, disappointment, cheap.

X. Read the text and choose the most suitable title.

1. Will Robots Replace Humans in the Future?
2. Historical Background of Robots.
3. Robots – the Ideal Workers.

1. We hear many complaints about work in factories; the work is often boring, heavy and repetitive; the operative doesn't have to think about the work; he gets no job satisfaction.

2. The answer is a robot. For many jobs a robot is much better than human operative. Once it has been programmed, it will do its job over and over again. It never gets bored; it works at a constant speed; it doesn't make mistakes; its work is always of the same standard; it doesn't get tired; it can work 24 hours a day without breaks for food, rest or sleep.

3. Robots have other advantages, too. They are designed to do almost any job. You can't change the human body, but a robot's arms, for example, can be made to move in any direction. Robots also do very heavy work and they can operate in conditions that are too dangerous, too hot or too cold for people to work in. They work under water, in poisonous gas and in radioactive areas.

4. It is obvious that robots have many advantages over human beings. However, it is also true that humans can do many things that robots can't. For

example, humans can carry out a task without having to be told exactly how to do it first – in other words, they don't always have to be programmed.

5. Humans can move, but robots are usually fixed in one place. If they are able to move, robots do it only in a very limited way. Unlike robots, people can know whether what they are doing is good or bad, and whether it is boring or interesting. Also robots are only just beginning to be able to understand speech and writing, but humans communicate easily with each other by these methods, and by many others – telephone, drawing, radio, and so on – as well.

6. And we should not forget that robots owe their existence to humans – we make them, repair them and control them, not the other way round.

XI. Answer the following questions.

1. Why operative doesn't get job satisfaction?
2. Why robot is much better than human operative?
3. What advantages do robots have?
4. What things can humans do that robots can't?

XII. Suggest your conception of the ideal robot.

XIII. Translate passage 1 into Russian.

XIV. Read the text once again and name the advantages of Makiis.

The Robot that's Facing the Future

1. How can we apply the new technology of robotics to old problems? That's now an option on offer to engineering students at the University of Central Lancashire, and already this novel subject is inspiring revolutionary ideas.

2. In the heart of the hi-tech north-west's aerospace industry, students are imagining new possibilities. Imagine being able to be in two places at the same time. Or having another version of yourself doing all the jobs you're not keen to do.

3. These ideas are, thanks to new and surprisingly inexpensive technologies, finally becoming possible, and that's part of the thinking behind «Makiis».

4. An acronym for Makroskopic Intelligent Interaction System, Makiis is a popular name for boys in Greece – and also is a prototype «telepresence» robot which allows people to interact with others anywhere in the world. We think Makiis is one of the world's first robots that can provide enhanced human-like interaction and presence at a distance.

5. The fantastic thing about Makiis is that it instantaneously allows people to transport their «presence» to another location. But Makiis is different to other telepresence robots; it is more than just «Skype on wheels» because it also hears where sounds come from and turns to face them automatically, exactly as a human would do.

6. Makiis is one example of how modern technology is being used to break down traditional barriers to learning.

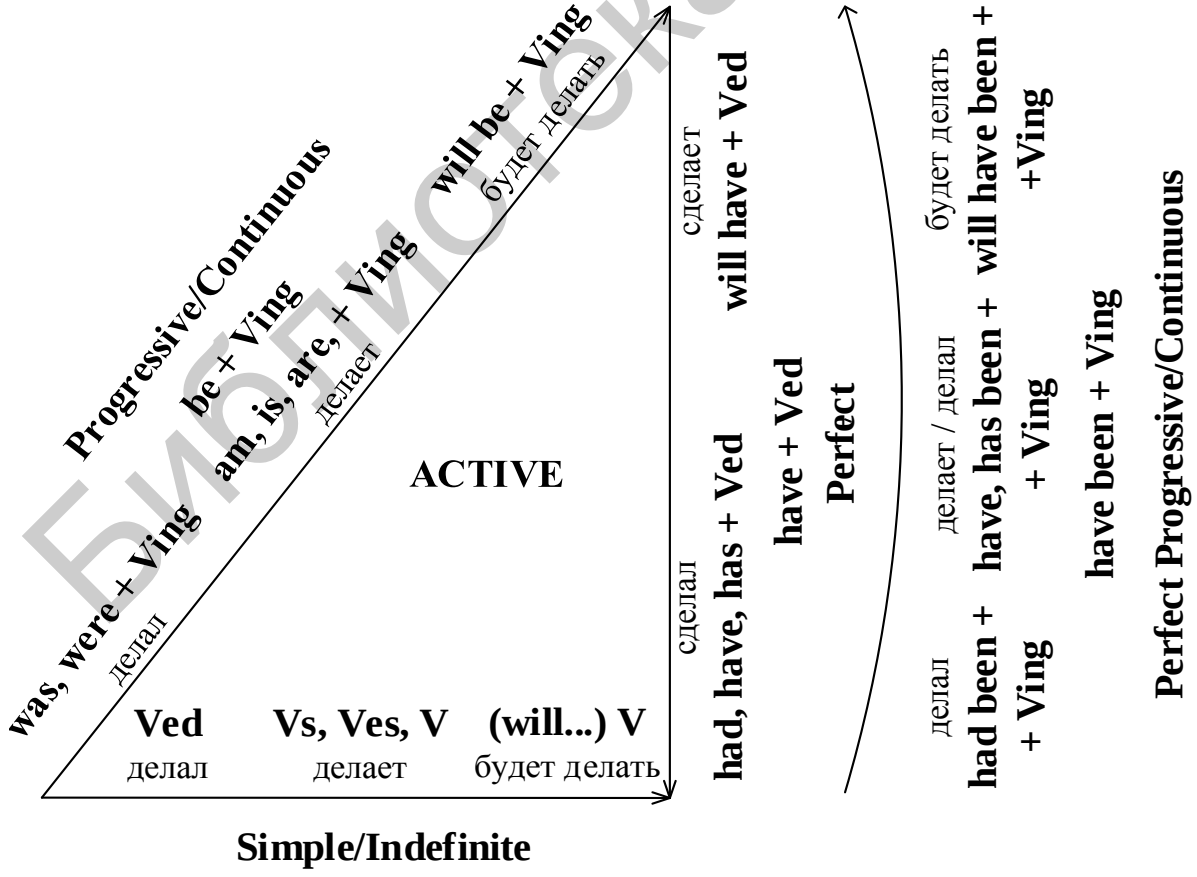
XV. Which of the statements below are not mentioned in the text say which of the statements below are not true.

1. The engineering students at the University of Central Lancashire are working at the problem of robotics.
2. Robot is a machine which has a specific program.
3. New possibilities in the sphere of robotics are becoming possible.
4. Makiis is an acronym.
5. The task of Makiis is to perform scientific research, particularly in the handling of radioactive or other hazardous materials.
6. Makiis is to break down traditional barriers to learning.
7. Robots have already taken human form, but they do not have minds of their own.

XVI. Translate passage 2 of the text.

1.5. Личные формы глагола
The Finite Forms of the Verb

1.5.1. Активный залог
Active Voice



I. Define the predicates in the active form.

X – подлежащее; 1, 2, 3… – глагол

a) X was 1ed, X am 2ing, Xs were 3ed, X am being 4ed, X is being 5ed, X will be 6ing, X is 7ed, Xs are 8ing, X am 9ed, Xs were 10ing, Xs are 11ed, X is 12ing, X will be 13ed, X was being 14ed, X was 15ing, Xs were being 16ed, Xs are being 17ed.

b) Xs have 1ed, X has been 2ed, Xs have been 3ing, X has 4ed, X had been 5ed, X has been 6ing, X had 7ed, X will have been 8ed, X will have been 9ing, X will have 10ed, Xs have been 11ed.

c) X was 1ed, X am 2ing, Xs were 3ed, Xs have 4ed, X am being 5ed, X will be 6ing, Xs have been 7ed, X has been 8ing, X is 9ed, Xs are 10ing, Xs are 11ed, Xs have been 12ing, X had 13ed, X is being 14ed, X had been 15ed, X will have 16ed, X has been 17ed, Xs were 18ing, X am 19ed, X is 20ing, X will be 21ed, X was being 22ed, X has 23ed, X will have been 24ed, X was 25ing, Xs were being 26ed, Xs are being 27ed, X will have been 28ing.

II. In each line below find the predicates meaning

***a*) *Делал, делает*:**

1. X was 1ing, X 2, Xs have 3ed, X 4s, X was being 5ed, Xs have been 6ed;
2. Xs have 7ed, X is being 8ed, X 9ed, X will be 10ing, X had been 11ed;
3. X will have 12ed, Xs are 13ing, Xs were being 14ed, X will 15;
4. X has 16ed, Xs are 17ed, X 18es, Xs are 19ing, X will have 20ed;
5. Xs were being 21ed, X will 22, X had been 23ed, Xs are 24ing;
6. X was 25ed, X will have been 26ed, X was 27ing, X will be 28ed.

***b*) *Сделал, сделает*:**

1. X was 1ing, Xs 2, Xs have 3ed, Xs 4s, X was being 5ed, Xs have been 6ed;
2. X have 7ed, X is being 8ed, X 9ed, X will be 10ing, X had been 11ed;
3. Xs are 12ing, X will have 13ed, Xs were being 14ed, X will 15;
4. X has 16ed, Xs are 17ed, X 18es, Xs are 19ing, X will have 20ed;
5. Xs were being 21ed, Xs will have 22ed, X had been 23ed, Xs are 24ing;
6. X was 25ed, X will have been 26ed, X has 27ed, X will be 28ed.

***III. a*) *Find the predicates with the verb* have. *Give their Russian equivalents*.**

1 had translated, 2 will have translated, 3 was translating, 4es been translating, 5 am translating, 6s have translated, 7s are translating, 8s have been translating, 9 is translating, 10s were translating, 11 will have been translating, 12 has translated, 13 translates, 14 will translate.

***b*) *Find the predicates with the verb* be. *Give their Russian equivalents*.**

1 had received, 2s have been receiving, 3s are receiving, 4 will have received, 5 is receiving, 6 was receiving, 7 receives, 8 will be receiving, 9s were receiving, 10 has been receiving, 11 am receiving, 12s have received, 13s have been receiving, 14 is receiving, 15s were receiving, 16 will have been receiving, 17 has received.

IV. Give the Russian equivalents of the parts of sentences below:

1) the discovery is leading to; 2) the discovery is critical; 3) the improvement has a reason; 4) the improvement requires; 5) we have studied the emission properties of gas plasma; 6) the concept predicts; 7) the improvement has influenced; 8) the density determines; 9) the laser has provided; 10) the devices performed.

V. In each sentence find the predicate and give its Russian equivalent.

a) 1. We are still learning how to exploit the potential of integrated circuits. 2. Small and reliable sensing and control devices are the essential elements in complex systems. 3. This allows computers to provide multiple independent output channels. 4. The invention of the transistor triggered the rapid growth of the electronics industry. 5. Experiments lead to new theories. 6. Electrical activity takes place constantly everywhere in the universe. 7. Google Glass is the most hotly anticipated new arrival in «wearable computing» – which experts predict will become pervasive. 8. The semiconductor industry exploits the 'whole periodic table' to manufacture its components. 9. Integrated electronics will move not only towards more functions per slice, but towards new types of functions. 10. The Higgs boson gives all elementary particles mass, allowing for the existence of matter.

b) 1. Electronics has extended man's intellectual potential. 2. The most striking characteristics of the microelectronics industry has been a rapid decline in cost. 3. In recent years active research has been going on in one of the fields of space industrialization – space material study and production of new materials of better quality. 4. Moore's law has yielded fast, smart computers, with pretty graphics and worldwide connections. 5. A microelectronic technology has shrunk transistors and other circuit elements to dimensions almost invisible to unaided eye. 6. Researchers have found a way to hide messages in the data sent by voice-over-internet phone systems. 7. Scientists in Japan have found a deposit of highly concentrated rare earth minerals, crucial for the manufacturing of electronics. 8. Apple has introduced two-step authentication for iCloud and other services to beef up security against possibly hacking attacks. 9. Tweeters have been organising their thoughts using hashtags for years. 10. In the past 50 years we have moved from «mainframe» computers that needed their own rooms to ones that fit in a pocket; any smartphone nowadays has as much raw computing power as a top-of-the-line laptop from 10 years ago.

c) 1. The attempts to miniaturize electronic components are largely successful. 2. Several research groups have recently reported progress in this field. 3. The advances in DNA-based circuits offer a new, powerful platform to potentially realize researcher's long-held biocomputing dreams. 4. His collaborators are working on a microchip modeled after neurons. 5. His team is trying to create an alternative to the architecture common to nearly every computer constructed since its invention. 6. He emphasizes that cognitive-computing architectures will not replace conventional computers but complement them. 7. Even before the invention of the transistor the electronics industry had studied the properties of thin films of metallic and insulating materials. 8. Electricity provides light, heat, and mechanical power. 9. A device that

counts photons individually will help to greatly extend the range of networks that send encrypted quantum communications. 10. A new scheme for a quantum communications link will allow a sender to relax in the knowledge that only a recipient in exactly the right location can read his message.

VI. Explain the way of word formation of the verbs below. Give their Russian equivalents (see *Appendix*)**.**

Disconnect the wires; count in tens; rewrite a program; devise a new system; revolutionize the computer industry; activate a user account; enlarge our vision; simplify this method; forecast the weather; cause an accident.

VII. Match each English word with the correct Russian equivalent.

survey	беспокоиться
respond	опрос
conclude	обнаруживать
behaviour	отвечать
claim	одинокий
interaction	делать вывод
prove	подтверждать
solitary	поведение
throw up	утверждать
bother	взаимодействие
being	влиять
affect	существо

VIII. In the text of task X find a word derived from the verb **to respond.** ***Give other derivatives of this verb.***

IX. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) affect, deduce, spend, take place, influence, throw up, occur, bother, pass, respond, amount, claim, quantity, assert, find out, worry, answer, conclude;

b) unexpected, social, move, solitary, more, prove, calming, answer, less, ask, disprove, greatly, outdated, little, recent, remain, expected, worrying.

X. Look through the text and give its main idea.

Worries about Internet Use

1. A recent survey into Internet use has thrown up some worrying results. The Stanford University survey asked respondents to answer a number of questions about their Internet use. It asked how much time they spent on the Internet and whether Internet use had affected the amount of time they spent with family and friends.

2. The answers were interesting but not unexpected. Two-thirds of the people surveyed responded that they still spend fewer than five hours a week on the Internet. The survey concludes that the behaviour of these people has changed little. However,

a quarter of those people who use the Internet for more than five hours a week claimed that they spend less time with their family and friends.

3. Professor of Political Science at Stanford, Norman Nie, tells us that we are moving from a world where we know and see neighbours and friends to one where interaction takes place at a distance. It seems that the results of the survey prove that the Internet is turning people into solitary beings who can't be bothered to call their mother on her birthday.

XI. Answer the following questions:

1. What survey did the Stanford University carry out?
2. What results were achieved?
3. What are the worries about Internet use?
4. Why do people feel lonelier today than they used to?
5. How much time do you spend surfing the Internet? Is there anything that you want to change?

XII. Translate passage 1 into Russian.

XIII. Read the text. Explain what UAV is. Describe its structure and working principles.

MIT Makes a Drone Aircraft that Can Fly Indoors

1. We have seen quadrocopters do some pretty awesome indoors maneuvers, from swarming to playing a piano symphony. But what we really want to see is a full-fledged airplane whipping around the inside of a building.

2. MIT's Robotics Group is taking steps toward making this a reality with an autonomous UAV (unmanned aerial vehicle) that can fly around in a tight car park. To accomplish this feat, the MIT scientists developed a short winged, laser-equipped brainiac UAV that can understand where it is and how to avoid obstacles all on its own.

3. MIT professor Mark Drela developed the UAV with a short 2-meter wingspan so that it could maneuver quickly in enclosed spaces. More importantly, the small airframe packs the same computational power as a netbook, with an Intel Atom processor inside.

4. It needs all this processing power to run a state-estimation algorithm in conjunction with a set of lasers, accelerometers, and gyroscopes. With these combined technologies, the UAV is able to figure out its own orientation and velocity as well as 15 other in-flight factors without a GPS signal. At the same time, the UAV constantly runs an algorithm that it uses to avoid obstacles it comes across on the fly.

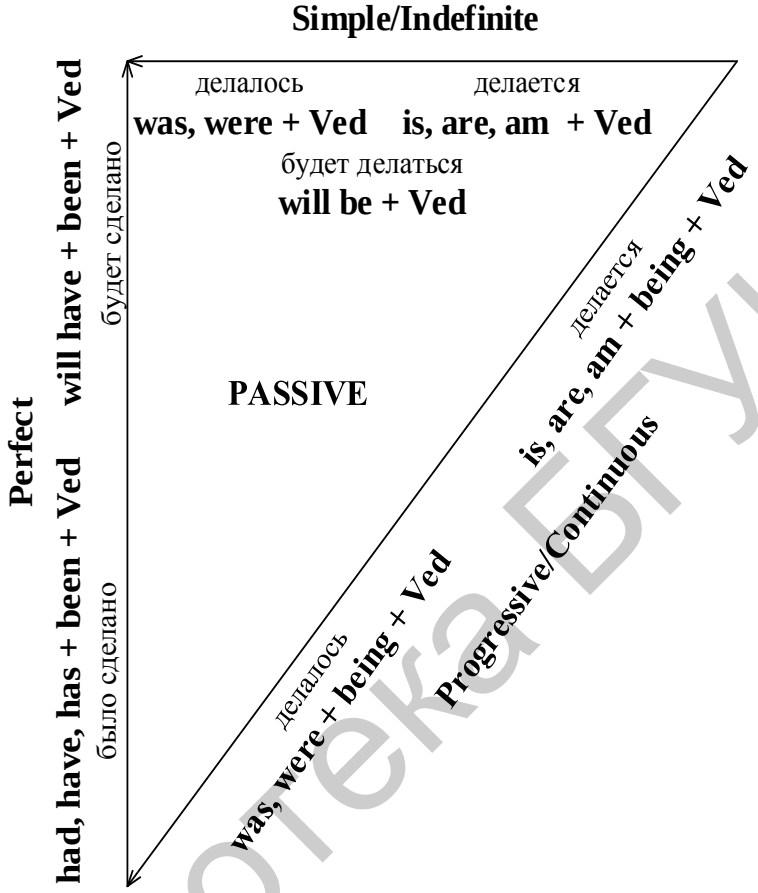
5. So far, the MIT scientists have run a preliminary test of the system aided by a preloaded map. The UAV successfully flew for a total of three miles at 22 miles per hour.

6. The MIT researchers' next step will be to build an algorithm that allows their UAV to make a map of its surroundings on the fly.

XIV. Translate passages 5 and 6 into Russian.

1.5.2. Страдательный залог
Passive Voice

Страдательный залог показывает, что действие направлено на предмет или лицо, выраженное подлежащим.



I. Define the predicates in the passive form.

X – подлежащее; 1, 2, 3… – глагол

a) X was 1ed, X am 2ing, Xs were 3ed, X am being 4ed, X is being 5ed, X will be 6ing, X is 7ed, Xs are 8ing, X am 9ed, Xs were 10ing, Xs are 11ed, X is 12ing, X will be 13ed, X was being 14ed, X was 15ing, Xs were being 16ed, Xs are being 17ed.

b) Xs have 1ed, X has been 2ed, Xs have been 3ing, X has 4ed, X had been 5ed, X has been 6ing, X had 7ed, X will have been 8ed, X will have been 9ing, X will have 10ed, Xs have been 11ed.

c) X will be 1ed, Xs have 2ed, Xs were 3ed, X am being 4ed, X will be 5ng, Xs have been 6ed, X has been 7ing, X is 8ed, Xs are 9ing, Xs are 10ed, Xs have been 11ing, X had 12ed, X is being 13ed, X had been 14ed, X will have 15ed, X am 16ing, X has been 17ed, Xs were 18ing, X am 19ed, X was 20ed, X is 21ing, X was being 22ed, X has 23ed, X will have been 24ed, X was 25ing, Xs were being 26ed, Xs are being 27ed, X will have been 28ing.

II. In each line below find the predicates meaning

***a*) *Делалось, было сделано*:**

1. X was being 1ed, X am being 2ed, X has been 3ed, X will be 4ed;
2. Xs were 5ed, X is being 6ed, X had been 7ed, Xs were 8ing;
3. X will have been 9ed, Xs were being 10ed, Xs are 11ed, X was 12ed;
4. X has 13ed, X is 14ed, Xs have been 15ed. X is being 16ed.

***b*) *Делается, будет сделано*:**

1. X is 1ed, X was 2ed, X has been 3ing, X am being 4ed, X will be 5ed;
2. Xs have been 6ed, Xs have 7ed, Xs are 8ed, Xs were 9ed;
3. Xs are being 10ed, X is 11ing, X was being 12ed, X am 13ed;
4. X is being 14ed, X will be 15ed, X will have been 16ed, Xs were 17ed.

III. Define the predicates in the passive form and give their Russian equivalents.

a) 1 was translating, 2s are translated, 3 am being translated, 4s were translating, 5s were translated, 6s are being translated, 7s were being translated, 8 was being translated, 9 was translated, 10 will be translating, 11 is translated, 12 is translating, 13 am translated, 14 is being translated, 15s are translating, 16 will be translated, 17 am translating.

b) 1 will have translated, 2 had been translated, 3 will have been translating, 4s have been translated, 5s have been translating, 6 will have been translated, 7 had translated, 8 has been translating, 9s have translated, 10 has been translated, 11 has translated.

c) 1 had translated, 2s have been translated, 3s are being translated, 4 will have translated, 5 is being translated, 6 had been translated, 7 was translating, 8 is translated, 9 will be translated, 10s were being translated, 11 will be translating, 12 was being translated, 13 will have been translated, 14 has been translating, 15 am translating, 16s are translated, 17 am translated, 18s were translated, 19s have translated, 20 am being translated, 21s are translating, 22s have been translating, 23 is translating, 24 has been translated, 25 was translated, 26s were translating, 27 will have been translating, 28 has translated.

IV. Give the Russian equivalents of the parts of sentences. Pay attention to the tense form of the predicates in the passive form:

1) the solution is provided (has been provided, will be provided, was provided);

2) the unit was arranged (has been arranged, is being arranged, will have been arranged);

3) the devices are manufactured (had been manufactured, were manufactured, are being manufactured);

4) the structures were formed (have been formed, were being formed, will be formed).

V. In each sentence find the predicates and give their Russian equivalents.

a) 1. The results of two model tests will be presented in order to demonstrate the potentials of the model. 2. Computers are being used more and more extensively in the world today. 3. The experiments were conducted at the same time in London and Rome. 4. A GSM network is composed of several entities with specific interfaces. 5. Transistors are made of semi-conductors such as silicon and gallium arsenide. 6. A difficult problem is being solved now by engineers. 7. Many technical means will be improved in future. 8. Until modern times, most information processing machines were designed to do arithmetic. 9. The network of mobile communication is being built in this region. 10. Other automatic controller devices were being developed before the advent of industry standards.

b) 1. Unfortunately before we make the experiment their work will have been published. 2. The technical problems of colour television have already been solved. 3. When the reaction had been finished the temperature fell. 4. We have not been informed about the experiments. 5. By the early part of the twentieth century electromechanical machines had been developed. 6. This term has been used for a long time. 7. Two popular techniques have been developed for optimization process. 8. The weight of the mechanical part had been greatly reduced. 9. Dear clients! By this time tomorrow your telephone connection will have been restored completely. 10. The problem has been studied for three years, but they haven't got any result.

c) 1. In an analogue signal, the signal is varied continuously with respect to the information. 2. Additional transformation was being got from satellites. 3. A Web site has been set up to keep the citizens informed. 4. The control system was developed and put into operation. 5. New industrial enterprises will be built here in the future. 6. The new equipment had been tested for two hours when the chief engineer came and stopped the experiment. 7. Before the sample was tested it had been carefully dried. 8. As it had been theoretically predicted, high-energy alpha particles were registered. 9. It had long been understood that sound was related to the vibration of a mechanical system. 10. It has been estimated that two-thirds of all scientific discoveries have been made since the Second World War.

1.5.3. Особые случаи соответствия страдательного залога в английском и русском языках

$$\mathbf{x_1 + be + x_2ed + (prp)}$$

A. Предлог, стоящий после глагола в страдательном залоге и не относящийся к следующим за ним словам, при переводе на русский язык ставится перед тем словом, которое в английском предложении является подлежащим:

The results are relied **upon**.	**На** эти результаты полагаются.

Запомните значения следующих глаголов с предлогами:

agree upon (on)	договориться, условиться о
arrive at	приходить к (заключению, решению)
depart from	отклоняться; уклоняться от
depend on (upon)	зависеть от
do away with	покончить с; отказаться от
insist on (upon)	настаивать на
look at	смотреть на
look after	наблюдать за
refer to	ссылаться на; упоминать о
rely on (upon)	полагаться на
send for	посылать за
speak, talk about (of)	говорить о (об)
think about (of)	думать о
work at	работать над

I. Define the predicates in the passive form the translation of which starts with the preposition.

a) 1 is agreed upon, 2 am being spoken about, 3s have been carried out, 4 is being thought about, 5 will be translated into, 6 had been arrived at, 7s were being talked about, 8 was placed on.

b) 1s are being founded in, 2 has been worked at, 3 am sent for, 4s are equipped with, 5 was being relied on, 6 will have been insisted on, 7s were added to.

II. Give the Russian equivalents of the parts of sentences below. Pay attention to the translation of the intransitive verbs in the passive form:

1) the invention is referred to (has been referred to, is being referred to, will have been referred to);

2) the method was insisted on (had been insisted on, was being insisted on, will be insisted on);

3) the data were relied on (have been relied on, are relied on, were being relied on);

4) the properties are spoken about (are being spoken about, had been spoken about, will be spoken about).

III. Give the Russian equivalents of the sentences below. Pay attention to the translation of the intransitive prepositional verbs.

1. This date will be insisted on. 2. Many materials now in common use were not even thought of thirty years ago. 3. The properties of these systems were much spoken about. 4. A new modern computer is looked after by a programmer. 5. When something went wrong with the computer, the designer was sent for. 6. The phenomenon is referred to in many articles. 7. This concept is also referred to by some network security people. 8. These rules were arrived at independently. 9. All

the machines were looked at with great interest. 10. The new model of the device will be worked at in the plant laboratory.

B. При переводе страдательного залога английских переходных глаголов, которым в русском языке соответствуют глаголы, принимающие предложное дополнение, предлог ставится перед словом, которое в английском предложении является подлежащим.

The results were **affected** by the presence of impurities.	**На** результаты повлияло присутствие примесей.

Запомните значения следующих переходных глаголов:

to address (smb.)	обращаться к кому-либо
to affect (smb., smth.)	влиять, воздействовать на кого-либо, что-либо
to answer (smth.)	отвечать на
to follow (smb., smth.)	следовать, следить за кем-либо, чем-либо
to influence (smth., smb.)	влиять, оказывать воздействие на что-либо, кого-либо
to watch (smth., smb)	следить за чем-либо, кем-либо, наблюдать что-либо

IV. Define the predicates in the passive form the translation of which starts with the preposition.

a) 1 was transmitted, 2s were influenced, 3 had been watched, 4 is being translated, 5 will be followed, 6 is reported, 7 am being affected, 8s have been received.

b) 1 will have been watched, 2s were asked, 3 has been affected, 4 am addressed, 5s are stopped, 6s are being followed, 7 was being obtained, 8s had been answered.

V. Translate the parts of sentences below. Pay attention to the translation of the verbs* to follow, to influence, to watch, to affect *in the passive form:

1) the pattern is influenced (was influenced, is being influenced, will be influenced);

2) the report was followed (has been followed, will have been followed, was being followed);

3) the experiments were watched (are being watched, will be watched, had been watched);

4) the results are affected (were being affected, have been affected, will have been affected).

VI. Give the Russian equivalents of the sentences below. Pay attention to the translation of the predicates in the passive form:

1. This paper was shortly followed by another by the same author. 2. The first question is readily answered. 3. There are circuits which are not influenced by the temperature. 4. The rates and molecular weights are affected by lowering the temperature. 5. The experiment will be followed by testing the end product. 6. The

level of oxygen is constantly watched by the operator. 7. Every thing is affected by its relations to everything else. 8. Methods employed in solving a problem are strongly influenced by the research objective. 9. The reaction was followed by measuring temperature. 10. The question arises as to how the behaviour of metals is affected by the changes in temperature.

VII. Explain the way of word formation of the verbs in bold type. Give their Russian equivalents (see *Appendix*)**.**

1. I **work** on a keyboard connected to a computer. 2. Will traditional newspapers ever **disappear**? 3. You've seen brilliant people **devise** computer viruses that bring down whole systems. 4. These inks are designed to provide better halftones, which are necessary to **reproduce** photographs. 5. The microprocessor, or CPU, works with the operating system to **control** the computer. 6. Many people **believe** that in 1796 Cugnot created the first mechanical vehicle moving by itself.

VIII. Match each English word with the correct Russian equivalent.

abacus	вызывать
branch	вперёд
calculus	умножать
cause	исчисление
control	изобретать
engine	посылать
forward	управлять
invent	отрасль
multiply	счёты
send	машина

IX. In the text of task XI find a word derived from the verb **to compute.** ***Give other derivatives of this verb.***

X. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) accident, appear, invent, emerge, device, forecast, trouble, propose, cause, appliance, count, suggest, devise, experiment, calculate, reason, test, predict;

b) easy, independently, cheap, several, multiply, together, forward, divide, buy, complicated, modern, send, backward, sell, receive, expensive, ancient, few.

XI. Look through the text. Define its main idea.

The First Calculating Devices

1. Let us take a look at the history of computers that we know today. The very first calculating device used was the ten fingers of a man's hands. This, in fact, is why today we still count in tens and multiples of tens.

2. Then the abacus was invented. People went on using some form of abacus well into the l6th century, and it is still being used in some parts of the world because it can be understood without knowing how to read.

3. During the I7th and 18th centuries many people tried to find easy ways of calculating. A mechanical way of multiplying and dividing was invented by J.Napier, a Scotsman. Now it is the modern slide rule works. Henry Briggs used Napier's ideas to produce logarithm tables which are used by all mathematicians today.

4. Calculus, another branch of mathematics, was independently invented by both Sir Isaac Newton, an Englishman, and Leibnitz, a German mathematician. The first real calculating machine appeared in 1820 as the result of several people's experiments.

5. In 1830 Charles Babbage, a gifted English mathematician, proposed to build a general-purpose problem-solving machine that was called «the analytical engine». This machine was showed at the Paris Exhibition in 1855. Babbage never finished this work, but many of his ideas were the basis for building today's computers.

XII. Answer the questions below:

1. What was the very first calculating device?
2. What is the abacus?
3. What is the modern slide rule?
4. How did Newton and Leibnitz contribute to the problem of calculation?
5. When did the first calculating machine appear?
6. Whose ideas were the basis for building today's computers?

XIII. Translate passage 2 into Russian.

XIV. Read the text. Define its subject.

Computers Then and Now

1. The world first electronic computer was built at the University of Pennsylvania in 1946, although computer-like machine was built in the 19th century. Computers were sold commercially for the first time in the 1950s, and a lot of progress has been made since then. Computers are now much smaller and more powerful, and they can be bought much more cheaply.

2. Computers are used in many fields – in education, medicine, science, for example. They can be used to forecast the weather or to control robots which make cars. A lot of difficult calculations can be done very quickly on a computer.

3. A computer can't think – it must be told exactly what to do. And they don't make mistakes. Stories are heard sometimes about computers paying people much money or sending them bills for things they don't buy. These mistakes are made by the programmers. Some years ago, a computer-controlled rocket belonging to the USA went out of control and had to be destroyed. The accident was caused by a small mistake in one line of the programme. This mistake cost the USA $ 18 million.

4. Progress is being made all the time. Today people know more about computers then they used to. And many believe we can look forward to the day when even our household jobs like cleaning will be done by computer-controlled robots.

XV. Say which of the statements below are true.

1. Computers haven't been changed since the mid of the 19th century.
2. Different complicated tasks are solved by computers rapidly.
3. In several years students will be taught by computer-controlled robots.

XVI. Translate passage 1 into Russian.

1.6. Сказуемое с модальными[1] глаголами
Predicates with modal verbs

Значения модальных глаголов

can/could	мочь что-либо сделать	иметь возможность, уметь
may/might		иметь допускаемую возможность в силу объективных обстоятельств
must	быть должным что-либо сделать	в силу внутреннего убеждения
should		согласно правилам

I. Compare the modal verbs below. Explain their differences.

Can-may; can-could; can-might; may-might; may-could; must-may; should-can; must-should; could-should;can-must; might-could; should-may; must-might.

Сказуемое с модальными глаголами

can may	**x** **be xed/ x̃**	=	**может**	**делать** **быть сделан**
must should	**x** **be xed/ x̃**	=	**должен**	**делать** **быть сделан**

II. Define the meaning of the predicates with modal verbs.

Can x; can be xed; could x; could be x̃; may x; may be xed; might x; might be x̃; must x; must be xed; should x; can x; should be x̃; can be x̃; may x; could be xed; may be x̃; could x; must be x̃; might x; should be xed; must x; can be xed; could x; may be x̃; must be x̃; must x; might be xed; should x; may x; must be xed; can be xed; should be x̃; may be x̃; could be x̃; should x; might be xed; can be x̃; should be xed; can x; must be x̃; could be xed; might x; should be x̃.

[1] Модальные глаголы указывают на отношение к действию, поэтому обычно употребляются с другим глаголом, который обозначает действие и стоит в форме инфинитива.

III. Define the meaning of the predicates with modal verbs.

Can solve; could solve; can be solved; could be solved; may obtain; might obtain; may be obtained; might be obtained; must find; must be found; should take; should be taken; can hold; could hold; can be held; could be held; may build; may be built; must heat; must be heated; should improve; should be improved.

IV. In each pair of sentences below compare the predicates by form and meaning. Define their similarities and differences.

a) 1. I can do research on semiconductors now. 2. Electrons can be removed by the application of a very high electric field.

b) 1. You may use carbon steel in the construction of this building. 2. Electrons may be released from a gas in several different ways.

c) 1. They could do research on copper alloys last term. 2. Electronics could be defined as the study of the motion of electrons in, or the interaction of electrons with, a field of force.

d) 1. Alex must perform all the experiments according to the instructions. 2. Students must not be late for their classes.

e) 1. First we should consider the arrangement of atoms in metals. 2. It should be kept in mind that the initial electrons may be supplied by any of the methods discussed above.

V. Give the Russian equivalents of the sentences below.

1. I want to become a materials engineer but I don't know what I must study. 2. You may apply alloy steels for various engineering purposes. 3. The engineers can use copper for electrical conductors. 4. The fields might be very complicated ones. 5. Matter may exist in any of its states: solid, liquid, gaseous. 6. This device cannot be repaired today. 7. For a long time scientists could not discover the secret of the atom. 8. You should use these devices in your research work. 9. Chemists must create the materials which don not exist in nature. 10. This equipment can work with high accuracy.

VI. Define which of the words in bold type are verbs. Give the Russian equivalents of the sentences with these verbs (see *Appendix*)**.**

1. You **access** this information through one interface or tool called a Web browser.
2. With voice and language recognition we will have easy **access** to all that the Internet can provide.
3. One of the most recent **results** was the creation of a new discipline, mathematical logic.
4. Such a process **results** in changes in the end product.
5. The Internet **linked** computers and computer networks around the world.
6. Larger networks of computers **linked** together become now available.
7. The main **concern** of an engineer is the rate at which work is being done.

8. The articles **concern** the contribution of the Russian mathematicians to the theory of probability.

9. The investigations of the problem showed that his **approach** to it was misleading.

10. They **approach** this problem from many sides.

VII. Match each English word with the correct Russian equivalent.

charger	прочный
medium	близорукость
extensive	видимый
tough	зарядное устройство
visible	указка
pointer	гарантировать
short sight	обширный
ensure	среда

VIII. In the text of task X find a word derived from the verb* to connect. *Give other derivatives of this verb.

IX. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) technology, numerous, apply, technics, movement, cable, direction, multiple, way, connect, wire, process, use, study, link, handle, motion, research;

b) efficient, include, solid, discharge, temporary, weak, inefficient, liquid, obsolete, charge, exclude, modern, different, similar, permanent, strong.

X. Look through the text. Define its subject. Entitle the text.

1. This is the newest of our already extensive Laser collection. The «Mars™» Series was created purposely for the beginner. From 200mW up to 500mW, this thin 532nm Laser beam will amaze you, every time you turn it on. Its thin green beam can paint targets hundreds of feet away!

2. Made of sturdy extruded aircraft aluminium, this Laser is made tough. At a weight of only 190 grams, it is a very light Laser Wand. The more powerful is the Laser, the more visible is its beam. Being totally focusable, it can be used in expedition trip, and serve as a designator beacon in case of emergencies. At night, its beam will be visible to the search and rescue team miles and miles away.

3. It comes complete with its battery charger, a pair of red goggles and its aluminium carrying case, making an excellent gift idea!

4. However, since the UPS 747 Airplane crash on Sept. 3rd 2010, we are no longer allowed to ship batteries overseas. Therefore, Batteries are NOT included.

5. Made from Military Specification Aircraft Aluminium, this Laser Pointer is made to last years and years through heavy duty service. Its beam is able to focus from a few inches, for super hot burning applications, to infinity, for long range rescue applications.

XI. Say which of the statements below are true. Correct the false ones.

1. The «Mars™» Series was created purposely for the advanced user.
2. The Laser can be used in expedition trip, and serve as a designator beacon in case of emergencies.
3. The more powerful is the laser, the more visible is its beam.
4. It comes complete with its battery charger only.
5. Since 2010, we are no longer allowed to ship batteries overseas.
6. The Laser Pointer is made from Military Specification Aircraft Silicon.

XII. Translate passage 2 into Russian.

XIII. Read the text. Choose the most suitable title.

1. Laser and its characteristics.
2. Laser and its application.
3. Laser and its structure.

1. Lasers are not a new technology. Indeed they have been with us for over 40 years and they were first theorised by Albert Einstein in 1917.Since then lasers have spread into numerous industries. Today lasers are widely used in medicine, industry, communications and scientific research in a myriad of ways. In the medical field doctors use them to perform bloodless surgery, to correct short-sight and to treat many dermatological conditions. In everyday life lasers are found at the checkout till of most supermarkets and in numerous household products including DVD players, and personal computers while via fibre optic cables lasers have become the cornerstone of modern telephone lines, cable TV and internet connections.

2. Although the medium can be a solid, liquid or gas, today most lasers use a solid medium which takes the form of a cylindrical laser crystal. This medium is then «pumped» from an energy source to excite the atoms in the medium. Typically, this is done using very intense flashes of light or electrical charges. Atoms are the building blocks of everything around us but they are also in continuous motion – vibrating and rotating, even in solid objects like chairs or tables! They can also be in different stages of being excited. Consequently, if we apply a lot of energy to an atom we can make it more excited. For a laser to work efficiently we have to ensure that a large number of atoms reach an excited state.

XIV. Answer the questions below:

1. Are Lasers a new technology?
2. When were lasers first theorised?
3. Where are lasers widely used in?
4. Where can you find lasers in everyday life?
5. What medium do most lasers use today?

XV. Translate passage 2 into Russian.

Итоговый тест

I. Подберите слово, близкое по значению данному:

1. apply:
a) discover; b) operate; c) use; d) invent;

2. enhance:
a) broaden; b) increase; c) spread; d) decrease;

3. respond:
a) retell; b) reply; c) cause; d) conclude;

4. emerge:
a) affect; b) access; c) interact; d) appear;

II. Заполните пропуски в тексте подходящим по смыслу словом:

a) displays; b) provided; c) converts; d) accessed; e) combines; f) referred to.

World Wide Web (WWW), computer-based network of information resources that **(5)** ___ text and multimedia. The information on the World Wide Web can be **(6)** ___ and searched through the Internet, a global computer network. The World Wide Web is often **(7)** ___ simply as «the Web».

The Web started to become a popular resource after 1993 when the first widely distributed browser **(8)** ___ a convenient way to access a variety of information on the Internet.

III. Поставьте слово, данное в скобках, в нужную форму.

9. I don't (**belief**) computers can think better than we do.

10. Everyone have to use their identification number to (**active**) the computer.

11. Soon the British developed a computer with vacuum tubes and used it to (**code**) German messages.

12. I (**advice**) to use new methods in their experimental work.

IV. Выберите русский эквивалент для английской конструкции:

13. the research did lead to — a) исследование привело к
14. the research has to lead to — b) исследование вело к
15. the aim of the research is to lead to — c) исследование должно привести к
d) исследование действительно привело к
16. the research have led to — e) целью исследования является привести к

V. Каждому из предложений в левой колонке подберите соответствующий элемент из правой колонки.

17. Now they could ___ messages in any place any time.
18. The task of the microprocessor is ___ data in the form of strings of binary digits.
19. The letter being sent by air mail will ___ in a few days.
20. In teleprinting, the message is ___ in the form of typed words on a paper form.

a) received
b) receive
c) have received
d) be received
e) to receive

***VI. Заполните пропуски в тексте подходящим по смыслу глаголом*:**

a) have made;	c) must make;	e) can be made;
b) are;	d) is operated;	f) is.

The maser **(21)** ___ on the same principle as the laser except that the wavelengths generated are much longer. Masers **(22)** ___ revolutionary advance possible in a number of different fields. They **(23)** ___ up to 1000 times more sensitive than any other type of amplifiers. Because of the very constant frequency with which masers **(24)** ___ to oscillate they can be used as master controls for atomic clocks of unbelievable accuracy.

VII. Прочитайте текст. Затем изучите утверждения после текста и отметьте: T (true), если утверждение верное; F (false), если утверждение неверное; N (no information), если в тексте об этом не говорится.

Our current «age of technology» is the result of many brilliant inventions and discoveries, but it is our ability to transmit information, and the media we use to do it, that is perhaps most responsible for its evolution. Progressing from the copper wire of a century ago to today's fiber optic cable, our increasing ability to transmit more information, more quickly and over longer distances has expanded the boundaries of our technological development in all areas. Today's low-loss glass fiber optic cable offers almost unlimited bandwidth and unique advantages over all previously developed transmission media. The basic point-to-point fiber optic transmission system consists of three basic elements: the optical transmitter, the fiber optic cable and the optical receiver.

25. Today's low-loss glass fiber optic cable offers unique advantages over all transmission media.

26. Fiber optic cable is similar to electrical cable in its construction.

27. The basic point-to-point fiber optic transmission system consists of three basic elements: the optical transmitter, the copper wire and the optical receiver.

28. Many brilliant inventions and discoveries are most responsible for the evolution.

МОДУЛЬ 2

РАСШИРЕНИЕ ПРОСТОГО ПОВЕСТВОВАТЕЛЬНОГО ПРЕДЛОЖЕНИЯ И ЕГО СТРУКТУРА
THE EXTENSION OF A SIMPLE SENTENCE AND ITS STRUCTURE

2.1. Основные составные элементы предложения (русско-английский вариант)

№ п/п	Русский вариант	Модельные слова	Функции составных элементов[1] предложения	Английский вариант: (x – английское слово с дифференциальным признаком)
1.	**Студент читает**	**Кто делает**	**с ск**	**The X X**
2.	**Студент читает книгу**	**Кто делает что**	**с ск о**	**The X X the X**
3.	**Студент читает *интересную* книгу**	какую-то	ол	the ***x*** x
4.	**Студент читает книгу *приятеля***	чего-то (кого-то)	ор	the x ***of the x***
5.	**Студент читает книгу *давнего приятеля***	какого-то	олр	the x ***of the x x***
6.	**Студент читает *купленную* книгу**	сделанную (какую-то)	ппл	the ***xed*** x
7.	***Сидящий* студент читает книгу**	делающий (какой-то)	пал	the ***xing*** x
8.	**Студент *внимательно* читает книгу**	как-то	н	***xly***
9.	**Студент читает книгу *у окна***	у чего-то (на, в…)	дп	***at the x (on, in…)***

[1] Составные элементы предложения: **с** – субъект, **ск** – сказуемое, **о** – объект, ол – определение левое, ор – определение родительное, олр – определение левое родительное, ппл – причастие пассивное левое, пал – причастие активное левое, н – наречие, дп – дополнение предложное.

***I. Memorize the following constituent elements of a sentence. Match them with their model words*:**

1) н, ппл, дп, ор, ол, **ск, с**, пал, **о;**
2) ор, пал, **с**, ппл, ор, дп, н, **о, ск;**
3) пал, о, **с**, н, ппл, ор, дп, **о**, ол;
4) дп, **с**, ол, ор, **о**, ппл, н, ол, н, **ск;**
5) **о**, ор, н, ол, пал, **ск**, дп, ппл, **с**.

II. Name the functions of the constituent elements of the Russian sentence using model words. Explain why some words are in bold type:

1) **кто**, **делает**, **что**, как-то, на чём-то, чего-то, какое-то, сделанный, делающий;

2) как-то, сделанный, в чём-то, чего-то, какое-то, **кто**, делающий, **что**, **делает**, над чем-то;

3) чего-то, делающий, **кто**, какое-то, сделанный, чего-то, над чем-то, как-то, **что**, о чём-то, **делает**;

4) **кто**, как-то, сделанный, делающий, чего-то, для чего-то, какое-то, **сделает**, как-то, сделанный, **что**, к чему-то;

5) делающий, что-то, какой-то, **кто**, как-то, сделанный, чего-то, с чем-то, **что**, у чего-то, **делает**.

III. Define the functions of the constituent elements of the Russian sentence:

1) зелень, зеленит, зелень, зелено, на зелени, зелёный, зелёного, презелёный, зеленеющий;

2) зелено, **зелень**, на зелени, зелени, зеленеющий, презелёный, зелени;

3) зелени, зеленеющий, зелёный, презелёный, зелёного, на зелени, зелено;

4) зелено, **зелень**, на зелени, зелени, зеленеющий, презелёный, зелени.

IV. Unite all the constituent elements in one sentence (the Russian variant of the table is on page).

V. Find points 3, 6, 7 in the table (English variant). Define their similarities and differences.

VI. Find points 4, 5 (English variant). Define their similarity and difference.

VII. Name the functions of the constituent elements of the sentence and their differential features:

1) xly, at the x, X, the x of the x, the x of the x x, the xed x, the xing x;

2) the xed x, xly, at the x, the x x, the xing x, in the x, the X, for the x, X;

3) xly, the x x, the x of the x, to the x, The X, the xing x, with the x, the X;

4) on the x, the x x, the xing x, the x of the x, The X, X, around the x;

5) the x x, by the x, xly, with the x, the xing x, the x of the x, X, the X.

VIII. Give the Russian equivalents of the following constituent elements of the sentence. Name their features.

a) 1 transmit, 2 transmitted, 3 was transmitted, 4 will be transmitted, 5 transmits, 6 have been transmitted, 7 are transmitted, 8 are transmitting, 9 are sent, 10 can be sent, 11 were sent.

b) 12 The telephone, 13 exchange, 14 over the telephone, 15 for messages, 16 along a wire, 17 by a wire, 18 the development of telecommunication, 19 subscribers.

c) 20 On March, 10^{th} 1876 A.G. Bell spoke the first words over the telephone. 21 The idea of an automatic exchange was soon invented. 22 The next generation of exchanges was developed in Sweden.

2.2. Словосочетание как расширение с, о, дп, ор

Именное словосочетание состоит из существительного-ядра и определений к нему:

а) левых – прилагательное (ол), причастие (пал, ппл), герундий, существительное;

б) правых – определение родительное (ор), существительное с предлогом (дп), причастие пассивное (единичное), оборот.

Помните! *Артикль и его заменители* относятся к последнему слову-ядру.

I. Name the features and functions of the constituent elements of word-combinations. Model them.

the student
the x student
the x x student
the x x xing student
the xed student
the x x xly xed student
the student of the x
the student of the x x
the student of the x x x
the x x x student of the x xing x
the x x xing student of the x x xed x
the x x xed student of the x x x of the x x

II. Name the features and functions of the constituent elements of word combinations. Give their Russian equivalents.

the device
the small device
the small electronic device
the small electronic functioning device
the designed device
the small electronic newly designed device
the device of the laboratory
the device of the radioelectronic laboratory
the device of the radioelectronic computing laboratory
the small electronic device of the computing designing laboratory
the small electronic functioning device of the radioelectronic computing created laboratory
the small electronic designed device of the radioelectronic computing laboratory of the technological company

III. Give the Russian equivalents of the following word combinations.

Some systems; other solutions; these conditions; any attempt; in a specific direction; many of the elements of its multi-touch user interface; multiple points on the screen; with some significant differences; by various means; in the network layer; hundreds of examples of security features in numerous industries; for the systems aspects of security; one of the main constraints on cryptography.

2.3. Структура простого повествовательного предложения

1. Связь слов в повествовательном предложении определяется их ***фиксированным местом в предложении относительно сказуемого***. 2. Субъект и сказуемое являются обязательными членами предложения (кроме повелительного наклонения).

0[1] место	1 место	2 место	3 место	4 место
Дополнение предложное, наречие (где? когда? и т. п.)	Субъект или его группа[2]	Сказуемое	Объект или его группа (дополнение)	Дополнение предложное, наречие[3] (где? когда? и т. п.)
дп, н	**с**	**ск**	**о**	дп, н

Определение[4]

	Radio	can ensure	greater safety	in navigation.
In navigation	radio	can ensure	greater safety.	

I. Define the place of each constituent element in a simple sentence.

1. The x x.
2. The x x the x.
3. The x x an x x in the x x.
4. X x can be xed as a x x.
5. The x x the x x from x x.
6. The xed x xed x x.
7. The x x is a xly xing x in the x.

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[1] Место в предложении – слово или группа слов, связанных по смыслу.

[2] *Субъектом* будет первое существительное без предлога и не стоящее после неличной формы глагола.

With open source software, *programmers* contribute to the computing community by making their improvements.

Группа субъекта (о/дп) никогда не разделяется и состоит из левых и правых определений.

[3] *Группа дп, н* может находиться либо в начале предложения (нулевое, факультативное место), либо в конце предложения (4-е место). Наречие может стоять перед сказуемым (единичным) или после первого вспомогательного глагола.

Marconi ***even*** recognized the military importance of radar.

Some books may ***never*** be published in paper form.

[4] *Определение* не имеет постоянного места в структуре предложения, оно обычно входит в состав смысловой группы определяемого существительного, располагаясь слева и справа от него.

The web is made of ***electronic*** addresses ***called*** web sites.

II. Define the number of sense groups in each sentence.

1. The visit visits.
2. The visit visits the visit.
3. The visit along the visit visits the visit.
4. The visiting visit from the visit visits the visit.
5. The visited visits at the visit visit visited visit.
6. The visiting visits for visited visit visit the visited visit for visit.

III. Define the similarities and differences of the words in bold type, name their functions in the sentence. Give their Russian equivalents.

1. The telegraph **works** by converting the contacts between a telegraph key and a metal conductor into electrical impulses. 2. A. Bell was able to make his prototype telephone **work**. 3. To meet such demands in practice scientists and engineers must **work** hard. 4. Of special concern would be those individuals whose **work** places them in regular contact with free nanoparticles. 5. He was newly employed to **work** on a project to build smaller electrical circuits. 6. Typically GPS units will not **work** indoors, underwater or underground.

IV. Divide the sentences into sense groups. Define the dependency relations in each group.

1. The most basic and useful method for studying usability is user testing. 2. Usability plays an important role at each stage of the design process. 3. Mobile devices can also be used as a control device. 4. The power consumption of mobile devices directly affects their usage time. 5. Issues of security and privacy become more prominent with wireless networks. 6. Any party with proper equipment can receive and send messages in the network. 7. Authentication protects the service provider from unauthorized intrusion.

V. Unite all the constituent elements in one sentence (the English variant of the table is on page).

VI. Define the differences in the forms of the following nouns. Explain how these differences influence their meanings.

Receive – receiver, transmit – transmitter, send – sender, connect – connector, serve – server, provide – provider, browse – browser.

VII. Match each word from the left column with the correct Russian equivalent.

message-retrieval protocol	заранее установленный (заданный) интервал
deliver	передача данных
header	принимать, получать

subject	начинать
download	протокол поиска сообщений
transmit	почтовый клиент
recognize	тема
receive	распознавать
mail client	доставлять
initiate	скачивать
data transfer	заголовок
preset interval	передавать

VIII. Arrange in pairs the words with similar meaning.

Get, duplicate, allow, remove, connect, obtain, delete, theme, retrieve, option, mean, permit, find, signify, copy, subject, link, choice.

IX. In the text of task X find the word derived from the verb* to retrieve. *Name other derivatives of this verb.

***X. Look through the text and find the answer to the question:* What are the advantages of using IMAP4 protocol?**

Post Office Protocol

1. POP is a message-retrieval protocol used by many PC mail clients to get messages from a server, typically your ISP's mail server. It only allows you to download all messages in your mailbox at once. It works in «pull» mode: the receiving PC initiates the connection. PC-based POP3 mail clients can do this automatically at a preset interval. When you use your Web mail account to access a POP3 mailbox, the mail server opens a connection to the POP3 server just as a PC-based application would. The messages are then copied into your Web mailbox and read via a browser.

2. Since POP3 downloads all the messages in your mailbox, there is an option to leave messages on the server. This does mean that you'll get every message downloaded every time you connect to the server. If you don't clean out your mailbox regularly, this could mean long downloads. Many Web mail systems won't recognize messages you've already downloaded, so you'll get duplicates of ones you haven't deleted.

Internet Mail Access Protocol

3. IMAP is similar in operation to POP, but allows you more choice over what messages you download. Initially, only message headers are retrieved, giving information about the sender and subject. You can then download just those messages you want to read. You can also delete individual messages from the server, and some IMAP4 servers let you organize your mail into folders. This makes download times shorter and there's no danger of losing messages.

XI. Look through passage 1 and explain what POP is used for? How does this protocol allow the user to download messages to his mailbox?

XII. Read the last sentence of passage 1 and divide it into sense groups. Define the dependency relations between them.

XIII. Read passage 2 and name the advantages and disadvantages of storing messages on the server.

XIV. Compress passage 2 to the maximum by deleting extra information and make a short summary of it.

XV. Translate passage 3.

2.4. Артикль и другие определители имени существительного

Наиболее распространёнными определителями имени существительного являются артикли a (an), the.

2.4.1. Заменители артикля

this-these, that-those	этот-эти, тот-те
my-his-her-its-our-your-their	мой-его-её-его(её)-наш-ваш-их
all-any-some-no	все-любой-некоторый-никакой
another-other, every-each	другой-другие, каждый-каждый
many-much, more, most	многие-многое, более, наибольший
few-little, less, least	немногие-немногое, менее, наименьший
very (the very), such	очень (тот самый), такой

I. In each line find the determiners of the noun and give their Russian equivalents.

1.	a) it	b) its	c) another	d) them	e) your
2.	a) this	b) us	c) his	d) any	e) him
3.	a) these	b) more	c) some	d) those	e) ours
4.	a) few	b) every	c) hers	d) little	e) then
5.	a) such	b) me	c) least	d) most	e) theirs
6.	a) less	b) that	c) other	d) hers	e) all
7.	a) each	b) their	c) no	d) it’s	e) mine

II. Choose the word the translation of which is given at the beginning of each line.

1.	Все	a) least	b) either	c) such	d) a few	e) all
2.	Немногое	a) less	b) some	c) no	d) little	e) the same
3.	Многие	a) many	b) a few	c) few	d) most	e) whole
4.	Другие	a) other	b) very	c) little	d) the very	e) once
5.	Любой	a) some	b) any	c) all	d) whole	e) both
6.	Некоторый	a) none	b) some	c) neither	d) either	e) not any

III. Define the similarities and difference of the words given below:

little – a little	мало – некоторое количество
few – a few	мало – несколько
both – both … and	оба, обе – и … и, как … так
either – either … or	любой (из двух) – или … или

neither – neither … nor	ни один (из двух) – ни … ни
some - the same	некоторый – такой же, тот же самый

IV. Choose the sentences in which the words in bold type are pronouns. Give the Russian equivalents of these sentences.

1. a) Unauthorized alteration of information may occur **both** within a system **and** over the network. b) The printer moves bi-directionally **both** ways from left to right and then right to left.

2. a) **Some** computer programs display what are called icons on the computer screen. b) Multimedia applications usually require more computer memory and processing power than **the same** information represented by text alone.

3. a) Small and mid-size firms that outgrow **a few** PCs and the physical sharing of disks often upgrade to LANs in order to facilitate collaboration and the sharing of business tools. b) **Few** scientists supported this theory.

4. a) The IT company is so secretive that **little** is known about its internal design process. b) Lately the researcher has made **a little** progress in his investigation.

5. a) The intensity of a laser can be changed to encode **very** complex signals. b) You have made **the very** same mistake again in your calculations.

6. a) Many robot applications are for tasks that are **either** dangerous **or** unpleasant for human beings. b) **Either** technique can be used in this experiment.

7. a) **Neither** of the possible ways is simple. b) Under ordinary conditions there is **neither** perfect conductor ***nor*** perfect insulator.

2.4.2. Функции и значения местоимения it

1. ***Личное местоимение*** в функции ***субъекта*** (подлежащего) при сказуемом в ед. ч. или в функции ***объекта*** (дополнения) = ***он, она, оно; его, её***.
The telephone network is reliable because ***it*** uses its own wire system.
The fiber-optic receiver performs the actual reception of the optical signal and converts ***it*** into electrical pulses.
2. ***Указательное местоимение*** в функции ***субъекта*** (подлежащего) при сказуемом в ед. ч. = ***это***.
It is an efficient means of interaction.
3. В функции ***субъекта*** (формального подлежащего) в ***безличных*** предложениях = ***не переводится***.
It is difficult to imagine modern life without the Internet.
4. В функции ***объекта*** (формального дополнения) после глаголов ***find, make, think + прилагательное = не переводится***.
Radio electronics has made ***it*** possible to test various equipment.
5. В функции ***коррелята*** (вводного слова) в предложениях с эмфатической конструкцией ***it is (was) … that (who)*** = ***именно, только***.
It was electronics ***that*** produced radar.

I. Define the functions and meanings of the pronoun* it. *Give the Russian equivalents of the following sentences.

1. By reducing cognitive load you make **it** easier for visitors to grasp the idea behind the system. 2. **It** is not reasonable to force users to enter an email address just to test the feature of the service. 3. Content is more important than a design which supports **it**. 4. In a wireless environment **it** is possible to prevent the attacker from gaining valuable information. 5. A well-scannable layout gives the content a dominating position **it** deserves. 6. Optimizing is hard and **it** takes a long time. 7. **It** is a fundamental principle of successful user interface design. 8. Such studies would make **it** possible to predict the characteristics of single-electron devices at the design stage.

2.4.3. Функции и значения one

1. *One* + существительное – ***числительное* = *один*, *одна*, *одно*.**
There is only ***one*** solution of the problem.
2. В функции ***субъекта*** (формального подлежащего) при сказуемом с модальным глаголом в ***неопределённо-личных предложениях* = *не переводится***.
One should pay attention to data security.
3. *Слово-заместитель* (one/ones) вышеупомянутого существительного. Переводится существительным, которое заменяет, или совсем не переводится. В этом случае перед ***one/ones*** стоит артикль ***the***: ***the one* = *тот*, *та*, *то*; *the ones = те*.**
This method is ***the one*** which can be relied on.

I. Define the functions and meanings of* one. *Give the Russian equivalents of the following sentences.

1. The serving network is **the one** that is currently providing service in the area where the user has roamed. 2. This is **one** of the reasons why a user-friendly print-version of web pages is essential for good user experience. 3. Users don’t scan a web-page in a linear fashion, going sequentially from **one** site section to another **one**. 4. In nearly every paragraph, there is **one** idea that is more important than all the others. 5. The last experiments gave us much better results than did the previous **ones**. 6. Laser is **one** of the most sophisticated inventions of man. 7. **One** doesn’t have to prepare a new program each time you set a new function to a microprocessor-equipped robot.

II. Give the Russian equivalents of the following nouns, paying attention to the meanings of the words from which they are derived.

Interactivity (interact – взаимодействовать), encoder (encode – кодировать), compression (compress – сжимать), innovation (innovate – вводить новшества, менять), conversion (convert – преобразовывать), expansion (expand – расширять), conduction (conduct – проводить).

III. Arrange in pairs the words with similar meaning.

Encode, demand, transmit, obvious, vast, provide, evident, encrypt, link, conduct, send, carry out, require, wide, supply, connect.

IV. In the text of task V find the word derived from the verb to* connect. *Name other derivatives of this verb.

***V. Look through the text and find the answer to the question:* What does Internet radio provide users with?**

1. Internet radio is the latest technological innovation in radio broadcasting. Until the 21st century the only way to obtain radio broadcasts over the Internet was through your PC. That will soon change, as wireless connectivity will feed Internet broadcasts to car radios, PDAs and cell phones. The next generation of wireless devices will greatly expand the reach and convenience of Internet radio.

2. Internet radio has obvious advantages. The potential for Internet radio is as vast as cyberspace itself.

3. In comparison to traditional radio, Internet radio is not limited to audio. An Internet radio broadcast can be accompanied by photos or graphics, text and links, as well as interactivity, such as message boards and chat rooms. With Internet radio, you could conduct training or education and provide links to documents and payment options. You could also have interactivity with the trainer or educator.

4. Internet radio programming offers a wide spectrum of broadcast genres, particularly in music. Internet radio offers the opportunity to expand the types of available programming.

5. Getting audio over the Internet is pretty simple:

– The audio enters the Internet broadcaster's encoding computer through a sound card.

– The encoder system translates the audio from the sound card into streaming format.

– The encoder samples the incoming audio and compresses the information so it can be sent over the Internet.

– The compressed audio is sent to the server, which has a high bandwidth connection to the Internet.

– The server sends the audio data stream over the Internet to the player software or plug-in on the listener's computer. The plug-in translates the audio data stream from the server into the sound heard by the listener.

VI. Define the functions of the constituent elements of the first and the last sentences of passage 1.

VII. Read passage 3 and find the key words reflecting its principal information. Give a short summary of the passage.

VIII. Define the statements corresponding to the contents of the text:

1. New types of wireless devices for obtaining radio broadcasts will be used in the near future.

2. Internet radio is also used for educational purposes.

3. One of the disadvantages of wireless products is their security system.
4. Traditional radio is limited to audio.
5. Getting audio over the Internet requires special skills.

IX. Read the first two sentences of passage 5 and divide them into sense groups. Define the dependency relations among them.

X. Translate passage 5 into Russian.

2.5. Прилагательные и наречия

2.5.1. Признаки распознавания прилагательных и наречий

Прилагательное (какой?)	***Наречие*** (как?)
1 the ***x*** x[1] ↓ перед существительным (ол) ***Wireless*** data communications are an ***essential*** component of ***mobile*** computing.	**1** x***ly*** ↓ поясняет глагол The decision was made ***quickly***.
2 ***x*** ↓ часть составного именного сказуемого после глаголов ***be, become, etc.*** We are ***familiar*** with the concept.	**2** x***ly*** x x[1] ↓ перед прилагательным или другим наречием обозначает признак или степень качества They are solving a ***highly*** important problem. These systems have been used ***almost exclusively*** by such experts for several reasons.

[1] Существительное может выполнять функцию субъекта (с), объекта (о), дополнения с предлогом (дп), определения родительного (ор).

I. Model the following sentences.

1. X x x xed in the x.
2. Xs were xly x in x x.
3. Xs have x x in x x x.
4. X x was xly xed by x x.
5. The x x is a x x of the x x x.

II. In the following sentences find adjectives and adverbs, name their features and define their meanings.

1. With the rapid growth of the Internet there have been significant changes and improvements in online searching. 2. They include a broad and diverse existence of both information retrieval systems and various interfaces and functions. 3. Participants held neither highly positive nor highly negative perceptions about the Web of Science

interface. 4. The systems have been used almost exclusively by the experts for several reasons. 5. Most security problems are intentionally caused by malicious people trying to gain some benefit, get attention or harm someone. 6. Network security problems can be divided roughly into four closely intertwined areas.

2.5.2. Прилагательные и наречия, совпадающие по форме, а также наречия, имеющие две формы

Прилагательное	*Наречие*	*Наречие*
daily – ежедневный	***daily*** – ежедневно	
early – ранний	***early*** – рано	
far – далекий	***far*** – далеко	
fast – быстрый	***fast*** – быстро	
little – маленький	***little*** – мало	
long – длинный, долгий	***long*** – долго	
weekly – еженедельный	***weekly*** – еженедельно	
free – бесплатный	***free*** – бесплатно	***freely*** – охотно, свободно
hard – усердный, упорный	***hard*** – усердно, упорно	***hardly*** – едва ли, почти не
high – высокий	***high*** – высоко	***highly*** – очень, чрезвычайно
last – последний	***last*** – после всех	***lastly*** – наконец
late – поздний	***late*** – поздно	***lately*** – недавно
loud – громкий	***loud*** – громко	***loudly*** – громко
near – близкий	***near*** – близко, около	***nearly*** – почти, приблизительно

I. Compare the words in bold type by form and meaning, define their similarities and difference.

1. a) The fundamental discoveries in this new science were made **nearly** twenty years ago. b) Most scientists expect that major developments in the **near** future will take place in electronics.

2. a) This course of investigation will **hardly** suit our purpose. b) He tried **hard** to cope with his new job.

3. a) This implies that new types of calculations and **high** processing speeds can be achieved. b) A neural network is a group of **highly** interconnected simple processing elements, designed to mimic the brain.

4. a) These weakly-bound electrons can move about in the crystal lattice relatively **freely**. b) Invite companies to contact you for a **free** consultation.

5. a) Most supercomputers have a very large storage capacity, as well as a very **fast** input/output capability. b) CAD programs perform drawing functions very **fast**.

II. Explain the way of word formation of the adjectives and adverbs. Give their Russian equivalents:

a) compatible, accessible, responsible, visible; b) inventive, sensitive, effective, selective, prospective, relative, intuitive, cognitive, attractive; c) available, reasonable, vulnerable, valuable, detectable, portable, applicable, predictable; d) dangerous, various, malicious, obvious; e) considerably, highly, primarily, accordingly, relatively, hardly.

III. Give the Russian equivalents of the following word-combinations.

Radioelectronic devices; complex equipment; reliable security; optical connections; remote site; mobile system; wireless channel; effective protection; computational process; modern electronic products; advanced technological process; new diagnostic equipment; programmable functional devices.

IV. Give the Russian equivalents of the following sentences.

1. Usability design session has become an essential component of any web design project. 2. People will definitely look through your product pages. 3. The means are mainly provided by cryptography. 4. For the first few decades of their existence, computer networks were primarily used by university researchers for sending email and by corporate employees for sharing printers. 5. All these issues occur in traditional systems too, but with some significant differences. 6. Link encryption can be added to any network easily and is often useful. 7. There were no significant differences between the two groups in time taken or search terms used.

2.5.3. Степени сравнения прилагательных и наречий

Сравнительная степень

Прилагательное	***Наречие***
1 x***er***[1] x ↓ более + прилагательное (какой?) fast***er*** access – ***более*** быстрый доступ	**1** x***er***[1] ↓ более + наречие (как?) или наречие с суффиксом -е (-ее) fast***er*** – ***более*** быстро, быстр***ее***
2 ***more*** x[2] x ↓ более + прилагательное (какой?) ***more*** correct prediction – ***более*** точный прогноз	**2** ***more*** x***ly***[2] ↓ более + наречие (как?) или наречие с суффиксом -е (-ее) ***more*** correctly – ***более*** *правильно*, *правильн****ее***

[1] Односложные прилагательные/наречия; двусложные прилагательные, оканчивающиеся на ***-er***, ***-ly***, ***-e***, ***-w***/двусложное наречие early.

[2] Двусложные прилагательные (кроме тех, что указаны в сноске 1), многосложные прилагательные; двусложные наречия и наречия с суффиксом ***-ly***.

Некоторые прилагательные в сравнительной степени теряют значение сравнения: high**er** education – высшее образование upp**er** level – верхний уровень low**er** level – нижний уровень the form**er** – первый (из упомянутых) the latt**er** – последний (из упомянутых)

Превосходная степень

Прилагательное	***Наречие***
1 the x***est***[1] x ↓ самый (наиболее) + прилагательное (какой?) the fast***est*** access – ***самый*** быстрый доступ	**1** x***est***[1] ↓ наречие с суффиксом -е (-ее) + всего (всех) fast***est*** **–** быстр***ее всего (всех)***
2 the ***most*** x[2] x ↓ самый + прилагательное (какой?) ***the most*** correct prediction – ***самый*** точный прогноз	**2** ***most*** x***ly***[2] ↓ наречие с суффиксом -е (-ее) ***most*** correctly – *правильн**ее всего (всех)***

[1] Односложные прилагательные/наречия; двусложные прилагательные, оканчивающиеся на ***-er***, ***-ly***, ***-e***, ***-w***/двусложное наречие early.

[2] Двусложные прилагательные (кроме тех, что указаны в сноске 1), многосложные прилагательные; двусложные наречия и наречия с суффиксом ***-ly***.

I. Find the adjectives and adverbs in the a) comparative degree and b) superlative degree. Name their features. Model these sentences.

a) 1. X x x is more xly x.
2. One x x may x xly xer than x.
3. X x is for xer x and x x x.
4. More x x of a x x x is its x.
5. These xs are more x than those xs.

b) 1. The x is the most x x x.
2. The x x the most x x of x.
3. The xest x in x x is x.
4. A x x the xest x to x x and x x.
5. Xs are most xly x.

II. In each line find the word-combination

a) With an adjective or adverb in the comparative degree:

1) a layer; more permanent; the most common; the server;

2) the disk controller; outer space; a thinner layer; a previous layer;

3) the common emitter circuit; a power amplifier; the most powerful computer; more detailed local forecasts;

4) the former computer; upper limit; laser diode; a thicker layer;

5) more easily installed; may easily gain access; relatively easy; d) very easy;

6) other devices; under increasing competition; supercomputer maker; more quickly replaced.

b) With an adjective or adverb in the superlative degree:

1) most hard disks; the hardest materials; most materials;

2) the most heat-resistant materials; more computing power; most of the electron flow;

3) smaller electrical circuits; the earliest method; most research programs;

4) newer technology; most personal computers; the nearest telephone switching facility;

5) ever more powerful microcomputers; most notably; easily recognizable; most of the advances;

6) by most definitions; mostly mechanical; for most computational tasks; most widely used.

III. Compare the words in bold type by form and meaning, define their similarities and differences.

1. a) **The latter** procedure is much more complicated than the former one. b) In **the later** evolution of multichannel fiber transmission systems, two distinct methods of multiplexing data have been introduced. c) Wi-Fi's **latest** version is many times faster than DSL or cable connections.

2. a) Another **common** artificial intelligence application for multiprocessing was chess. b) Home burglar alarms, smoke detectors, and automobile alarms are three of **the most common** types of warning systems. c) Digital systems are much easier and smaller to design than comparable analogue circuits. This is one of the main reasons why digital systems are **more common** than analogue. d) Personal computers are now **commonly** equipped with dedicated video memory for holding high-resolution bit maps.

3. a) Wide-area networks connect computers and smaller networks to **larger** networks over greater geographic areas, including different continents. b) **The largest** wide-area network is the Internet. c) Organizations that have **large** amounts of printed information are working to transfer their information into databases. d) Although in principle these were general-purpose computers, they were still **largely** restricted to doing tough mathematical problems.

Прилагательные и наречия, которые образуют степени сравнения не по правилу

bad – плохой ***badly*** – плохо	***worse*** – более плохой, хуже	(***the***) ***worst*** – самый плохой, хуже всего

good – хороший ***well*** – хорошо	***better*** – более хороший, лучше	(***the***) ***best*** – самый хороший, лучше всего
much/***many*** – много	***more*** – больше, более	(***the***) ***most*** – больше всего
little – маленький, мало	***less***/***lesser*** – меньше, менее	(***the***) ***least*** – наименьший, меньше всего ***at least*** – по крайне мере
late – поздний, поздно	***later*** – более поздний, позднее	(***the***) ***last*** – последний, прошлый (***the***) ***latest*** – самый последний, самый поздний
far – далёкий, дальний; далеко	***farther*** – более отдалённый, дальше (о расстоянии)	(***the***) ***farthest*** – самый далекий, дальше всего
far – далёкий, дальний; далеко	***further*** – дальнейший, добавочный	(***the***) ***furthest*** – самый дальний; самый долгий; дальше всего

IV. Define the similarities and differences of the words in bold type. Give their Russian equivalents.

1. a) A **less powerful** laser reads back the pictures, sound or information. b) A pure silicon crystal is nearly an insulator – very **little** electricity will flow through it. c) This is **the least** important fact. d) Every user should know at **least** something about firewalls.

2. a) The **later** appearance of recordable CDs and DVDs further increased multimedia capabilities for PCs. b) They are convinced that they will be able to learn how to use the **latest** technology. c) Pulsars, believed to be rapidly rotating neutron stars, were discovered **later** in the decade.

3. a) These tiny silicon wafers are designed for **many** specific operations. b) Fiber-optic cables carry many times **more** information than copper wires can. c) Among the **most** advanced integrated circuits are the microprocessors, which control everything from computers to cellular phones to digital microwave ovens. d) Digital compression technology is **more** easily adaptable.

V. Give the Russian equivalents of the following sentences.

1. Physical consistency is essential for better orientation and effective site navigation. 2. Users aren't interested in the most reasonable and sound solution to their problem. 3. E-commerce can be called the most effective way of trading. 4. New networks must meet the growing demand for faster transmission speeds. 5. The independent system is the most widely-spread type of distributed system. 6. The most common form of intrusion detection system today relies on signature-based detection. 7. Often the most difficult step in program development is the debugging stage.

2.5.4. Усиление степеней сравнения прилагательных[1]

1 ***Even/much/far/still/ a bit*** x***er*** x ↓ *ещё/намного/гораздо/немного* + прилагательное (какой?) ***far*** better results – гораздо лучшие результаты ***a bit*** fast***er*** device – немного более быстрое устройство
2 ***Even/much/far/still/ a bit more*** x x ↓ *ещё/намного/гораздо/немного* + более + прилагательное (какой?) ***much more*** advanced methods – намного более передовые методы
3 ***by far/far/much*** x***est*** x / ***by far/far/much the most*** x x ↓ *значительно, намного, гораздо* + прилагательное с суффиксом -е (-ее) (какой?) ***by far the most*** *demanding* – ***намного*** *требовательнее* ***(всех)***

I. Give the Russian equivalents of the following sentences.

1. ***Far easier*** access to knowledge has been made by computerized indexes of scientific and technical journals. 2. Cable modems are ***much more complex*** than standard analog modems. 3. This might sound fantastic, but a scientist is looking for ***by far the most innovative*** solutions. 4. In this paper we focus on the main principles and approaches for ***far more effective*** web design. 5. The transistor replaced the ***much bulkier*** vacuum tube in radios, in computers, and in many scientific instruments. 6. The technology makes it possible to store vast amounts of data in ***much smaller*** devices than is currently possible.

2.5.5. Сравнительные конструкции

1 ***as*** + прилагательное (наречие) в положительной степени + ***as***	такой же …как, так же … как	This rule is ***as*** important ***as*** the above one.
2 ***as*** + прилагательное (наречие) в положительной степени + ***as*** + ***числительное***	равняется, составляет, доходит до	Boiling continued for ***as*** long ***as 80*** hours.
3 ***not so*** + прилагательное (наречие) в положительной степени + ***as***	не такой … как, не так … как	Old enterprises were usually ***not so*** spacious and well-equipped ***as*** new ones.

[1] Усиление степеней сравнения наречий образуется по тем же правилам, что и у прилагательных: ***still (yet)*** eas***ier*** – еще быстрее, ***much the*** fast***est*** – намного быстрее всех.

4 прилагательное (наречие) в сравнительной степени + ***than***	чем	Modern desktop personal computers are many times more powerful ***than*** the huge computers of the 1960s and 1970s.
5 ***The*** + прилагательное (наречие) в сравнительной степени … + ***the*** + другое прилагательное (наречие) в сравнительной степени ***the*** ... ***the***	чем … тем	***The*** less intuitive is the navigation, ***the*** more willing are the users to leave the web-site.

I. Choose the sentences where the comparative constructions have the following meanings: a) такой же … как; b) не такой … как; c) чем; d) чем … тем.

1. Their operating system is considered by many people to be a better product than Microsoft's. 2. The better you manage to provide users with a sense of visual hierarchy, the easier your content will be to perceive. 3. Operating systems are as old as electronic computers. 4. The better sense of orientation users have, the more trust they can develop toward the company the site represents. 5. There are several advantages in making computers as small as one can. 6. The bigger the mass, the bigger the weight of the body. 7. The new machines were smaller and less expensive than earlier models. 8. These engines are not so powerful as those motors.

II. Explain the way of word formation of the following words. Give their Russian equivalents.

Optical, optoelectronic, application, conversion, effective, interference, performance, processing, storage, transmission.

III. Arrange in pairs the words with similar meaning.

Include, concentrate, displace, handle, comprise, allow, combine, replace, get, permit, unite, obtain, focus, process.

IV. In the text of task V find the word derived from the verb to* communicate. *Name other derivatives of this verb.

V. The read the title of the text and say what the text might be about.

Optical Computing: Still far into the Future?

1. Optoelectronics is a field of technology that combines the physics of light with electricity. It includes fiber optic communications, laser systems, electric eyes, remote sensing systems, medical diagnostic systems and optical information systems. Optoelectronics encompasses the study, design and manufacture of hardware devices that convert electrical signals into photon signals and vice versa. Photons are electromagnetic minute separate pulses. Radio waves, infrared rays, ultraviolet rays, X-rays, and gamma rays all consist of photons. Any device that operates as an electrical-to-optical or optical-to-electrical transducer is considered an optoelectronic device.

2. In most modern computers, electrons travel between transistor switches on metal wires to gather, process and store information. The optical computers of the future will instead use photons travelling on optical fibers or thin films (i.e. thin polymer films for electro-optic applications obtained by means of a laser beam) to perform these functions. But entirely optical computer systems are still far into the future. Right now scientists are focusing on developing electronic-optical hybrids such as electro-optic computers by combining electronics with photonics.

3. In the optical computer of the future, electronic circuits and wires will be replaced by a few optical fibers and films, making the systems more efficient with no interference, more cost effective, lighter and more compact. And faster, too. The thin films allow us to transmit using light.

VI. Choose the sentences from the text to answer the question in the title.

VII. Read the second sentence of passage 1 and divide it into sense groups. Define the dependency relations between them.

VIII. Look through passage 1 and find the definition of the optoelectronic device.

IX. Translate passage 1 into Russian.

X. Compress the second sentence of passage 2 and define the functions of its constituent elements. Make a brief summary of the whole passage.

XI. Answer the questions below.

1. What does optoelectronics comprise?
2. What are photons and where can they be found?
3. What differs optical computers from modern ones?
4. What are scientists working at now?

XII. Read passage 3 and name the advantages of the optical computer of the future.

XIII. Express your opinion on the text.

2.6. Имя существительное как определение левое (именное словосочетание: N+N)

Существительных в роли определения к другому (главному) существительному может быть несколько. Если после артикля (или другого определителя существительного) стоит ряд слов, чаще всего существительных в единственном числе и без предлога, то только ***последнее*** из них будет тем словом, к которому относится артикль и с которого надо начинать перевод этого словосочетания, мысленно ставя после него вопрос *какой*? Все остальные слова являются его определениями.

These error recovery ***techniques*** are well known.	***Эти методы*** исправления ошибок хорошо известны.

Словосочетание, состоящее из трёх слов, среднее из которых может быть прилагательным, причастием (Participle I или Participle II) или герундием, следует также начинать переводить с ***последнего*** слова и продолжать в ***строго***

обратном порядке, причем при переводе должна быть соблюдена грамматическая форма среднего слова, например:

the rock-***feeding*** system (feeding – Participle I)	система, ***подающая*** горную породу
a water-***cooled*** conveyor (cooled – Participle II)	конвейер, ***охлаждаемый*** водой
the job ***scheduling*** problem (scheduling – Gerund)	проблема ***планирования*** (составления графика) работ

Признаки границ именного словосочетания

Признаки ***начала*** именного словосочетания	Признаки ***конца*** именного словосочетания
артикль, предлог*:** ***a basic fibre-optic system	***артикль, предлог*:** The mobile application ***the*** designer is to install … The rapid current growth ***during*** this process is …
местоимение* (*притяжательное, указательное, неопределённое, отрицательное*):** ***these cellular radiophones	***личное местоимение* (*в общем падеже*):** The computer network ***we*** consider …
числительное: ***three*** common features	–
–	***глагол в личной форме:*** Computer models ***are*** .../***work*** ...
союз*:** We know ***that computer models are…	***союз*:** Computer-controlled machines ***that …***
неличные формы глагола*:** ***To define information access time it is necessary …	***неличные формы глагола*:** Personal computers ***involving*** …

Примечание. Союзы ***and*** или ***or*** обычно не прерывают словосочетание: communications ***and*** data link – линия связи ***и*** передачи данных.

I. Give the Russian equivalents of the following noun phrases:

a) fabrication process; application area; technology supplier; telecommunication line; image transmission; computer design; signal processing; security support; transmission channel; design software; design activity; information carrier; amplitude modulation; light signals; process control equipment;

b) data system – data exchange system; technology transfer – technology transfer agreement; telecommunication service – telecommunication service request; computer systems – computer systems design; control system – microprocessor control system; access time – information access time; computer-aided design – computer-aided design tools.

II. Define the boundaries of the noun phrases in the following sentences.

1. An analog transmitter sends the electronic signals as modulated radio waves. 2. You can determine your IP address and then use a special database to get the location of your city. 3. Wide area wireless data services provide wireless data to high-mobility users over a very large coverage area. 4. Computer animation has been used to visualize large quantities of data in the study of interactions in complex systems, such as fluid dynamics, particle collisions and the development of severe storms. 5. The transceiver inside a cellular phone is a much more complex device than a conventional phone. 6. The most important fields of research in this area are information processing, pattern recognition, game-playing computers and applied fields such as medical diagnosis. 7. Products for enhanced communication services such as data, electronic mail, high resolution digital video or even full multimedia communication entered the market.

III. Give Russian equivalents of the following sentences.

1. Bluetooth radios provide short-range connections between wireless devices along with rudimentary networking capabilities. 2. Wireless communication is the fastest growing segment of communications industry. 3. The evolutionary development of such systems is focused towards larger capacity, better quality, more bandwidth, wider coverage, lower power consumption and more services. 4. Cellular phones provide two-way voice and data communication with regional, national or international coverage. 5. The explosive growth of wireless systems coupled with the proliferation of laptop and palmtop computers indicate a bright future for wireless networks. 6. These systems provide high speed data access to the Internet, the WWW, and high speed data networks for both homes and businesses.

IV. Explain the way of the word formation of the following nouns. Give their Russian equivalents:

a) transmitter, receiver, transceiver, transducer, carrier, researcher, hacker;
b) measurement, development, improvement, agreement, requirement, equipment;
c) connection, protection, evaluation, modulation, communication, fluctuation;
d) compatibility, accessibility, reliability, credibility, memorability, availability.

V. Arrange in pairs the words with similar meaning.

Include, travel, convert, employ, deliver, consist, code, use, infinite, encrypt, transform, limitless, crucial, sent, propagate, critical.

VI. In the text of task VII find the word derived from the verb to **convert.** ***Name the other derivatives of this verb.***

VII. Look through the text and answer the following question: **What does a communications system include?**

Communication: Basic Concepts

1. We use a variety of communications systems to relay information: once a signal has left a transmitter, the impulses travel, or propagate, in a cable, optical fiber, or space. After this information coded in an electronic or electrical signal is received, it can be decoded or converted back into its original form. A communications system

consists of an information source, a transmitter, a receiver, a destination, and of course a channel to deliver the information.

2. Information in the form of sound or visual images is processed into electrical signals by a transducer. A transducer is a device that converts one form of energy into another form of energy. A microphone, converts your voice – sound or acoustical energy – into electrical energy, or in more familiar terms, an electrical signal. A speaker, also a transducer, can convert signal back into your voice. Transducers are the core of our communications system.

3. Many communications devices, such as telephones, video cameras, and microphones, are analog devices that create and process analog information. Analog signals can have a theoretically infinite number of states. An analog signal can be represented as a series of sine waves. The term originated because the modulation of the carrier wave is «analogous» to the fluctuations of the human voice or other sound that is being transmitted. A digital signal, in contrast, is a noncontinuous stream of on/off pulses; to exchange information, a digital system uses binary language, i.e. two numbers, 1 and 0, arranged in different codes.

4. Digital and analog signals, and ultimately equipment and systems, are generally not mutually compatible, hence, the use of analog-to-digital and digital-to-analog conversion processes. They help us to use a mixed bag of analog and digital equipment in the overall communications system. This capability is crucial.

VIII. Read passages 1 and 2 of the text. Compress the sentences of these passages and make a short summary of them using the compressed sentences.

IX. Look through passage 1 and define the connectors between its sentences.

X. Read the second sentence of passage 3 and divide it into sense groups. Define the dependency relations between them.

XI. Answer the questions below.

1. What is a transducer used for?
2. What analog devices are mentioned in the text?
3. How can an analog signal be represented?
4. What is the origin of the word «analogous»?
5. What differs an analog signal from a digital one?
6. Which processes are used to overcome the problem of incompatibility of analog and digital signals?

XII. Say whether the following statements are true (T) or false (F). Correct the false ones.

1. A speaker converts your voice into an electrical signal.
2. Transducers are the main part of a communication system.
3. A digital signal can be represented as a continuous stream of pulses.
4. In an analog system 1s and 0s are arranged in digital codes.
5. In general digital and analog devices and systems are incompatible.

XIII. Translate passages 3 and 4 into Russian.

2.7. Неличные формы глагола как определение левое: причастие активное (пал), причастие пассивное (ппл), герундий

2.7.1. Признаки распознавания причастия I (Participle I) и герундия (Gerund)

Причастие I	*Герундий*
1 x***ing*** x[1] ↓ перед существительным a process***ing*** device → устройство ***какое?*** → обрабатывающее (действие выполняется самим предметом: a device that is processing)	**1** x***ing*** x[1] ↓ без предлога, если стоит перед определяемым словом process***ing*** speed → скорость ***какая?*** обработки = скорость обработки (предназначение: speed for processing)
–	**2** preposition x***ing*** x[1] ↓ после предлогов ***of***, ***about***, ***for***, ***in***, ***at*** the process of provid***ing*** technical support → процесс ***какой?*** = обеспечения технической поддержки

[1] Существительное может выполнять функцию субъекта (с), объекта (о), дополнения с предлогом (дп), определения родительного (ор).

I. Find Participle I and the Gerund. Name their features. Model these word-combinations. Instead of Participle I Active and Gerund use the verb «делать» in appropriate form:

1) a x x xing x;
2) the xing x;
3) a x x of xing the x;
4) the x ing x of x;
5) the xing x x x;
6) the x of xing x.

II. Define the similarity and differences of the words in bold type, give the Russian equivalents of the word combinations below.

Working people – **working** principles, the **living** organism – **living** standards, a **writing** woman – a **writing** table, a **smoking** man – a **smoking** carriage, a **consulting** specialist – a **consulting** room, **boiling** water – a **boiling** point, a **reading** student – a **reading** hall.

III. Give the Russian equivalents of the following word combinations below.

Coding system; switching process; operating devices; modeling environment; wiring pattern; speed-enhancing algorithm; speed-limiting device; problem solving technique; increasing productivity.

IV. Define the features of Participle I and the Gerund in the function of an attribute.

1. The resulting need for multiple studies is one of the reasons why we recommend making individual studies fast and cheap. 2. The mobile industry is the fastest growing industry in the world. 3. We'll look at the value of maintaining schedules with Gantt charts. 4. We have studied the existing solutions that allow the development of mobile cross-platform applications. 5. In fact the development and use of mobile banking and financial services is one of the areas when the developing world has surpassed the developed world. 6. Functional hardware development is another expanding industry that needs bright, talented engineers.

V. Give the Russian equivalents of the following sentences.

1. The increasing use of smartphones and tablets as opposed to PCs is boosting overall time spent online. 2. FM radio systems have a special method of modulating the carrier. 3. The next generation of smartphones is going to be context-aware, taking advantage of growing availability of embedded physical sensors and data exchange abilities. 4. Software engineering is a rapidly growing industry in today's high-tech economy. 5. A system of maintaining standards is important for every stage of the development process. 6. The analyst's job is to examine existing systems and identify opportunities for improvement. 7. A current is created in the receiving antenna that travels down into receiver.

2.7.2. Признаки распознавания Participle II (причастие пассивное) и Past Simple (прошедшее время)

Причастие пассивное	***Прошедшее время***
1 x***ed*** x[1] ↓ перед существительным → причастие пассивное левое (ппл) → какой? = сделанный an ***invented*** device – ***изобретённое*** устройство **2** x[1] x**ed** ↓ после существительного → причастие пассивное правое (единичное) → какой? = сделанный The methods us**ed** help**ed**[2] to decrypt the files. – ***Использованные*** методы ***помогли*** расшифровать файлы.	**1** X x***ed*** ↓ после субъекта → сказуемое (СК) = кто делал, сделал? The scientist ***invented*** a device. – Ученый ***изобрёл*** устройство.

[1] Существительное может выполнять функцию субъекта (с), объекта (о), дополнения с предлогом (дп), определения родительного (ор).

[2] Если в предложении стоят рядом две формы с окончанием ***-ed***, то первая из них, как правило, – причастие II (определение правое), а вторая – глагол в прошедшем времени (сказуемое).

Но:

Yesterday he demonstrat**ed** improv**ed** mechanisms. Вчера он ***продемонстрировал*** ***улучшенный*** механизм.

На русский язык причастие II (пассивное) единичное, стоящее справа от существительного, переводится ***левым*** определением.

I. Find Participle II and name its features. Model these sentences. Instead of Participle II Passive use the verb «делать» in the appropriate form.

1. The xed x xed xx.
2. The x xed xed to the x of the x xed.
3. The x xed xed the x x.
4. The xed x was xed in the xx.
5. The x of the x xed xed x of many x.

II. Compare the words in bold type by form and meaning, define their similarities and differences.

1. The technique **employed used** a single probe. 2. They **employed** a new type of robot. 3. The designers **used** different techniques to eliminate interception attacks. 4. The **encrypted** message contained sensitive information. 5. They **encrypted** the data to provide more security. 6. Moving across foreign domains resulted in **increased** risk to user information. 7. Computer viruses **increased** the vulnerability of an operating system. 8. The research **conducted contributed** to the solution of the problem **investigated**. 9. The scientists **conducted** a series of tests to prevent hackers' attacks.

III. Find Participles II in the function of an attribute, name their features and give their Russian equivalents.

1. Each Web document contains coded information about what is on the page. 2. A proposed adjustment or correction to the baseline should only be made if it is absolutely necessary. 3. The reason for the required login should be made clear. 4. Integration of security features into mobile devices must take into account applicable restrictions such as a small pocket size, low bandwidth, limited processing and storage resources. 5. The solution of the problem required the concentrated efforts of many designers. 6. Encryption doesn't protect against users transferring restricted data to insecure media such as email, flash drives or mobiles.

IV. Give the Russian equivalents of the following noun phrases.

Predefined process; produced devices; computerized analysis; modified function; increased pressure; problem-oriented database; parameter-oriented model; model-based analysis; model-based expert system; modified frequency system; diagnostic-related group; effective-radiated power; speed-controlled motor; Internet-enabled system; computer-supported work; computerized information retrieval system.

V. Give the Russian equivalents of the following sentences.

1. The substance obtained contained some admixtures. 2. Then we discussed the quality of the machine tested. 3. The equipment produced is of high quality. 4. The device invented showed good performance. 5. The complexity of the technique involved increased considerably. 6. The results achieved confirmed the theoretical assumptions. 7. The investigation carried out provided both decryption keys and decryption applications. 8. Engineers should wait for the manager to officially accept proposed changes before implementing them.

2.7.3. Инфинитив в функции определения

1 X **<u>to x</u>** **/<u>to be x*ed*</u>**

↓

после определяемого существительного → инфинитив в действительном/ чаще страдательном залоге (Infinitive Active/Passive) → какой? = который нужно сделать/который будет делаться[1]

The problem ***to consider*** next is concerned with data transmission.	a) Проблема, которую ***нужно рассмотреть*** далее, касается передачи данных. b) Проблема, которая ***будет рассматриваться*** далее, касается передачи данных.
The terms ***to be insisted*** on are as follows.	a) Условия, на которых ***надо настаивать,*** заключаются в следующем. b) Условия, на которых ***будут настаивать,*** заключаются в следующем.

2 **<u>to x/ to be x*ed*</u>**

↓

после порядковых числительных (***the first***, ***the second***) или прилагательного ***the last*** → инфинитив в действительном или страдательном залоге (Infinitive Active/Passive) = заменяет придаточное определительное.

He was ***the first*** *to answer* the question. (He was the first who answered the question.)	Он ***первым ответил*** на вопрос.
His was ***the last*** test ***to be checked***. (His was the last test which was checked.)	Его тест ***проверили последним***.

[1] Инфинитив в функции определения заключает в себя модальный оттенок долженствования, возможностей (иногда желания) (a) или передаёт будущее время в зависимости от ситуации и переводится на русский язык определительным придаточным предложением, с оттенком значения, указанным выше (b).

I. Find the Infinitive and name its features. Model these sentences.

1. The x to be xed xs on the x.
2. The x to be xed is xed on x x of the x.
3. The x was the x to be xed in x.
4. The x to x is xed with x x.
5. The x was the first to x the x.

II. Give the Russian equivalents of the following word combinations. Define what the attribute is expressed by.

The problem to be solved; the remark made; the new technology to be introduced; the theory to be considered; the tested equipment; the tool to be used; the distance travelled; the message sent; the experiment to be carried out; the software developed.

III. Define the features of the Infinitive in the function of an attribute. Give the Russian equivalents of the following sentences.

1. The procedure to be followed depends upon the substance being tested. 2. We observed the evaporation of water, a phenomenon to be more fully described later. 3. The method to be followed is based upon some peculiar properties of these rays. 4. Here are some more figures to be referred to later. 5. Alpha-radiation was the first radiation to be studied in detail. 6. There was only one signal to be detected. 7. There are some other properties of a metal to be considered at this point.

IV. Give the Russian equivalents of the following nouns, pay attention to the meanings of the words from which they are derived.

Insulation (insulate – изолировать); measurement (measure – измерять); transmission (transmit – передавать); prevention (prevent – предотвращать; препятствовать); resistance (resist – сопротивляться); carrier (carry – нести).

V. Match each word or word combinations with the correct equivalent.

destination	частота
medium	жила
twisted-pair wire	скручивать
frequency	пропускная способность
avoid	среда, средство
layer	полоса пропускания
strand	адресат информации
twist	избегать
bandwidth	слой, уровень
capacity	витая пара

VI. Arrange in pairs the words and word-combinations with a) similar meaning, b) contrary meaning:

a) ground, immune, repeater station, earth, situate, conventional, non-susceptible, obstacle, locate, obstruction, relay station, common;

b) invisible, inside, wireless, internal, expensive, outside, visible, wired, cheap, external.

VII. In the text of task VIII find the word derived from the verb* to transmit. *Name other derivatives of this verb.

VIII. Read the text and choose the most suitable title:

1. Communications channels.
2. Wireless Communication.
3. Types of Cables.

1. A communications channel is the physical medium, through which information travels from its source to its destination. A communications channel is rated by its channel capacity or bandwidth and measured in bits per second.

2. ***Cable***. Cable includes twisted-pair wire and coaxial cable. Twisted-pair wire consists of two strands of insulated copper wire, twisted around each other and covered in another layer of plastic insulation. Much of the world is served by twisted-pair wire, both for voice messages and for modem-transmitted computer data. Coaxial cable consists of insulated copper wire wrapped in a metal shield, then in an external cover. The shield is grounded and prevents the cable from picking up or emitting electrical noise, thus, coaxial cable is much better at resisting noise than twisted-pair wiring.

3. ***Fiber-optic cable***. Unlike cables that carry data as electrical signals at radio frequencies, fiber-optic (FO) cable uses infrared or visible light to transmit information as laser-generated pulses of light. It carries much more signals than conventional copper wire, which makes transmission of information faster and less expensive than copper wire transmission, and is totally immune to electromagnetic interference.

4. ***Wireless communication***. There are many situations in which it is difficult to lay wires. Data can be transmitted via electromagnetic waves and satellite links. Microwave earth stations transmit voice and data through the atmosphere as high-frequency radio waves, even if slower than via fiber-optic cable. As microwave signals travel in a straight line from source to destination, to avoid obstructions and the curvature of the earth, they need to be beamed several times by repeater stations situated on top of high places so that the antennas are in line of sight of each other, or by communications satellites. At very high frequencies (VHF) and above, many communications circuits use satellites in geostationary orbits (GEO) around the earth.

IX. In passage 1 find the definition of a communications channel and its main features.

X. Look through passage 2 and explain the difference between twisted-pair and coaxial cable.

XI. Read passage 3 and name the advantages of fiber-optic cable as compared to copper cable.

XII. Read the second sentence of passage 4 and divide it into sense groups. Define the dependency relations between them.

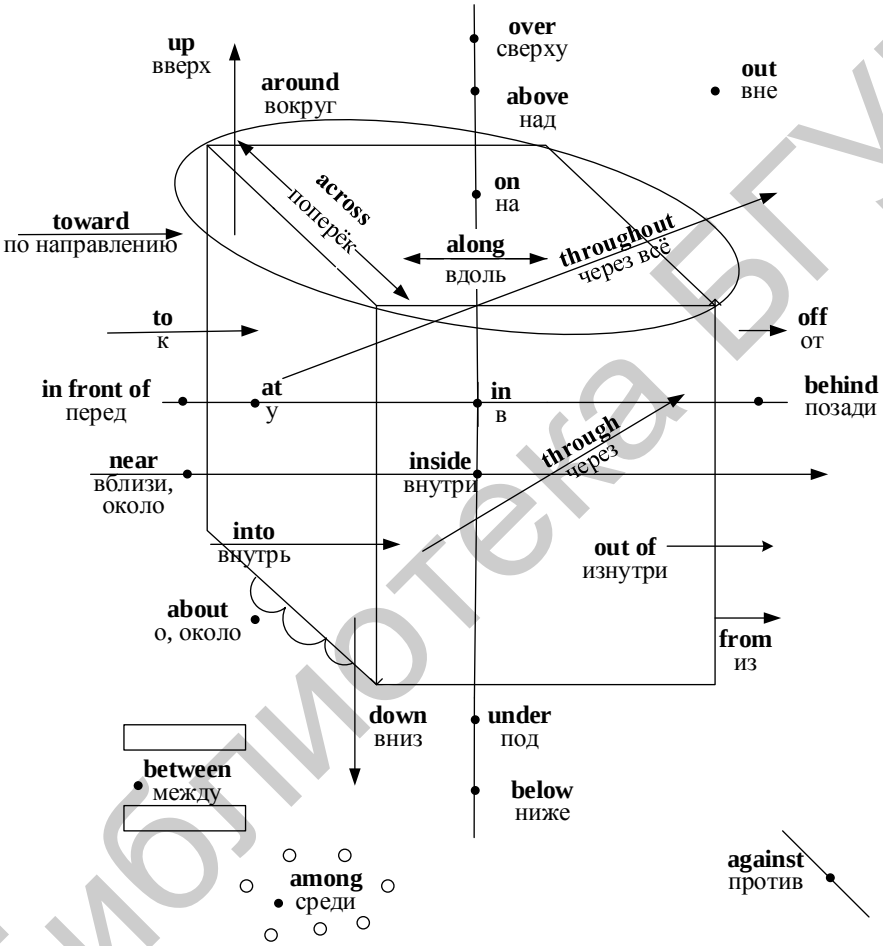
XIII. Say whether the following statements are true (T) or false (F). Correct the false ones.

1. Twisted-pair wire is used only for transmitting voice messages.
2. Coaxial cables are more susceptible to electromagnetic interference.
3. Fiber-optic cables are used to transmit data in the form of electric pulses.
4. Wireless communication is greatly influenced by obstacles, so microwave signals need amplification.

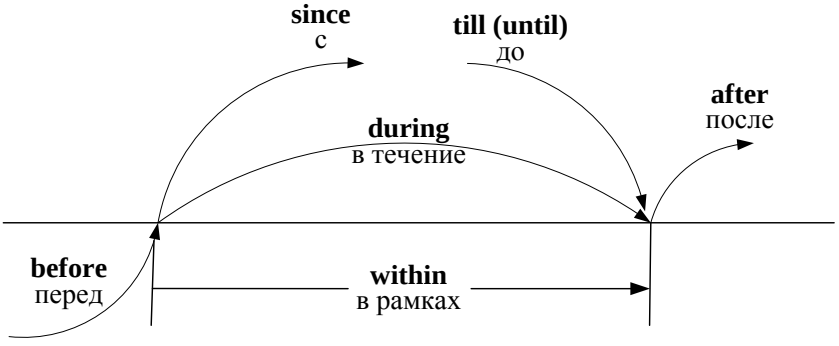
XIV. Translate passage 4 into Russian.

2.8. Предлоги

2.8.1. Предлоги, указывающие на местоположение



2.8.2. Предлоги, указывающие на время



Запомните значение следующих предлогов	
FOR	ДЛЯ
BY	(ЧЕМ)
WITH	С
WITHOUT	БЕЗ
AS	КАК
OF	(ЧЕГО, КОГО)
ON = UPON	НА

I. Define the meaning of the prepositions choosing the correct variant.

1. toward:	a) от	b) по направлению к	c) через	d) между	e) без
2. out of:	a) на	b) среди	c) изнутри	d) под	e) над
3. down:	a) из	b) в течение	c) вверх	d) вниз	e) около
4. through:	a) вдоль	b) через	c) между	d) от	e) до
5. from:	a) после	b) над	c) среди	d) на	e) от
6. up:	a) ниже	b) вверх	c) под	d) внутрь	e) поперек
7. around:	a) сверху	b) в	c) вокруг	d) ниже	e) через всё
8. between:	a) под	b) в течение	c) до	d) между	e) позади

II. In each line find prepositions of place and give their Russian equivalents.

1. a) till	b) near	c) out of	d) from	e) between	f) at
2. a) among	b) since	c) before	d) up	e) throughout	f) under
3. a) from	b) to	c) behind	d) after	e) within	f) till
4. a) during	b) through	c) above	d) into	e) at	f) toward
5. a) within	b) after	c) across	d) over	e) down	f) to
6. a) against	b) before	c) at	d) off	e) without	f) for
7. a) by	b) for	c) below	d) on	e) out of	f) with
8. a) since	b) along	c) of	d) for	e) through	f) in

III. In each line find prepositions of time and name their Russian equivalents.

1. a) since	b) across	c) over	d) from	e) at	f) into
2. a) against	b) down	c) to	d) till	e) toward	f) near
3. a) up	b) during	c) through	d) around	e) between	f) out of
4. a) off	b) among	c) into	d) before	e) above	f) without
5. a) after	b) under	c) among	d) throughout	e) to	f) with
6. a) across	b) behind	c) along	d) until	e) of	f) below
7. a) into	b) during	c) on	d) over	e) below	f) among
8. a) within	b) between	c) behind	d) down	e) out	f) against

IV. Choose the preposition the translation of which is given at the beginning of each line.

1. в течение:	a) around	b) near	c) behind	d) on	e) during
2. среди:	a) since	b) through	c) around	d) above	e) among
3. между:	a) by	b) between	c) for	d) under	e) above

4. через:	a) through	b) within	c) behind	d) up	e) from
5. изнутри:	a) into	b) at	c) after	d) before	e) out of
6. поперёк:	a) against	b) across	c) along	d) between	e) about
7. до:	a) without	b) till	c) after	d) behind	e) at
8. перед:	a) toward	b) before	c) with	d) under	e) below

V. In each line find the preposition similar in meaning to the first one.

1. among:	a) below	b) across	c) between	d) from	e) within
2. through:	a) off	b) throughout	c) toward	d) in	e) before
3. to :	a) from	b) down	c) under	d) toward	e) off
4. under :	a) between	b) near	c) for	d) against	e) below
5. near :	a) over	b) at	c) during	d) along	e) down

2.8.3. Составные предлоги

according to	в соответствии с, согласно
across from	напротив
ahead of	впереди, раньше
along with	наряду, вместе с, одновременно
apart from	помимо, кроме, не считая
as to/as for	что касается
as far as	до
as well	также, тоже
because of	из-за
by means of	посредством, при помощи
close to	рядом с
due to/owing to	благодаря, из-за
except for	за исключением, кроме
in spite of	несмотря на
instead of	вместо
on behalf of	от имени
thanks to	благодаря
up to	до. Указывает: 1) на временной предел (вплоть): ***up to*** now – до сих пор; ***up to*** January – до января; 2) пространственный предел: ***up to*** page fifteen – до пятнадцатой страницы; 3) количественный предел: He has learnt to count ***up to*** a hundred. – Он научился считать до 100.

I. Match each preposition with the correct Russian equivalent.

owing to	согласно
apart from	несмотря на
according to	также
along with	посредством
by means of	что касается
as well	кроме

as for	наряду
because of	благодаря
	вместо
	из-за

II. Choose the sentences in which the words in bold type are prepositions.

1. a) A clear structure, moderate visual clues and easily recognizable links can help users **to** find their path **to** their aim. b) These approaches can lead **to** more sophisticated design decisions and simplify the process of perceiving presented information.

2. a) Access control management systems provide the foundation **for** information security within the business environment. b) Users don't search ***for*** the quickest way to find the information they are looking **for**. c) Strive **for** simplicity instead of complexity. d) **For** wireless networks transmit signals by air, the problems of security are of special concern.

3. a) The slogan becomes functional **as** users are provided with options to try the service and download the free version. b) High-speed routers can serve **as** part of the Internet backbone. c) **As** the idea was false, it was rejected. d) In a digital signal, the information is encoded ***as*** a set of discrete values. e) Obviously, images are more eye-catching than the text – just **as** the sentences marked as bald are more attractive than plain text. f) Such guidelines are extremely effective **as** they lead the visitors through the site content in a very simple and user-friendly way.

4. a) **Since** the visitor of the page is the only person who clicks the mouse and therefore decides everything, user-centric design has become a standard approach for successful web design. b) **Since** the real secrecy is in the key, its length is a major design issue. c) **Since** its introduction mobile telephony has undergone an enormous expansion.

III. Explain the way of word formation of the following nouns and adjectives. Give their Russian equivalents.

Security, performance, reliability, manageability; informative, intuitive, helpful, preferable.

IV. Arrange in pairs the words with similar meaning.

Substantial, eliminate, helpful, launch, essential, refine, start, sophistication, characteristic, useful, remove, feature, complexity, improve.

V. In the text of task VI find the word derived from the verb to* perform. *Name other derivatives of this verb.

VI. Read the text and choose the most suitable title:

1. Windows Vista and other Operating Systems.
2. Windows' Improved Operating System.
3. Microsoft on the World Market.

Windows Vista offers substantial new capabilities in security, performance, reliability, and manageability. Vista is just plain cool and looks beautiful, and the

desktop experience is more informative, intuitive, and helpful. The visual sophistication of Vista helps streamline the computing experience by refining common elements so you can better focus on the content on the screen.

When you start using Windows Vista, you will recognize familiar elements such as the Start menu. The Start menu is now faster, streamlined, and more helpful than in previous versions of Windows.

The Start menu features integrated desktop search through a new feature called Instant Search, which can help you find and launch almost anything on your PC.

The new Start menu also helps you navigate across all of the installed applications on your PC. Microsoft has eliminated the slow-performing, cascading «All Programs» view, so the Start menu can help get things started more quickly. And it is preferable to have a new system with Vista pre-installed.

VII. Read the first sentence of passage 1 and divide it into sense groups. Define the dependency relations between them.

VIII. Read the text and find the key words revealing the principal information of the text.

IX. Look through the text and say what differs a new version of Windows Vista from the previous ones.

X. Say what operating system you use and name its advantages.

XI. Translate passage 1 into Russian.

Итоговый тест

I. Выберите предложения, в которых имеются четыре смысловые группы.

1. The power consumption of mobile devices directly affects their usage time.

2. In the future wireless devices will also offer high-speed Internet access.

3. Authentication protects the service provider from unauthorized intrusion.

4. The radio interface must accommodate bi-directional speech transmission.

II. Заполните пропуски подходящими по форме и значению словами.

5. Another classification of computer networks is based on their ___ topology.

a) physical b) physisist c) physician d) physics

6. The Post Office Protocol (POP) is an application-level protocol that allows a client to download e-mail messages ___ on a server.

a) storage b) stored c) storing d) story

7. The eXtensible Markup Language (XML) is a flexible text format derived from SGML but is now used by a wide variety of ___ that need to exchange structured data.

a) applicable b) applied c) applications d) applicant

8. The most significant ___ of fiber-optic cabling is its enormous capacity compared to copper cabling and mobile services.

a) advantageous b) advantageously c) advantage d) disadvantage

III. Заполните пропуски подходящими по смыслу словами из колонки справа.

9. Multiplexing ___ traffic from multiple devices or people into one stream so that they can share a circuit or path through a network.

10. A web-based interface ___ with many types of computers and operating systems enables enterprises to support software at a central site.

11. Cloud computing customers often use high-speed Internet ___.

12. A network environment is susceptible to a number of security ___.

a) threat
b) combines
c) access
d) compatible
e) availability

IV. Выберите русский эквивалент для каждого английского слова.

13. require	a) увеличивать
14. transmitter	b) приёмник
15. increase	c) кодировать
16. encrypt	d) передатчик
	e) требовать

V. Укажите русское словосочетание, эквивалентное предъявленному английскому:

17. Compatible hardware platforms:

a) совместимые устройства для аппаратных платформ;
b) совместимые платформы аппаратов;
c) платформы с совместимым оборудованием;
d) аппаратное обеспечение совместимых платформ.

18. Open Systems Interconnection architecture:

a) архитектурные решения с открытой системой взаимодействия;
b) архитектура взаимодействия открытых систем;
c) открытые системы взаимодействия архитектуры;
d) взаимодействие открытых архитектурных систем.

19. A particular operating system complexity:

a) особенная операционная система сложности;
b) особенная работающая система сложности;
c) сложность конкретной операционной системы;
d) особенно сложная операционная система.

20. Networks access requirements:

a) сетевой доступ к требованиям;
b) требования доступности сетей;

c) требования для получения доступа в сеть;

d) требования к доступным сетям.

VI. Назовите русское предложение, эквивалентное предъявленному английскому:

21. Some digital communications networks contain one or more routers to transmit information to the correct user.

a) Несколько сетей цифровой связи содержат более одного маршрутизатора, чтобы правильно передавать информацию пользователю.

b) Некоторые цифровые сети связи содержат один или более маршрутизаторов для передачи информации соответствующему пользователю.

c) Любые цифровые сети связи передают информацию нужному пользователю через несколько маршрутизаторов.

d) Цифровые коммуникационные сети включают больше маршрутизаторов, чтобы передавать данные правильным пользователям.

22. Modulation can also be used to transmit information of low-frequency analog signals at higher frequencies.

a) Модуляция, возможно, также использовалась для передачи данных о низкочастотных аналоговых сигналах на высоких частотах.

b) Модуляция может быть использована, чтобы передавать аналоговые сигналы низкой частоты также и на высоких частотах.

c) Модуляция также может использоваться для передачи информации низкочастотных аналоговых сигналов на более высоких частотах.

d) Модуляция к тому же может использовать низкочастотные аналоговые сигналы для передачи данных на гораздо более высоких частотах.

23. Consumers are demanding a better user experience along with more advanced and useful applications on a more ergonomic device.

a) Покупатели требуют более эргономичного устройства с более продвинутыми приложениями наряду с лучшим опытом работы пользователя.

b) Лучший опыт работы пользователя на эргономичном устройстве требует также самых современных и полезных приложений.

c) Более эргономичные устройства с наиболее передовыми и к тому же полезными приложениями пользуются большим спросом у покупателей.

d) Потребители требуют лучшего пользовательского опыта наряду с более усовершенствованными и полезными приложениями на более эргономичном устройстве.

24. Consumer expectations for mobile handsets and similar products are becoming more and more sophisticated.

a) Ожидания пользователей в отношении мобильных телефонов и аналогичных продуктов становятся все более и более требовательными.

b) Пользователи надеются, что мобильные телефоны и похожие продукты станут более и более сложными.

c) Покупатели ожидают дальнейшего усложнения мобильных трубок и аналогичных продуктов.

d) Ожидания потребителей станут все более и более изощренными по отношению к мобильным телефонам и одинаковым с ними продуктам.

VII. Прочитайте текст. Затем изучите утверждения после текста и отметьте: T (true), если утверждение верное; F (false), если утверждение неверное; N (no information), если в тексте об этом не говорится.

Compression reduces the size of video, data, image, and voice files. This decreases the amount of network capacity needed to transmit files. Compression increases throughput without changing the actual speed of the line.

With compression, a song can be downloaded in seconds rather than in minutes because fewer bits will be sent. At the receiving end, compatible compression software or hardware re-creates the compressed chunks into close to or the same image or sound that was sent. Text is recreated exactly as it was before it was compressed so that numeric information or product information is not altered. However, when it is received, compression might re-create video and voice in varying degrees of lower video resolution or voice quality with acceptable, often barely noticeable, alterations.

Compression used with text and facsimile often reduces the amount of data to be transmitted by removing white spaces and by abbreviating the most frequently appearing letters. For instance, repeated letters are abbreviated into 3-bit codes instead of 8-bit codes. In similar fashion, one method of video compression transmits only the changed image, not the same image over and over. In a video conference, nothing is transmitted after the initial image of a person until that person moves or speaks. Fixed objects such as walls, desks and background are not repeatedly transmitted. There are a number of standardized compression algorithms (mathematical formulae used to perform operations such as compression) that enable compressed text and video to be transmitted in a format that can be easily decompressed at the receiving end. The most frequently used compression protocols are:

– various *MPEG* standards are used to compress and decompress audio and video. (MPEG stands for Moving Picture Experts group);
– *MP3* is used for downloading music files iPods;
– Apple's iPod uses *Advanced Audio Coding* (AAC);
– Most Windows-based PCs have *WinZip* compression;
– *Zipit* is installed on Macintosh computers running OS 10.x.x.

25. Compression greatly increases the actual speed of the transmission line.

26. Compressing makes the time for downloading a music file shorter reducing the number of bits to be sent.

27. In case of text compression, no change in the information is observed upon decompression.

28. Unlike compression, multiplexing does not alter the actual data sent.

МОДУЛЬ 3

СЛОЖНОЕ ПРЕДЛОЖЕНИЕ
THE COMPOUND AND COMPLEX SENTENCES

3.1. Сложносочинённое предложение
The Compound Sentence

простое повествовательное предложение (С+СК)	, сочинительный[1] союз	простое повествовательное предложение (С+СК)

[1] Иногда союз может отсутствовать. В таком случае между предложениями ставится точка с запятой.

The fastest desktop computers are called workstations**, and** they are used for scientific, engineering, or advanced business applications.

Millions of people are simultaneously using the Net**;** the most efficient route between a given source and destination can change from moment to moment.

Сочинительные союзы

простые	**составные**
and – и, а	**as well as** – так же как (и), а также
but – но, а, однако	**not only … but (also)** – не только … но (также) и
or – или, иначе	**both … and** – как … так и; и … и
so – поэтому, так что	**either …or** – или … или, либо … либо
yet – однако, тем не менее	**neither … nor** – ни … ни

Для соединения независимых предложений могут употребляться некоторые наречия:

moreover – кроме того, более того	**then** – затем, тогда
nevertheless – тем не менее, однако	**otherwise** – иначе, в противном случае
still – тем не менее, все же, однако	**(or) else** – иначе, в противном случае
besides – кроме того	**therefore** – поэтому, следовательно
furthermore – кроме того, более того, к тому же	**thus** – таким образом, итак
however – однако, тем не менее	

I. Find the compound sentences. Give their Russian equivalents.

1. Facebook was not the first social networking website, but its introduction in 2004 was the most influential in the development of the medium. 2. Network interface cards can be built in or you can use plug-in adaptors. 3. Commercial users can communicate over the Internet with the rest of the world and can do it very cheaply. 4. Fixed-base transceivers, such as those used at police stations, can fit on a

desktop, and hand-held transceivers have shrunk in size as well. 5. Pure or basic research aims to clarify scientific principles without a specific end product in view; applied research uses the findings of pure research in order to achieve a particular commercial objective. 6. We have been using plastic packaging for many years; however, next year we are moving to more environmentally-friendly materials. 7. Most television, radio, and voice communication, however, use the analog system and must be digitized.

II. Explain the role of the comma.

1. Thus, the receiver uses four satellites to compute latitude, longitude, altitude, and time. 2. Semipermanent information storage is also often used for archival purposes, but the media used can be overwritten. 3. With wireless communications people do not need to remain at a fixed location, such as a home or office, but instead can communicate with other people while traveling in a car or walking along a street. 4. The pulses were caused by contact between two metal surfaces, and receivers interpreted these electrical pulses as tones or beeps. 5. A typical LAN consists of two or more personal computers, printers, and high-capacity disk-storage devices called file servers. 6. The speed and power of supercomputers, the fastest class of computer, are almost beyond human comprehension, and their capabilities are continually being improved.

III. Find the sentences with compound conjunctions. Give their Russian equivalents.

1. Telecommunications technologies include both wired and wireless services, among them the telegraph (now obsolete), telephone, radio, television, and the Internet. 2. These viruses replace either the programs that store information about the disk's contents or the programs that start the computer. 3. Telenet and Tymnet were two packet networks, neither supported host-to-host communications. 4. In order for the concept to work, a new protocol had to be designed and developed; indeed, a system architecture was also required. 5. But ordinary voice communications taking place by way of a telephone are not in binary form; neither is much of the information gathered for transmission from a space probe, nor are the television or radio signals gathered for transmission through a satellite link. 6. The manager not only objects to the terms of payment, but he also objects to the time of delivery. 7. Firewalls can also help combat the spread of computer viruses and other malware, or malicious software.

IV. Compare the words by form and choose a) nouns; b) verbs; c) adjectives.

Introduction, influential, development, communicate, clarify, scientific, particular, commercial, communication, digitize, receiver, compute, storage, overwrite, wireless, location, design, typical, capacity, device, replace, require, transmission, fastest, comprehension, capability, improve, link, object, delivery, spread.

V. Match each English word or word combination with the correct Russian equivalent.

plug-in	программа шифрования
wireless	устанавливать
access point	перехватывать
install	посредством, с помощью (чего-либо)
encryption program	вместимость, ёмкость
intercept	приёмник
via	съёмный; сменный; встраиваемый
transceiver	приёмопередатчик
receiver	беспроводной
capacity	точка доступа

VI. Arrange in pairs the words and word combinations with a) similar meaning, b) contrary meaning:

a) link, encryption, rate, expensive, demand, allow, connect, via, able to be added, by means of, require, speed, permit, costly, encoding, plug-in;

b) wireless, fixed, allow, connect, wired, cheap, mobile, prohibit, separate, disadvantage, expensive, further, benefit, nearer.

VII. In the text of task VIII find the word derived from the verb **to encrypt.** ***Give other derivatives of this verb and give their Russian equivalents.***

VIII. Read the first and last passages of the text and say what the text might be about.

1. Wireless (Wi-Fi) networks are just like fixed LANs, but instead of using cables, devices are linked by radio waves.

2. Each computer in a wireless network requires a wireless network interface card (NIC). These can be built in or you can use plug-in adaptors. These allow each component in the network to communicate with a wireless access point (AP) to create a wireless local area network (WLAN). The AP operates like a router in a fixed LAN. It also provides a bridge which plugs into the hub of a fixed LAN allowing both fixed and wireless users to talk to each other. If your LAN is connected to the Internet, the WLAN can also use it. If not, you can connect the WLAN to the Internet via an ADSL or cable modem.

3. What are the advantages of a wireless network? You don’t need cabling. In older buildings, it can be expensive to install cables and access points. With Wi-Fi, one access point can cover an entire floor or even a building. You can work anywhere within range of the access point. On a sunny day, you could work outside. You can make any room in the house your study. There are now Wi-Fi hotspots in hotels, libraries and airports, so you can link to a network away from home or your office.

4. There are disadvantages. Fixed LANs can run 1000 Mbps. Wireless networks are much slower and the further you are from an access point, the slower the rate. Other users may be able to intercept your data. Encryption programs like Wired Equivalent Privacy (WEP) can help.

IX. Read the text and compare your predictions with the information from the text.

X. Choose which of the statements below are true.

1. Wi-Fi networks are not linked by cables.
2. You can connect the WLAN to the Internet via a NIC.
3. It's possible to use wireless networks outside and inside.
4. Wireless networks are faster than fixed LANs.
5. Using Wi-Fi you are in danger of stealing your data.

XI. Find the information about the advantages and disadvantages of Wi-Fi and local networks.

XII. Using the information from the text explain why Wi-Fi is popular.

XIII. Explain the role of the comma in the first sentence.

XIV. Translate passages 1 and 4 into Russian.

3.2. Сложноподчинённое предложение
The Complex Sentence

Структура сложноподчинённого предложения

1 | главное предложение (С+СК) | (,) | подчинительный союз[1] | придаточное предложение (С+СК) | .

ARPANET was the basis on ***which*** the Internet was developed.

2 | подчинительный союз | придаточное предложение (С+СК) | (,) | главное предложение (С+СК) | .

When a program is running, it is in the process of instructing the computer.

3 | субъект главного предложения (С) | (,)подчинительный союз[1] | придаточное предложение (С+СК) | (,) | продолжение главного предложения (СК) | .

A bus ***to which*** nodes are connected in a branching structure is the most common arrangement.

[1] Подчинительный союз может выполнять функцию субъекта придаточного предложения:
Organisations ***that*** have large amounts of printed information are working to transfer their information into databases.

Подчинительные союзы[1]

as long as	пока; до тех пор, пока
as soon as	как только
because	потому что; так как
if	если; ли
until (till)	до тех пор, пока (не)
while	в то время как; пока
whether	ли
which	который; что
provided/providing(that)	при условии; если
unless	если … не
in order that	(для того) чтобы
so that	(для того) чтобы; так что
lest	чтобы не
though/although	хотя
in spite of the fact that	несмотря на то, что
whereas	тогда как; несмотря на то, что
than	чем нежели
as if/as though	как если бы
(not) so … as	(не) так (такой) … как
as … as	так же (такой же), … как (и)
such … that	такой … что
so … that	так (такой) … что

I. Define the number of subordinate clauses by their features in each of the following models of complex sentences. Model the sentences.

1. The x x the x when the x is xed by x if there is x in the x because the x is the x where x is xed.
2. Some x x a x that the x is xed by x though there is its x in x when any x is such x while no x x an x by any xs.
3. They x that it is xed by it if there is their x in that x when its x is their x while its x x it where they x a x.
4. Another x x other xs that the x is xed by x because there are many xs in xs although some xs were the x of the x.
5. While their x x x when it is xed with the x of x they x an x by x while that x was the x that there are xs.
6. Though in some x xs of few x x xs such x xs have xed the x he xs no x from x when ten xs are the xs.
7. We x that the x x xs are xed by that x in this x x that their x x is xed by any xxs on the x.

[1] Придаточные предложения могут начинаться вопросительными словами ***who, whose, what, which, how*** и т. д., которые выполняют роль подчинительного союза.

II. Name the features of the subordinate clauses. Define their beginning and the end.

1. When a cell phone is turned on, it connects by radio waves to the nearest cell tower. 2. The CPU determines where on the physical media the appropriate file is stored. 3. Although the channel is vulnerable to packet collisions under random access, various procedures have been developed to reduce this probability. 4. While a system is transmitting, it also listens, and if it detects a simultaneous transmission, it stops, waits for a random time, and retries. 5. The AP (access point) also provides a bridge which plugs into the hub of a fixed LAN allowing both fixed and wireless users to talk to each other. 6. The firewall then determines whether the requested network connection will be allowed. 7. High-level languages are less efficient but are easier to use because they more closely resemble spoken or mathematical languages. 8. It is easy to see that the more bytes a node can send each time it has the token, the better the utilization of the ring you can achieve in the situation in which only a single node has data to send.

III. Compare the subordinating conjunctions by their form and meaning, define their similarities and differences. Give the Russian equivalents of the sentences.

1. Users can share data, files, or applications on the network as if these resources resided on their respective computers. 2. If the software fails its alpha or beta tests, the programmers will have to go back to an earlier step. 3. The arithmetic/logic unit performs arithmetic operations, such as addition and subtraction, and logic operations, such as testing a value, to see if it is true or false. 4. A firewall also logs information about network traffic, which can help an administrator understand and prevent attacks. 5. As a computer processes data and instructions, it temporarily stores information in main memory, which consists of random-access memory (RAM). 6. Although there may be thousands or millions of virtual connections across the public network, the switches in the public network behave as if there is only one connection. 7. We will proceed as though each link is implemented by a single cable/fiber. 8. People with digital cameras can record events, send the images to a Web server, and allow people anywhere in the world to view the images almost as soon as they are recorded.

Усилительная конструкция

It is (was, will be) ***….. that*** (who, which, when) = ***именно***, ***только***, ***как раз***	
It was Popov ***who*** invented radio.	***Именно*** Попов изобрел радио.
It was not until 1995 ***that*** he published his book.	И ***только*** в 1995 г. он опубликовал свою книгу.

IV. Find the sentences with emphatic construction. Give their Russian equivalents.

1. It was only with the miniaturization of integrated semiconductor circuits, however, that the modern microprocessor became possible. 2. It was not until the early 1990s that the Internet became accessible to the general public. 3. It was a highly structured language that supported good programming techniques. 4. The existence of one of the earliest electronic digital computers was kept so secret that it was not revealed until decades after it was built. 5. The techniques that direct the precise motions of a tool

can also be used to direct the motions of a robotic device, and it is in this application that the microprocessor excels. 6. It is widely believed that human intelligence has three principal components: consciousness, the ability to classify knowledge and retain it, and the ability to make choices. 7. It is the semiconductor fabrication technology which now offers the opportunity of producing vacuum tubes as small as transistors.

V. Give the Russian equivalents of the following sentences.

1. In order for computers to exchange information, there must be a preexisting agreement as to how the information will be structured and how each side will send and receive it. 2. Although digital computers have become fast enough to replace most analog computers, analog computers are still common for flight control systems in aviation and space vehicles. 3. Visual light or infrared can also be focused by a laser to provide a high-bandwidth link between two stationary points – even though no mobility is involved – in situations where a wired link is less practical for some reason. 4. CPU must decide which job to take from which queue and how much time to allocate to it, so that all jobs are completed in a fair and timely manner. 5. Future programs promise to adapt themselves to their user's personality and work habits so that the term personal computing will take on an entirely new meaning. 6. A microprocessor stores its information in different ways, depending on how it is to be handled. 7. Deadlock must be detected by some scheme that incorporates substantial communication among network sites and careful synchronization, lest network delays cause deadlocks to be falsely detected and processes aborted unnecessarily.

VI. Give the Russian equivalents of the verbs and adjectives. Pay attention to the meaning of the words they were formed from.

Enable (able – способный), wireless (wire – провод), accessible (access – доступ), classify (class – класс), preexisting (exist – существовать), interconnect (connect – соединять), interchangeable (interchange – обмениваться).

VII. Match each English word or word combination with the correct Russian equivalent.

eliminate	иметь дело с кем-либо, обсуждать что-либо
satellite	перекрёстная ссылочность
related	происходить
complicated	устранять, исключать
cross-referencing	сложный
occur	ссылаться (на)
refer to	связанный, родственный
deal with	определять, устанавливать
determine	большинство
majority	спутник

VIII. Arrange in pairs the words and word combinations with similar meaning.

Make up, select, be referred to as, transfer, complicated, the greater number, choose, soon, comparatively, form, previously, majority, transmit, relatively, before

long, complex, beforehand, be called.

IX. In the text of task X find the word derived from the verb* to change. *Give other derivatives of this verb and give their Russian equivalents.

***X. Read the text and find the answer to the question:* What is the difference between the Internet and the World Wide Web?**

The Internet and the World Wide Web

1. What is difference between the Internet and the World Wide Web? Many people use «Internet» and «World Wide Web» interchangeably. They shouldn't, and here's why.

2. The Internet, of course, is the maze of phone and cable lines, satellites, and network cables that interconnect computers around the world. The World Wide Web (also called WWW or simply the Web) is the name given to anything on the Internet that can be accessed using a Uniform Resource Locator, or URL. This addressing system brought the Internet to the mainstream in the 1990s, eliminating the complicated commands and prompts that user previously had to type to access information. The vast majority of the content you access with a URL are files written in a code called Hypertext Markup Language, or HTML. We know HTML files as Web pages.

3. Hypertext is a scheme of cross-referencing. Certain words, phrases, and images make up so-called links. When you select a link on a Web page or Web site (a document containing text and graphics and sometimes also other types of files), your computer is transferred to another document dealing with the same or a related subject. This site will probably also contain numerous links. Before long, you might find yourself «surfing» the Web for hours going from site to site.

4. As you may have experienced, the Web works fastest when the fewest number of people are connected to the Internet. When Net traffic is heavy, Web documents can take a long time to appear. This problem is worst with comparatively slow telephone-line modems, but it can occur even with the most expensive, high-speed Internet connections. When you experience it, you'll know why some people refer to the Web as the «World Wide Web».

XI. Match the terms with their definitions.

1. HTML	a) computer software and hardware that allows users to create, store,
2. The WWW	and view text and move between related items easily;
3. Web-site	b) a group of connected pages on the World Wide Web containing
4. Hypertext	information on a particular subject;
5. URL	c) a standardized address of a location on the internet;
	d) a text description language that is used for electronic publishing;
	e) a vast network of linked hypertext files, stored on computers throughout the world.

XII. Read the first and second sentences from passage 2 of the text and divide them into sense groups. Define the dependency relations between them.

XIII. Find the description of hypertext operation.

XIV. Find the information about the connection between the number of users and the Internet transmission rate.

XV. Translate passage 2 into Russian.

3.3. Многофункциональные слова
Multifunctional Words

3.3.1. Признаки распознавания функций и значений that (this, these, those)

1 ***союз*** ***that*** + придаточное предложение (С+СК) = ***что*** The research has shown ***that*** Web user should be informed of the security measures used by the site.
2 ***союзное слово*** ***that*** + сказуемое (СК) = ***который*** A device ***that*** functions as both a transmitter and a receiver is called a transceiver.
3 ***слово-заместитель*** ***that/those*** + of/причастие (Participle II)/прилагательное = ***переводится существительным, которое заменяет*** This is new measuring equipment, its accuracy is much higher than ***that*** of the old one.
4 ***указательное местоимение*** ***that (this, these, those)*** + существительное = ***тот, та, то (этот, эти, те)*** At ***that*** time, computers were also becoming an increasingly important scientific tool.

I. Define the functions and meanings of the multifunctional word "that". Give its features as a subordinating conjunction. Model these sentences.

1. That x is more x than that xed in our x.
2. The xs have been xing to x x that are ever xer to x.
3. Xs that have x x of xed xx are xing to x their x into xs.
4. The x has xed that x x should be xed of the x xs xed by the x.

II. Define the functions and meanings of the words in bold. Give their Russian equivalents.

1. Security is a critical issue **that** almost everyone of us deals with. 2. To prove **this** law experimentally is very difficult. 3. The television audio signals are received by equipment similar to **that** used in other forms of radio. 4. **These** projects have not been put into effect yet. 5. The word semiconductor means rather generally a material which has electrical conductivity half-way between **that** of a metallic conductor, and **that** of an insulator. 6. The transistor consists of an emitter **that** supplies electrons, a collector **that** collects the electrons, and a base **that** controls the flow of electrons. 7. Research in **these** fields has led to the development of transistors, ICs, lasers and optical fibres. 8. **These**

objects, called applets, follow a set of instructions written by the person **that** programmed the applet.

III. Compare the functions and the meanings of the words in bold. Give the Russian equivalents of the sentences.

1. a) On **that** day the radiotelegraphy was converted from abstract theoretical problem into a real fact. b) Computers are devices **that** are capable of very rapid and accurate calculations.

2. a) **Those** transceivers relay information to each other via radio signals. b) The first solar battery operated with semiconductor crystals similar to **those** used in transistors.

3. a) We know **that** light waves pass through glass more easily than heat waves. b) The antenna for the receiver is constructed in the same manner as **that** for the transmitter.

4. a) Since **that** time Maxwell wrote a great number of works which were the results of his experiments and calculations. b) The atoms and molecules **that** make up all forms of matter are in constant thermal motion.

IV. Give the Russian equivalents of the following sentences.

1. These devices are more reliable than those designed in our laboratory. 2. A wide area network (WAN) is a network that connects computers over a large geographical area. 3. The robots became so intelligent that they revolted. 4. Natural rubber is of higher quality than that produced artificially. 5. These factors taken together ensure high production efficiency. 6. This scientific discovery was the result of six years research. 7. Current research in information processing deals with programs that enable a computer to understand written or spoken information. 8. Organizations that have large amounts of printed information are working to transfer their information into databases.

3.3.2. Признаки распознавания функций и значений after

1 ***подчинительный союз*** ***after*** + придаточное предложение (С+СК) = ***после того, как*** ***After*** the new device had been tested it was installed in our laboratory. I found the message ***after*** he had left.
2 ***предлог*** ***after*** + существительное/местоимение/герундий = ***после*** They left the laboratory ***after*** finishing the experiment.
3 ***наречие*** ***after .*** (конец предложения) = ***потом, затем*** In 1948 Bardeen and Brattain invented the point-contact transistor and Shockley invented the junction transistor shortly ***after***.

I. Define the functions and meanings of the multifunctional word* after. *Name its features as a subordinating conjunction. Model these sentences.

1. After the x the x xed in the x for a x.

2. After the x x did the x the x xed the x in the x.
3. The x xed the x after the x had done the x of x.
4. The x x did the x after seven.

II. Define the functions and meanings of the multifunctional word* after. *Name its features as a subordinating conjunction of the complex sentence.

1. A year after the failure of the experiment they were ready to repeat it. 2. After the positive charge reached a certain value, placing a greater positive charge on the plate had no further effect. 3. After another stage of amplification the current is strong enough to operate the powerful loud speaker. 4. Users can access and search the information using the Web, either for free or after paying a fee. 5. In 1968 Niklaus Wirth, a professor in Zürich, Switzerland, created Pascal, which he named after 17th-century French philosopher and mathematician Blaise Pascal. 6. But after the programs are completed, they are stored on relatively inexpensive media such as CD-ROMs that can be easily copied. 7. Release the product for use or for sale after it has passed all its tests and has been verified to meet all its requirements.

III. Give the Russian equivalents of the following sentences.

1. On-demand scanners usually detect a virus only after the infection has occurred and that is why they are considered reactive. 2. Checksumming uses mathematical calculations to compare the state of executable programs before and after they are run. 3. External memory consists of storage on peripheral devices that are slower than internal memories but offer lower cost and the ability to hold data after the computer's power has been turned off. 4. After a user makes a request, the user waits for the information to be displayed. 5. For this reason, cache entries need to be deleted after some period of time. 6. After all, switched networks can be cabled together and then configured into many logical topologies.

3.3.3. Признаки распознавания функций и значений as

1 ***подчинительный союз***
As + придаточное предложение (С+СК) = ***1) так как; поскольку;***
2) когда; пока; в то время как
3) как; также как и; аналогично

1) ***As*** this question is of utmost importance, we will discuss it at once.
2) ***As*** you walk round a hologram, it changes, as if it were real.
3) *S*atellite systems do not require the construction of intermediate repeater stations, ***as*** do ground-based microwave systems.

2 ***предлог***
As + существительное/местоимение = ***как, в качестве***

In a digital signal the information is encoded ***as*** a set of discrete values.
This gifted scientist works ***as*** director of the newly established research institute.

As входит в состав некоторых составных союзов и наречий: ***as if*** – как будто, ***as to*** – что касается, относительно, ***as though*** – как будто, ***as for*** – что касается, ***as long as*** – пока, ***as soon as*** – как только, ***as well*** – тоже, также, ***as well as*** – также как и.

I. Define the functions and meanings of the multifunctional word* as. *Name its features as a subordinating conjunction. Model these sentences.

1. My xs x as x.
2. The x xs in the x as the x is xed by x.
3. As the x is the x the xs x for x.
4. In x the x is xed as a x.
5. His x xs in the x as well.

II. Define the functions and meanings of the multifunctional word* as. *Name its features as a subordinating conjunction of the complex sentence.

1. We tap into the electromagnetic spectrum with our communications devices and use the electromagnetic energy as a communications tool. 2. As the knowledge about nanomaterials accumulated, they find more and more application in different spheres of our life. 3. As bridges are protocol-independent, they are faster because they do not have to deal with protocol reading. 4. Ethernet is the most popular LAN technology in use today as it offers a good balance between speed, cost and ease of installation. 5. The amount of information on the Web continues to grow rapidly, as does the number of users around the world and the amount of online commerce. 6. As personal computers became faster and more powerful in the late 1980s, software developers discovered that they were able to write programs as large and as sophisticated as those previously run only on mainframes. 7. As computers become more efficient and artificial intelligence programs become more sophisticated, robots will be able to perform more difficult and more humanlike tasks.

III. Compare the compound conjunctions and adverbs by their form and meaning. Define the similarities and differences between them.

1. As long as this link is in place, the cell has a value of 1. 2. In order for the alternate reality to be effective, people must feel immersed in it, not merely as if they are viewing it on a screen. 3. As to the question of how a node detects a failure, there are a couple of different answers. 4. By the early 21st century, sending text messages was almost as popular as voice connections. 5. Applications programmers write commercial programs to be used by businesses and other organizations as well as in the home. 6. This phenomenon was the result of several other factors as well. 7. The Checksum field is used in exactly the same way as for UDP. 8. As soon as the difference becomes too large, a new reference symbol is selected.

IV. Give the Russian equivalents of the following sentences.

1. Meanwhile, mobile communications became the growth driver in telecommunications as millions of people took up the use of portable phones. 2. As more users sought broadband interconnections to enable shifting audio and video files, Internet service providers (ISPs) came under pressure to limit network access and transmission speeds so as to help keep communications moving. 3. Because ROM is actually a combination of hardware (microchips) and software (programs), it is often referred to as firmware. 4. The Internet flourished in the late 1980s as most

universities and many businesses around the world came online. 5. Changes in a data transmission system often require costly upgrades to expand capacity as well as redesigned equipment. 6. As computers become an increasingly integral part of modern society, computer scientists strive to solve new problems and invent better methods of solving current problems.

3.3.4 Признаки распознавания функций и значений before

1 ***подчинительный союз***   ***before*** + придаточное предложение (С+СК) = ***до того, как; прежде, чем***   Many experiments had been made ***before*** the scientist succeeded in getting the desired result.
2 ***предлог***   ***before*** + существительное/местоимение/герундий = ***до, перед***   Each node waits a random time ***before*** sending again.   ***Before*** the advent of the browser the Internet was used mostly for e-mail exchange.
3 ***наречие***   ***before .*** (конец предложения) = ***раньше, прежде***   Wireless technology provided communication links that had never been possible ***before***.

I. Define the functions and meanings of the multifunctional word **before.** ***Name its features as a subordinating conjunction. Model these sentences.***

1. Before the x the x xed as the x after the x.
2. Before the x xed the x at the x the x xed the x after the x.
3. They xed the x before the x.
4. That x of the x xed the x before it xed the x for the x.

II. Define the functions and the meanings of the multifunctional word **before.** ***Name its features as a subordinating conjunction of the complex sentence.***

1. Before Tziolkovsky no one had ever considered interplanetary navigation to be within the compass of modern technical means. 2. More efficient laboratory techniques need to be developed, however, before DNA computing becomes practical. 3. Pirate radio stations had to use expensive equipment before on-line broadcasting was introduced. 4. In the field of medicine electronic diagnostic instruments have given physicians a much clearer view of the human body than ever before. 5. The increasing speed and power of mainframe computers enabled computer scientists and engineers to tackle problems that were never attempted before using computers. 6. People using Web browsers can access information that was never before available. 7. Before starting the new design, test the old design to identify the good parts that you should keep or emphasize and the bad parts that give users trouble. 8. With the small and effective transistor at their hands, electrical engineers

of the 50s saw the possibilities of constructing far more advanced circuits than before.

III. Give the Russian equivalents of the following sentences.

1. Devices consisting of solid pieces of crystalline material which allowed alternating current to flow more readily in one direction than the other were known long before the invention of the thermionic valve. 2. After transmitting one frame, the sender waits for an acknowledgment before transmitting the next frame. 3. Before a switch is added into a network, the VTP management domain should be identified. 4. When a switch or router that has an analog device such as a telephone, fax, or modem connected to it receives a digital voice signal, it must convert the analog signal to digital or VoIP before transmitting it to the other device. 5. With the growth of multimedia and real-time applications such as IP Telephony, conferencing, and e-learning, QoS service level agreements (SLAs) have become more important than before.

3.3.5. Признаки распознавания функций и значений for

1 ***подчинительный союз***   ***for*** + придаточное предложение (С+СК) = ***так как; потому что; ибо***   The device may be relied upon, ***for*** it is of the latest design.
2 ***предлог***   ***for*** + местоимение/существительное/герундий **=** ***для, за; в течение***   Computers are essential ***for*** compiling census data and handling tax records.   Babbage worked on the analytical engine ***for*** nearly 40 years.

I. Define the functions and meanings of the multifunctional word* for. *Name its features as a subordinating conjunction. Model these sentences.

1. For the x xed the x the x is the x for the x as the x.
2. The xed x the x for a x.
3. They xed the x of the x for xs are xed by the x.
4. Between x and x the x xs the x for the xing x.

II. Define the functions and meanings of the multifunctional word* for. *Name its features as a subordinating conjunction of the complex sentence.

1. Optical fiber provides cheaper bandwidth for long distance communication. 2. The region of coverage for any repeater (also known as a base station) is called a cell. 3. Some of the atoms in your bones are exploding at all times, for minute amounts of phosphorus in your bones are radioactive. 4. You can't use the device now for its virus protection is being re-installed. 5. An ammeter is an instrument for measuring current. 6. Because Wi-Fi allows LANs to operate without cables and wiring, it has become a popular choice for home and business networks. 7. Systems analysts develop methods for computerizing businesses and scientific centers.

III. Give the Russian equivalents of the following sentences.

1. Users can download, or copy, information from a remote computer to their PCs and workstations for viewing and processing. 2. Each process is typically

allowed to use the CPU for a limited time, which may be only a fraction of a second. 3. Alan Turing devised the most famous test for assessing computer intelligence. 4. Computer users can prepare for a viral infection by creating backups of legitimate original software and data files regularly so that the computer system can be restored if necessary. 5. Computer architecture is concerned with developing optimal hardware for specific computational needs. 6. In 1999 the Melissa macro virus, spread by e-mail, disabled e-mail servers around the world for several hours, and in some cases several days.

3.3.6. Признаки распознавания функций и значений since

1 ***подчинительный союз***   ***since*** + придаточное предложение (С+СК) = **1)** ***так как;***   **2)** ***с тех пор, как***   1) ***Since*** a general solution is quite difficult, various simplifying assumptions are used to represent the system.   2) Mobile telephony has undergone an enormous expansion since it was introduced in the late 1970s.
2 ***предлог***   ***since*** + местоимение/существительное = ***с, после***   Metrology has existed in some form or another ***since*** antiquity.
3 ***наречие***   ***since.*** (конец предложения) = ***с тех пор***   The popularity of Wi-Fi has grown steadily ***since***.

I. Define the functions and meanings of the multifunctional word* since. *Name its features as a subordinating conjunction. Model these sentences.

1. Since the x xed the x as the x for the x the x has xed the x.
2. There are many xs in the x since the x in the x.
3. The x and the X are xed as xs since they x on the x.
4. This x of the x has xed x in x since 2010.

II. Define the functions and meanings of the multifunctional word* since. *Name its features as a subordinating conjunction of the complex sentence.

1. This method of control greatly improves flexibility in use since it takes advantage of the high speed of the system. 2. We say that an object at rest has no kinetic energy since its velocity is zero. 3. Since the early 1980s, increasingly sophisticated tools have been built to aid the software developers. 4. The actual operating program is normally stored in read-only memory (ROM) or in a permanent logic array, since the user does not need to change this program. 5. Since all operations must be synchronized – that is, they must work together in the correct sequence – a crystal oscillator clock is also installed to regulate the timing. 6. The popularity of Wi-Fi has since grown steadily. 7. Since its invention in two basic forms in the late 1980s, flash memory has become

standard for portable devices such as digital cameras, cellular telephones, PDAs, MP3 players, and video-game machines.

III. Give the Russian equivalents of the following sentences.

1. Microprocessor applications have grown rapidly since the 1970s. 2. The advent of the Internet and the World Wide Web caused a revolution in the availability of information not seen since the invention of the printing press. 3. Since each particle may be in either of two spin states, or in both, calculations can be simultaneously done for both states. 4. Since the inception of computer memory, the capacity of both internal and external memory devices has grown steadily at a rate that leads to a quadrupling in size every three years. 5. Integrated circuit memory quickly displaced core and has been the dominant technology for internal memory ever since. 6. Since computers have only a limited amount of memory, software designers must limit the number of features they include in a program so that it will not require more memory than the system it is designed for can supply.

IV. Compare the words by form and choose: a) nouns; b) verbs; c) adjectives.

Last, connection, subscriber, pavement, bandwidth, techniques, early, deliver, digital, breakthrough, convert, quality, allow, multiple, simultaneous, permit, transfer, displace, expensive, easier, maintain, capacity, require, transmission, affordable, disadvantage, wire, share, performance, degrade.

V. Arrange in pairs the words and word combinations with a) similar meaning, b) contrary meaning.

a) Provide, multiple, operate, affordable, technique, numerous, convert, allow, supply, work, change, method, permit, inexpensive.

b) Permit, affordable, disadvantage, multiple, degrade, easier, advantage, forbid, expensive, more difficult, increase, single.

VI. Match each English word or word combination with the correct Russian equivalent.

subscriber	широкополосный
(telephone) exchange	метод, способ
broadband	замещать, перемещать
technique	абонент
deliver	характеристика, работа
performance	доставлять
displace	телефонная станция
maintain	полоса пропускания
bandwidth	обрабатывать, управлять
handle	обслуживать, содержать в исправности

VII. In the text of task VIII find the word derived from the verb* to place. *Give other derivatives of this verb and give their Russian equivalents.

VIII. Read the text and answer the question: **What digital-based services are mentioned in the text?**

Broadband service

1. For most of the last 100 years the connection between the subscribers and their telephone exchange was copper twisted pair buried in the pavement or distributed overhead on poles. The bandwidth that copper provided was some 3kHz, limited by analog techniques. Thus, in the early 1990s, companies began to invest in alternative connections to the home to deliver digital-based services.

2. **ISDN** (Integrated Services Digital Network). As you have seen the modem was a big breakthrough in computer communications converting digital information into an analog signal to travel through the public phone network. Yet, modems have a maximum speed of 56 Kbps and are limited by the quality of the analog connection. ISDN allows multiple digital channels to be operated simultaneously through the same regular copper-wire telephone lines (POTS) used for analog lines. Since the system is digital, it permits a much higher data transfer rate. Most recently, ISDN has largely been displaced by faster, less expensive, and easier to set up and maintain broadband services: DSL and cable modem.

3. **DSL** is a catchall name for all types of Digital Subscriber Lines that exploit unused spectrum capacity of copper telephone lines: new wiring is not necessarily required. DSLs use a special modem which is supplied by the company that offers DSL. The two types used mainly are: asymmetric (ADSL), for residential hookup, and symmetric (SDSL) for small businesses. DSLs allow the user to use the phone and fax lines while being connected to the Internet (except for SDSL) and to leave his Internet connection open 24 hours a day. As with ISDN, this connection works better when the user is closer to the provider's central office.

4. **Cable modem.** A cable modem operates over cable TV lines, which provide greater bandwidth than POTS lines. Unlike the cable TV infrastructure, which broadcasts TV signals in just one direction (from the cable TV company to people's homes), cable modems handle two-way transmission. For many home users, cable offers a fast, always-on Internet access at an affordable price. It has a number of disadvantages, too. Not all homes are yet wired for cable TV; since a user has to share bandwidth with other users, as with DSL, performance and speed will degrade the greater the number of subscribers in a given area.

IX. Complete the table using the information from the text.

Digital-Based Services	Advantages	Disadvantages	Peculiarities
1.	high data transfer rate		
2.			
a)			
b) SDSL			
3.			uses cable TV lines

X. Using the table give a short summary of the text.

XI. Translate passage 2 into Russian.

3.4. Бессоюзное подчинение
Conjunctionless Subordination

Определительное бессоюзное предложение

1

главное предложение (С+СК)	придаточное предложение (С+СК)

.

Fiber-optic cables use repeaters to avoid losing the light signals ***(which/that)*** they carry.	Волоконно-оптические кабели используют ретрансляторы, чтобы избежать потери световых сигналов, ***которые*** они передают.

2

С1 (субъект или его группа) главного предложения	**С2 (субъект или его группа) придаточного определительного**	**СК2 сказуемое придаточного определительного**	**СК1 сказуемое главного предложения**

The software ***(that/which)*** you are using is developed by Microsoft.	Программа, ***которую*** ты используешь, написана Microsoft.

3

главное предложение (С+СК)	придаточное предложение (С+СК)	предлог[1]

.

This is a problem ***(which)*** we will spend much time ***on.***	Это проблема, ***на которую*** мы потратим много времени.

[1]Перед союзным словом может стоять предлог. Если союзное слово опускается, предлог выносится в конец придаточного предложения.

Условное бессоюзное предложение

Should (could, were, had)	**С** (субъект или его группа)	продолжение придаточного предложения	главное предложение

.

a) ***Should*** he come, we'll discuss this problem. (***If*** he should come we …)	***Если*** он придёт, мы обсудим эту проблему.
b) ***Had*** they the necessary material they would finish the work in time. (***Provided*** they had … they …)	***Если бы (при условии что)*** у них был весь необходимый материал, они закончили бы работу вовремя.

Дополнительное бессоюзное предложение

Главное предложение (С+СК)	придаточное предложение (С+СК)

.

We are sure ***(that)*** it is possible to change the conditions.	Мы уверены, ***что*** возможно изменить условия.

I. Define the type of a conjunctionless complex sentence.

1. Analyst Neil Strother said TV phones could find audiences among mass-transit users and young consumers with the time to watch programming on their handsets. 2. Should confidential information about a business' customers or finances or new product line fall into the hands of a competitor, such a breach of security could lead to lost business, law suits or even bankruptcy of the business. 3. Medium assurance suggests it can protect less valuable information, such as income tax information. 4. Most PCs are held back not by the speed of their main processor, but by the time it takes to move data in and out of memory. 5. Krenik said advances in display technology will help spur adoption as color screens become more suitable for TV-quality images. 6. A distribution is a complete operating system kit with the utilities and applications you need to make it do useful things.

II. Find the sentences with conjunctionless subordination. Give their Russian equivalents.

1. Every effort is made to integrate as many electronic and logic components as possible within the chip and thus reduce external connections. 2. The first unit records the time each vehicle passes the speed trap and identifies each vehicle by its number plates. 3. With hundreds of thousands of international sites each providing thousands of pieces of data, it is easy to imagine the mass of raw data available to users. 4. Should a large amount of data be processed it may be advisable to read it from a data file. 5. The desks they will use will have multiple flat screen voice interfaces, computer programs with human-like personalities and 3Dsound positioning. 6. Were one electron removed, a net positive charge would be left. 7 Aaron J. Hand, managing editor of Semiconductor International magazine, said the new manufacturing technique would still require chipmakers to make some changes to their fabrication plants and buy new tools. 8. A bulk material should have constant physical properties regardless of its size, but at the nano-scale this is often not the case.

III. Give the Russian equivalents of the following sentences.

1. Such guidelines are extremely effective as they lead the visitors through the site content in a very simple and user-friendly way. 2. As the Web is different from print, it's necessary to adjust the writing style to users' preferences and browsing habits. 3. After you've worked on a site for a few weeks, you can't observe it from a fresh perspective anymore. 4. Should one computer fall, the other takes over its function. 5. Either you'll be pointed to the problems you have or you'll be pointed to the absence of major design flaws, which is in both cases a useful insight for your project. 6. Time users waste being lost on your intranet is money you waste by paying the employees to be at work without getting work done. 7. To increase programming efficiency and simplify use, however, most programs are written in a high-level

language which uses commands based on words and mathematical notation. 8. The main reason people and businesses are switching over to VoIP is because of the significant cost savings that can be made over a traditional service provider.

IV. Give the Russian equivalents of the verbs, adjectives and adverbs. Pay attention to the meaning of the words they were formed from.

Ensure (sure – уверенный), vastly (vast – огромный), different (differ – отличаться), simultaneously (simultaneous – одновременный), ultimately (ultimate – последний, конечный), reassemble (assemble – собирать), completely (complete – полный; целый), reconstruct (construct – конструировать), various (vary – изменять).

V. Arrange in pairs the words and word combinations with a) similar meaning, b) contrary meaning:

a) ultimately, efficient, originally, ensure, happen, define, complicated, transmit, route, regardless, finally, determine, occur, guarantee, effective, way, despite, initially, send, sophisticated;

b) completely, divide, construct, receive, simple, join, ultimately, transmit, efficient, destroy, the same, partially, complicated, various, initially, ineffective.

VI. Match each English word or word combination with the correct Russian equivalent.

destination	предоставлять
ensure	запрос
node	маршрут
occur	невзирая на
provide	принимать (сигнал)
receive	место назначения
regardless of	происходить, случаться
request	компонент
route	гарантировать
unit	узел (устройство, подключённое к сети)

VII. In the text of task VIII find the word derived from the verb* to transmit. *Give other derivatives of this verb and give their Russian equivalents.

VIII. Read the text and choose the most suitable title:

A. The History of the Internet.
B. Data Transmission on the Internet.
C. Internet Protocols.

1. The Internet (or simply the Net) is a worldwide system, or network, of computers. It got started in the late 1960s. Back then it was called ARPAnet, named after the Advanced Research Project Agency (ARPA). When people began to connect

their computers into ARPAnet, the need became clear for a universal set of standards, called a protocol, to ensure that all the machines «speak the same language». All the Internet activity consists of computers «talking» to one another. This occurs in machine language. However, the situation is vastly more complicated when data goes from one place to another through a single computer.

2. On the Internet, data must often go through several different computers to get from the transmitting or source computer to the receiving or destination computer. These intermediate computers are called nodes, servers, hosts, or Internet service providers. Millions of people are simultaneously using the Net; the most efficient route between a given source and destination can change from moment to moment, as signals always try to follow the most efficient route.

3. If you are connected to a distant computer, say a machine at the National Hurricane Center, the requests you make of it and the data it sends you are broken into small units called packets. Each packet coming to you has your computer's name written on it. But not all packets necessarily travel the same route through the network. Ultimately, all the packets are reassembled into the data you want, say, the infrared satellite image of a hurricane, even though they might not arrive in the same order they were sent. A file cannot be completely reconstructed until all the packets have arrived and the destination computer has ensured that there are no errors.

4. TCP/IP (Transmission Control Protocol/Internet Protocol) is now the standard format for transmitting data in packets from one computer to another on the Internet and various other networks. TCP/IP was originally developed by the United States Department of Defense for computers using the UNIX operating system, but it is now used by every computer, regardless of operating system, on the Internet. TCP defines how data are transferred across the Internet to their destination. IP defines how data are divided into chunks, called packets, for transmission; it also determines the path each packet takes between computers.

IX. Read the text and find the answers to the questions below.

1. What is used to transmit information between different computer systems?
2. What stages should data pass to get to a destination computer?
3. When can a file be completely reconstructed on the way to a distant computer?
4. What is TCP?
5. What is the difference between TCP and IP?

X. In each passage find the sentences revealing the main idea.

XI. Compress these sentences by deleting extra information. Give a short summary of the text using these compressed sentences.

XII. Translate passage 3 into Russian.

Итоговый тест

I. Выберите предложение(я), в которых* that *употребляется в функции союзного слова.

1. That same year Skype also became the foundation of the social network Facebook's video chat service.

2. Because of the digital nature of VoIP, call quality is normally much higher than that of a standard telephone.

3. Another advantage is that VoIP frequently costs less than standard telephone and long-distance service.

4. Wireless-enabled devices are able to connect to the Internet when they are near areas that have Wi-Fi access.

II. Выберите подходящее по форме и значению слово.

5. The device is rather cheap, but ___ and that's the reason for its popularity.

a) rely b) reliability c) reliable d) unreliable

6. Infra-red computer connection is a type of connection that allows data to be ___ transmitted from one device directly to another device when the infra-red windows of both devices are lined up.

a) wire b) wireless c) wired d) wirelessly

7. A ___ device – is a piece of equipment on which you can record your data for later retrieval.

a) store b) storage c) stored d) restore

8. As your ___ we will provide you with the necessary safety equipment to avoid accidents in the workplace.

a) employ b) employers c) employees d) unemployed

III. Каждому из предложений в левой колонке найдите подходящее по смыслу слово в колонке справа.

9. The electronic signals ___ are transmitted can be either analogue or digital.	a) since b) after
10. Only ___ the encoded signal is made suitable, it can be transmitted by modulation onto a carrier wave.	c) that d) or
11. Action and reaction are never spoken of as balanced forces ___ they don't act on the same body.	e) either f) but
12. ___ you start carrying out the experiment immediately, ___ I shall dismiss you!	

IV. Назовите слово, близкое по значению данному.

13. demand:

a) provide; b) require; c) supply; d) transfer;

14. numerous;

a) vast; b) typical; c) common; d) single;

15. comparatively:

a) relatively; b) possibly; c) nearly; d) necessary;

16. ensure:

a) relate; b) supply; c) transmit; d) guarantee.

V. Каждому из предложений в левой колонке найдите подходящее по смыслу продолжение в колонке справа.

17. Circuit breakers have been installed …	a) …where engineering parts will be produced.
18. External hard drives can be as small as a wallet …	b) … so that the system isn't overloaded.
19. Increasing number of people can work at home …	c) …while the latter doesn't work properly.
20. The company has opened a new workshop …	d) …but they can have as much capacity as internal drives.
	e) …thanks to developments in telecommunications that have been recently made.

VI. Выберите русское предложение, эквивалентное английскому.

21. Since the experiment can be dangerous, it is important to take precautions against injury.

a) С тех пор, как этот эксперимент стал опасным, возникла необходимость соблюдать меры предосторожности.

b) Когда эксперимент становится опасным, возникает необходимость соблюдения мер предосторожности.

c) Поскольку этот эксперимент может быть опасным, важно соблюдать меры предосторожности.

d) Меры предосторожности соблюдались до тех пор, пока эксперимент не стал опасным.

22. Provided that the results of our survey are positive, we will continue to investigate this issue.

a) В случае, если результаты опроса окажутся положительными, мы продолжим исследовать этот вопрос.

b) Предоставив положительные результаты опроса, мы продолжим исследовать этот вопрос.

c) Получив положительные результаты опроса, мы продолжим исследование этого вопроса.

d) Обеспечив положительные результаты опроса, мы продолжим исследование этого вопроса.

23. To achieve success, it is important to measure and analyze these processes.

a) Достигая успеха, становится необходимым проводить измерения и анализировать эти процессы.

b) Для достижения успеха важно провести измерения и проанализировать эти процессы.

c) При достижении успеха важно провести измерения и проанализировать эти процессы.

d) Достигнув успеха, важно провести измерения и проанализировать эти процессы.

24. Had we all the necessary devices, we should be able to test the new equipment.

a) Если бы у нас были все необходимые устройства, мы бы смогли протестировать новое оборудование.

b) При условии наличия всех необходимых устройств, мы начнем тестирование нового оборудования.

c) Если у нас будут все необходимые устройства, мы начнем тестирование нового оборудования.

d) Получив все необходимые устройства, мы сможем протестировать новое оборудование.

VII. Прочитайте текст. Затем изучите утверждения после текста и отметьте: T (true), если утверждение верное; F (false), если утверждение неверное; N (no information), если в тексте об этом не говорится.

A memory is just like a human brain: it is used to store data and instructions. Computer memory is the storage space in computer where data is to be processed and instructions required for processing are stored. The memory is divided into large number of small parts called cells, each cell has a unique address which varies from zero to memory size minus one. Memory is primarily of three types: Cache memory, Primary (main) memory, Secondary memory.

Cache memory is a very high speed semiconductor memory which can speed up CPU. The parts of data and programs, which are most frequently used, are transferred from disk to cache memory by operating system, from where CPU can access them. The advantages of cache memory are as follows: it is faster than main memory; it consumes less access time as compared to main memory; it stores the program that can be executed within a short period of time; it stores data for temporary use. But there are some disadvantages: it has limited capacity and it is very expensive.

Primary memory holds only those data and instructions that computer needs for current work. It has limited capacity and data is lost when power is switched off. Primary memory is generally made up of semiconductor device. These memories are not as fast as registers. The data and instruction required to be processed reside in main memory. It is divided into two subcategories RAM and ROM.

Secondary memory is also known as external memory or non-volatile. It is slower than main memory and is used for storing data/information permanently. CPU does not access these memories directly, they are accessed via input-output routines. Contents of secondary memories are first transferred to main memory, and then CPU can access it.

25. Any type of memory is represented by cells, each having its proper address.

26. All three types of memory are non-volatile, i.e. the data is lost when the power is turned off.

27. Primary memory is considered to be the most efficient one.

28. Cache memory is said to be the fastest type of memory.

МОДУЛЬ 4

ИНФИНИТИВНЫЕ, ПРИЧАСТНЫЕ И ГЕРУНДИАЛЬНЫЕ ОБОРОТЫ THE INFINITIVE, PARTICIPIAL AND GERUNDIAL CONSTRUCTIONS

4.1. Инфинитивные обороты

4.1.1. Признаки распознавания определительных инфинитивных оборотов

1 … to be xed/ $\tilde{x}$ ↓ после существительного **2** the (first, second, third, etc) **to x**	*ОПРЕДЕЛИТЕЛЬНЫЙ* инфинитивный оборот	*Определительным придаточным предложением* **Который будет, должен, может делаться** … первым (и т. д.) **кто (с)делал, делает, будет делать**

The measurements **to be analyzed** should be accurate enough.

Измерения, *которые будут (должны, могут) анализироваться*, должны быть достаточно точными.

I. Find the attributive infinitive constructions. Give the Russian equivalents of the following structures with the infinitive. Use the word «делать» instead of the infinitive, «кто» instead of the subject.

To 1 is, The x can 2, The x to be 3ed is, The x will 4, The x begins to 5, The x is the second to 6, The x was xed to 7, The x is the first to 8, The x xs the x to 9, The x to be 10 $\tilde{x}$ was, The x is too x to 11, To 12 is, The x may 13, The x shall 14, The x starts to 15, The x is the third to 16, The x is xed to 17, The x is the fourth to 18.

II. Find the attributive infinitive constructions. Give the Russian equivalents of the following parts of sentences:

1) an important issue to be discussed was; 2) there is a research to be held; 3) a new device model to be tested attracted; 4) there were the thesis figures to be calculated; 5) the project elements to be studied carefully are; 6) the engine to be repaired urgently was; 7) the research results to be covered at the conference were; 8) a new approach to be applied in the experiment found out; 9) the system bugs to be fixed were; 10) the chemical reactions to be evaluated are; 11) was the first to realize the difficulty of the situation; 12) is the second to invent this device.

III. Find the attributive infinitive constructions, and give their features. Define the place and the sequence of the translation.

1. The plan of our work will be discussed at the meeting to be held on May 25. 2. The devices to be weighted were brought to the station. 3. The metal to be poured into a mold for casting may contract or expand on solidifying. 4. He was the first to apply the new method of work. 5. Nearly all refrigerators to be used at home are based upon the principle that the rapid evaporation of a liquid or the expansion of a

gas produces cooling. 6. For the experiment we need several electric devices to be connected in series. 7. He described the device to be used in all modern systems. 8. The apparatus to be assembled is very complicated. 9. Lodygin was the first to invent the electric lamp. 10. The measurements to be made should be accurate enough.

IV. Give the Russian equivalents, of the following groups of words and word combinations. Define their similarities and differences:

a) to be in demand, to be a success, to be costly;
b) is/are found, is/are expected, is/are taken, is/are reported;
c) comparatively, daily, highly, likely/unlikely.

V. Match each English word from the left column with the correct Russian equivalent:

to estimate	оценка
estimated	усиливать
estimation	оценивать
to reinforce	усиленный
reinforcement	оцененный
reinforced	усиление

VI. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) requirements, vital, to have, to fabricate, to alloy, to calculate, to compute, essential, to manufacture, characteristics that are needed, to possess, to mix metals;

b) inert, lighter, useful, unimportant, stronger, difficult, expensive, useless, simple, vital, active, cheap.

VII. In the text of task VIII find a word derived from the verb* to resist. *Give other derivatives of this verb.

***VIII. Read the text and find the answer to the question:* What metals used by ancient people were the first ones?**

Better Metals are Vital to Technological Progress

1. Since the earliest days the preparation of metals for mechanical use was vital to the advance of civilization. Gold, silver and copper were the first to be used by a primitive man, as they were found free in nature. Today we know more than sixty five metals available in large enough quantities to be used in industry.

2. Metals are mostly solids at ordinary temperatures and possess comparatively high melting points with the exception of mercury. They are for the most part good conductors of heat and electricity, and silver is the best in this respect. They can be drawn into fine wires and hammered into thin sheets.

3. As to their chemical properties the first point to be mentioned is that they vary widely in degree of chemical activity: some are enormously active and others are inert. The Earth contains a large number of metals useful to man. Of all metals to be utilized in industry iron remains by far the most important. Modern industry needs considerable quantities of this metal either in the form of iron or steel.

4. To get the desirable characteristics in metal or to improve them the art to mix metals and other substances began to develop. The first alloys that were formed in this way were sometimes stronger, tougher, harder and more elastic than the metals of which they were composed. To estimate nowadays how many alloys there exist in the modern world is difficult because their numbers increase daily.

5. To serve special uses modern metals and alloys must be lighter yet stronger, more corrosion resistant, more suitable for automatic fabrication yet less expensive than those available before.

6. Scientists are developing new processes and improving old ones in order to produce metals and alloys that will meet the present-day requirements. One of the most interesting purposes is, for instance, to make metals stronger, in other words, to strengthen them by reinforcing them with fibres. Today transportation, communication, farming, construction and manufacturing all depend on the variability of suitable metals and alloys.

IX. Read sentence 2 of passage 1 and divide it into sense groups. State the dependency relations between them.

X. Compress passage 2 to the maximum. Express its main idea in 2 sentences.

XI. Say which of the following statements are true:

1. These days there are 65 metals that are available.
2. Few metals are good conductors.
3. The number of alloys remains the same.

XII. The answers to what questions can you find in the text.

1. Which metal doesn't have high melting point?
2. How are alloys formed?
3. What depends on the diversity of suitable metals and alloys?

XIII. Translate passage 4 into Russian.

4.1.2. Признаки распознавания обстоятельственных инфинитивных оборотов

1 To x … **2 to x … .** перед подлежащим или в конце предложения **3 in order to x** **4 so (such) as to x** **5 enough to x**, **too x to x. sufficient to x**, **sufficiently x to x**	*ОБСТОЯТЕЛЬСТВЕННЫЙ* инфинитивный оборот	1 чтобы делать 2 чтобы делать 3 чтобы делать 4 так чтобы делать, с тем чтобы делать 5 достаточный (слишком, достаточный, достаточно), чтобы делать

The research results have to be presented **so as to be easily understood by everybody.**	Результаты исследования должны быть представлены так, *чтобы все могли легко их понять.*

The issue is too complicated **to make** **fast conclusions**. Вопрос слишком сложный, *чтобы (можно было) делать скорые выводы.*

I. Find the adverbial infinitive constructions. Give the Russian equivalents of the following structures. Use the word «делать» instead of the infinitive, «кто» instead of the subject.

To 1 is, The x can 2, The x to be 3ed is, The x will 4, The x is the second to 5, The x was xed to 6, The x is the first to 7, The x xs the x to 8, The x to be 9 $\tilde{x}$ was, The x is too x to 10, The x xs in order to 11, The x xs so as to 12, The x is x enough to 13, To 14 the x the x is, The x is xed to 15, The x is sufficient to 16.

II. Find the adverbial infinitive constructions. Give the Russian equivalents of following parts of the sentences:

1) came to discuss the research issues; 2) changes introduced so as to meet the requirements; 3) met to understand the necessary outcomes; 4) competent enough to carry out the experiment; 5) so as to apply a new method; 6) hired to create a new software solution; 7) organized everything to hold the conference timely; 8) a research launched in order to attain expected results; 9) finished the work to have a break; 10) designed to optimize the process; 11) too complicated to be solved easily; 12) efficient enough to fulfill the requirements.

III. Find the adverbial infinitive constructions. Give their features, define the place and sequence of their translation.

1. I called every morning to see if the employees were still in need. 2. The issue was complicated enough to provoke the debates at the conference. 3. The question is too controversial to deal with it without thinking everything over. 4. One more meeting was organized so as to further discuss the research outcomes. 5. To explain the problem he drew diagrams all over the blackboard. 6. The software developer improved the application in order to meet the requirements. 7. Please send us your instructions at once to enable us to ship the machines by the 20th of May. 8. The results of the scientific conference were fruitful enough to start a lot of new partnerships. 9. In order to solve these problems, scientists must make many experiments. 10. The temperature was sufficiently hot to conduct the experiment. 11. We shall consider a very simple example in order to explain this phenomenon. 12. These terms can be confusing because the system partition actually contains the files used to boot Windows 7.

***IV. Define the meaning of the multifunctional verb* to be.**

1. She was the first to discover this principle of work. 2. The robot to be used is very lightweight. 3. These measurements are to be used in the research. 4. Scientists were to make many experiments to prove this fact. 5. It is necessary to develop a special machine to explore different surfaces.

***V. Match each English word from the left column with the correct Russian equivalent*:**

to equip	оборудование
equipment	стимулировать
equipped	простимулированный, поощренный
to encourage	воодушевление, стимул
encouraged	оборудовать
encouragement	стимулирующий
encouraging	оборудованный, оснащенный

***VI. Arrange in pairs the words or word combinations with a) similar meaning, b) contrary meaning*:**

a) a great sense of balance, propulsion, scholar, to discover, to invent, developer, stable motion, phenomenon, fact, the force that moves something forward;

b) careless, accurate, simple, complicated, careful, inexact, to be lightweight, cheap, expensive, to be heavy.

***VII. Give the Russian equivalents of the following nouns. Pay attention to the meaning of the words they were derived from*:**

Evaporation (evaporate – испарять), cooling (cool – охлаждать), measurement (measure – измерять), stability (stable – стабильный), steering (steer – управлять, направлять), improvement (improve – улучшать).

VIII. In the text find a word derived from the verb* to steer. *Give other derivatives of this verb.

***IX. Read the text and find the answer to the question:* What could hundreds of spider robots be turned out quickly in case of pressure for?**

The Advance of the Spider Robot

1. Scientists in Germany have developed a prototype robot that they hope will have a wide range of uses from helping emergency relief teams during natural disasters to clearing mines from war zones. They call it the spider robot. Four of its legs remain constantly on the ground while the other four move forward, giving the robot great stability. It is made from plastic, contains very little in the way of electronics and is powered by compressed air. So it is lightweight, and its developers say the form of propulsion means it can be operated almost anywhere.

2. Jannis Breuninger, Product Developer at Fraunhofer IPA in Stuttgart, said: «Air exists everywhere so we can operate the spider anywhere with a simple air pump».

3. Each spider robot costs about 500 euros to produce, which makes it far cheaper to make than most other robot designs.

4. And that means hundreds could be turned out quickly in the event of an emergency, like an earthquake, to help search for survivors.

5. The spiders can be equipped with cameras to send live video back to a control room.

6. Breuninger added: «The walking robot is suitable for use in disaster zones because it has a very stable motion that means that we can operate on very rough terrain. We could also use the robot in mine fields. Because they are cheap to make we can produce large numbers that can walk over mines to trigger detonation so the robots would effectively be doing mine clearance».

7. Originally a student project this research is at its very early stages but according to the scientists they are encouraged by the results. The next step is to improve the spider's steering and control.

X. Read sentence 3 of passage 1 and divide it into sense groups. State the dependency relations between them.

XI. Compress passage 1 to the maximum. Express its main idea in 3 sentences.

XII. Say which of the following statements are true:

1. A spider robot has a great sense of balance.
2. The production of spider robots is more inexpensive than that of most other robot designs.
3. It needs some improvements.

XIII. Translate passage 6 into Russian.

4.1.3. Признаки распознавания субъектного инфинитивного оборота (сложного подлежащего/Complex Subject)

1	2	3
С	СК	**to x**

С – субъект (подлежащее), СК – сказуемое.

Позицию 2 занимают глаголы в пассивной форме:

is/are assumed	допускается/-ют	is/are held	полагается/-ют
is/are believed	полагается/-ют	is/are reported	сообщается/-ют
is/are claimed	утверждается/-ют	is/are seen	видно
is/are considered	считается/-ют	is/are stated	утверждается/-ют
is/are expected	ожидается/-ют	is/are supposed	предполагается/-ют
is/are estimated	считается/-ют	is/are taken	полагается/-ют
is/are found	обнаруживается	is/are thought	полагается/-ют

The students are reported to **conduct** research well.

a. Сообщается, что **эти студенты проводят** научное исследование хорошо.

b. **Эти студенты**, как сообщается, **проводят**…

Позицию 2 занимают следующие глаголы в активной форме:

to appear	казаться
to be certain	несомненно, наверняка
to happen	случаться, оказываться
to be likely	вероятно
to be unlikely	маловероятно, вряд ли
to prove	оказываться
to seem	казаться

to be sure	несомненно, конечно, наверняка
to turn out	оказываться

Инфинитив может иметь формы to be xing, to have xed, to be xed, to have been xed.

The conditions seem **to have been** poorly **chosen**.	a. Кажется, (что) **эти условия были** плохо **выбраны**. b. **Эти условия**, кажется, **были** плохо **выбраны.**

I. In each line find Complex Subject meaning «сообщается, что кто-то делает (сделал, делалось, было сделано)» (example 1) or «кажется, что кто-то делает (делается, было сделано)» (example 2).

1. The x is xed to 1; The xs are xed to be 2ing; The xs were xed to have 3ed; The x is xed to have been 4$\tilde{x}$; The x xs the x to 5.

2. The x xs to 6; The x xs to be 7ing; The x is xly to be 8ed; The xs x the x to 9; The x is xed to 10.

3. The xs are xed to be 11ing; The xs were xed to have 12$\tilde{x}$; The x is xed to have been 13ed; The x xs to 14; The x xs the x to 15.

4. The x is xed to 16; The xs are xed to be 17ing; The xs x the x to 18; The x xs to be 19ing; The x is xly to be 20ed.

5. The x xs the x to 21; The xs were xed to have 22ed; The x is xed to have been 23$\tilde{x}$; The x xs to 24; The x xs to be 25ing.

6. The xs are xed to be 26ing; The xs x the x to 27; The x xs to 28; The xs were xed to have 29ed; The x is xed to have been 30$\tilde{x}$.

7. The x xs to be 31ing; The x is xly to be 32ed; The x xs the x to 33; The x is xed to 34; The xs are xed to be 35ing.

II. Define the similarities and differences of these forms.

X seems to 1, X appears to have been 2ed, X says to 3, X proved to 4, Xs were expected to 5, Xs are believed to have been 6ed, X is likely to be 7ing, Xs are likely to 8, X is reported to be 9ing, X is said to 10, X is reported to be 11ed, Xs seem to 12, X reports to 13, Xs know 14ing, X is reported to 15.

III. Give the Russian equivalents of the following parts of sentences. Pay attention to the form of the infinitive in the active/passive voice.

They are said to fix, she seems to explain, the computer seems to be used, the results are thought to be, the report proved to be, he is said to be testing, the scientist is known to be, his decision seemed to be right, the bug turned out to have been fixed.

IV. Define the similarities and differences of the forms in bold.

1. The results of the software testing **proved** to be right. 2. The theory **was proved** years after by another scientist. 3. This solution **appears** to be optimal in the given circumstances. 4. The delegation **appeared** at the doorway as soon as the conference began. 5. The team **seems** to have received a positive feedback from the software consultant. 6. After having completed the task successfully, the software developers **seemed** to be content with the results. 7. The beta-testing **is supposed** to be conducted by the selected candidates. 8. «I **suppose** we can continue fulfilling the

targeted aims after the chip's development is completed», said the professor. 9. They participated in the medical technologies conference where they **happened** to initiate a fruitful partnership. 10. The worldwide introduction of the new chip **happened** very rapidly.

V. Find the sentences with Complex Subject. Define the sequence of their translation.

1. The research proved to be a success and contributed to further discoveries in the area. 2. It is expected that the experiment will be over as soon as the defined goals are achieved. 3. The new IT invention is considered to be applied in some days. 4. He is considered to be the best candidate to the post. 5. They appear to participate in the experiment aimed at the verification of the previously obtained results. 6. They happened to experience certain difficulties in work. 7. This book is sure to be in demand among the target scientific audience. 8. The conference was reported to take place in July this year. 9. The test is supposed to be the final one in the research conducted by the University group. 10. The plant appeared to increase the production of TV-sets. 11. The chip's architecture is said to be highly parallel.

VI. Compare the form and meaning of the infinitives. Give the Russian equivalents of the following sentences.

1. They seem to have been given a positive feedback on their project research design. 2. They appear to have been discussing the issues since 2 o'clock. 3. The team was expected to complete the task by the end of the quarter. 4. He is said to have worked at this laboratory. 5. The output proved to have increased. 6. The output is likely to increase and contribute to the project overall efficiency. 7. He is said to be testing a new device. 8. He is said to have tested a new device for electronic industry. 9. He is reported to have grown a new type of crystal. 10. He is reported to be growing a new type of crystal.

VII. Give the Russian equivalents of the following sentences.

1. The delegation is informed to have already arrived. 2. The experiment is said to have been conducted. 3. The answer is unlikely to please you. 4. The invention is believed to dramatically change the role of the traditional newscaster. 5. The number of mobile connections in Europe is believed to reach 90 million. 6. The new manufacturing technique is said to require chipmakers. 7. The technique's success turns out to be costly. 8. A new chip is considered to render complex graphics in real time. 9. He seems to be soldering now. 10. For the last few decades the research area seems to have been studied thoroughly.

4.1.4. Признаки распознавания объектного инфинитивного оборота (сложного дополнения/Complex Object)

1	2	3	4
С	СК	**О**	**to x**

С – субъект, подлежащее, СК – сказуемое, О – объект, дополнение.

Позицию 3 занимает существительное или местоимение в объектном падеже me, us, you, him, her, it, them.

После глаголов to see (видеть), to hear (слышать), to feel (чувствовать), to observe, to watch (наблюдать), to notice (замечать), to make (заставлять), to let (позволять) инфинитив употребляется без частицы to.

His supervisor wanted **him to take part** in the conference.	Его руководитель хотел, **чтобы он принял участие** в конференции.

Позицию 2 занимают следующие глаголы:

to allow	разрешить
to assume	предполагать, допускать
to believe	полагать
to cause	заставлять, вызывать
to command	приказывать
to consider	считать
to demand	требовать
to enable	давать возможность
to expect	ожидать, полагать
should/would like	хотелось бы
to make	заставлять, вызывать
to permit	разрешать
to prove	доказывать, оказываться
to request	просить
to require	требовать
to suppose	полагать
to wish	желать

I. In each line find Complex Object meaning «кто-то хочет (хотел), чтобы кто-то сделал что-то».

a) The x xs the x to 1; The x xed the x to 2; The x xs to 3 the x; The xs x the x to 4; The x xs the x 5.

b) The x xed the x to 6; The xs x to 7 the x; The x xs the x to 8; The xs x the x to 9; The x xs the x 10.

c) The x xs the x to 11; The x xed the x to 12; The x xed to 13 the x; The xs x the x to 14; The x xs the x 15.

d) The x xed the x to 16; The xs x to 17 the x; The x xs the x to 18; The xs x the x to 19; The x xs the x 20.

e) The x xed to 21 the xs; The x xs the x to 22; The xs x the x to 23; The x xed the x to 24; The x xs the x 25.

f) The x xed the x to 26; The xs xed to 27 the xs; The x xs the x to 28; The xs x the x to 29; The x xs the x 30.

g) The x xs to 31 the x; The x xed the x to 32; The x xs the x 33; The x xs the x to 34; The xs x the x to 35.

II. Mark the Objective infinitive constructions (Complex Object) in each line.

X wants me to 1, Xs suppose her to 2, Xs are supposed to 3, X likes him to 4, to 5 X supposes him, X is likely to 6, X allows her to 7, X considers him to 8, X made them 9, X saw him 10, X believes us to 11, X is known to 12, X was announced to 13, X thinks him to 14, X wishes them to 15.

III. Define the similarities and differences of the forms in bold. Give their Russian equivalents.

1. We know **the scientist to investigate** this problem thoroughly. 2. We did not know that **he was responsible for this experiment**. 3. She heard that **he mentioned the problem several times**. 4. She heard **him enjoy making reports at scientific conferences**. 5. Nowadays we see that **scientists change fields of research**. 6. The research team saw **the device begin to operate**. 7. We felt **this suggestion be wrong**. 8. I felt that **the results were satisfactory**. 9. We thought **him to be talking** to an employer. 10. We thought that **they were working at the University**. 11. We knew **them to be working** on the project.

IV. Find the Objective infinitive constructions (Complex Object) in each sentence. Give the Russian equivalents of the sentences.

1. I suppose her to be an experienced software engineer able to perform the task efficiently. 2. The chief engineer demanded the workers to observe the safety rules. 3. The IT project outcomes were considered to meet the expectations. 4. We expected him to mention the latest data in his report. 5. They saw him perform the experiment in a matter of minutes that contributed to his reputation of the best scientist in the group. 6. We know silver to be the best of conducting materials. 7. We expect the article to be published next year. 8. I believe him to have changed the direction of the research in compliance with the new requirements. 9. The professor assistant promised to carry out all the necessary preparations for the research. 10. We watched the robot perform many operations.

V. Give the Russian equivalents of the following nouns and adjectives. Pay attention to the words they were derived from:

Investigation (investigate – рассследовать), suggestion (suggest – предлагать, советовать), conducting (conduct – проводить, сопровождать), responsibility (responsible – ответственный).

VI. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) to expect, calculating machine, information, to fulfill, to fix, data, to suppose, to perform, to adjust, computer;

b) extensive, essential, to allow, small, to store, unimportant, to forbid, to throw away.

VII. Match each English word with the correct Russian equivalent:

to access	иметь доступ
accessible	применять
access	доступный
accessing	применение
to apply	доступ
application	прикладной
applied	имеющий доступ
applying	применяющий/применяемый

VIII. In the text find the multifunctional verb* to be *and define its meaning.

IX. In the text find the words having the following meanings:

a) practical use; b) to do, to perform; c) the action of mathematical calculation; d) the fact of coming into existence; e) to become or make larger, to develop; f) a way of dealing with a situation or problem.

***X. Read the text and find the answer to the question:* What will developing computerized models of materials for pupils or students make it possible?**

Will the Computers Think Instead of Us?

1. One of main characteristics of the present – day global «computerization» is the boom in domestic computers. The desk computer is expected to function as your personal librarian, carry out simple optimization computations, control your budget or diet, play several hundred games, etc. Further development of the computer is believed to lead to a situation in which most of the knowledge accepted by mankind will be stored in computers and made accessible to anyone with a home computer.

2. Communication between man and computer will not replace man's creative abilities but will expand them. It is natural that the advent of minicomputers with extensive memories and possibilities will lead to a new higher level in information culture. The creation of the domestic computer industry will allow a lot of problems in culture and education to be solved. Among other things, we shall be able to organize the educational process in the country's colleges and universities and also in the system of school education on a new basis.

3. Working out computerized models of materials studied by schoolchildren or students will allow us to see the results of this instruction on a display screen, make understanding of the material very simple and make the development of a creative approach to the studying of knowledge and its application easier.

4. As for the information in various traditional branches of knowledge the application of electronics will allow side by side with the traditional printed material to have the contents of books, magazines and articles fed into the computer memory, where this will be analysed, arranged in a certain order, stored and produced on request as a printed computer programmer.

5. Traditionally, the computer in business is used to process data. Now the computer takes on new kinds of jobs. It has become more involved in business operations as an essential tool in making decisions at the highest administrative level.

XI. Read sentence 1 of passage 1 and divide it into sense groups. State the dependency relations between them.

XII. The answers to what questions you can find in the text.

1. What are the functions of the desk computer?
2. What are the advantages of the creation of the domestic computer industry?
3. What new kinds of job does the computer take in the field of space exploration nowadays?

XIII. Read passage 1 and translate sentences 2 and 3 in it.

XIV. Compress passage 2 to the maximum. Express its main idea in 3 sentences.

XV. Translate passages 2 and 3 into Russian.

4.2. Причастные обороты

4.2.1. Признаки распознавания причастных оборотов с причастием I

the x **xing + зависимые слова** ↓ – после существительного	*ОПРЕДЕЛИТЕЛЬНЫЙ* причастный оборот	*делающий* (*-ущ, -ющ, -ащ, -ящ, -вш, -ш*), *придаточным предложением*

The tube **consisting of a cathode, a control grid and a plate** is a triode.

Лампа, *состоящая из катода, управляющей сетки и анода,* является триодом.

Xing + **зависимые слова** ↓ – в начале предложения перед подлежащим; – в конце предложения (… **xing** + зависимые слова); – может вводиться союзами *when* (*когда*) *и while* (*в то время как*)	*ОБСТОЯТЕЛЬСТВЕННЫЙ* причастный оборот	*делая* (*-а, -я, -ав, -ив*); *придаточным предложением; при + существительное*

Developing a new semiconductor device, the scientist solved many problems.

Разрабатывая новое полупроводниковое устройство, учёный решил многие проблемы.

He will achieve success **working hard**.

Он добьётся успеха, *упорно работая.*

While conducting space research, scientists discovered the nuclei of antimatter.

Проводя космические исследования, учёные открыли ядра антивещества.

Обстоятельственные причастные обороты с причастием I пассивным

Being xed/x̃ + зависимые слова ↓ в начале предложения перед подлежащим	*ОБСТОЯТЕЛЬСТВЕННЫЙ* причастный оборот	*будучи сделан, когда делается*

Being built of coloured stone the cinema will look fine.

Так как кинотеатр строится из цветного камня, он будет выглядеть…

Обстоятельственные причастные обороты с причастием I перфектным активным

Having xed/x̃ + зависимые слова ↓ – в начале предложения перед подлежащим; – в конце предложения	*ОБСТОЯТЕЛЬСТВЕННЫЙ* причастный оборот	*сдел**ав*** (*-ав, -яв, -ив, -вшись*)

Having repaired the engine the mechanic showed it to the engineer. *Отремонтировав мотор*, механик показал его инженеру

Обстоятельственные причастные обороты с причастием I перфектным пассивным

Having been xed/ x̃ + зависимые слова ↓ – в начале предложения перед подлежащим; – … **having been xed/ x̃** … ; – в конце предложения	*ОБСТОЯТЕЛЬСТВЕННЫЙ* причастный оборот	придаточным предложением с союзами *так как, после того как, когда был сделан*

Having been repaired properly the engine began operating better *После того как мотор был отремонтирован должным образом*, он стал работать лучше.

I. a) In each line find the attributive participial constructions meaning «делающий …».

a) The x is 1ing the x, the x 2ing the x will be xing, the x 3ing the x has been xing, the xs 4ing the x have been xing, the x 5ing the x is xing.

b) The xs are 6ing the x, the x 7ing the x was xing, the xs 8ing the xs are xing, the x 9ing the x was xing, the xs 10ing the xs were xing.

c) The x was 11ing the x, the x 12ing the x was xing, the xs 13ing the xs were xing, the x 14ing the x is xing, the xs 15ing the xs are xing.

d) The x 16ing the x was xing, the xs 17ing the xs were xing, the x is 18ing the x, the x 19ing the x is, the xs 20ing the xs are.

e) The xs 21ing the xs are, the x 22ing the x is xing, the xs 23ing the xs are xing, the x 24ing the x was xing, the xs are 25ing the x.

f) 6.The x 26ing the x was xing, the xs 27ing the xs were xing, the x 28ing the x was, the x 29ing the x will be xing, the x was 30ing the x.

g) The xs 31ing the xs were, the x 32ing the x is xing, the xs 33ing the xs are xing, the x 34ing the x was xing, the xs were 35ing the x.

b) In each line find the adverbial participial constructions meaning «делая…».

a) 1ing the x the x is, when 2ing the x the xs are, the 3ing x xs, 4ing the x the xs are, 5ing the x the x is.

b) When 6ing the x the xs are, while 7ing the x the x is, 8ing is, 9ing the x the x is, when 10ing the xs are.

c) 11ing the x the xs are, 12ing the x the xs are, when 13ing the x the xs are, while 14ing the x the x is, the 15ing xs are.

d) The 16ing x is, 17ing the x the xs are, 18ing the x the x is, when 19ing the x the xs are, while 20ing the x the x is.

e) While the xs are 21ing, 22ing the x the xs are, 23ing the x the x is, when 24ing the x the xs are, 25ing the x the x is.

f) 26ing was, 27ing the x the xs are, 28ing the x the x is, when 29ing the x the xs are, while 30ing the x the x is.

g) 31ing the x the xs are, 32ing the x the x is, the 33ing x xs, 34ing the x the x is, when 35ing the x the xs are.

c) In each line find the adverbial participial constructions, meaning «сделав…» at the beginning of the construction:

a) 1ing the x the x is; Having 2ed the x the x is; Having 3x̃ it the x; Having 4ed the x the x; Having 5ed it the x was.

b) Having 6x̃ it the x xs were; When 7ing the x is; Having 8ed the x the x is; Having 9x̃ it the x; Having 10ed the x the x.

c) Having 11ed the x the x is; While 12ing the xs are; Having 13ed the x the x; Having 14x̃ it the x was; Having 15ed it the x xs were.

d) Having 16ed it the x; Having 17x̃ the x the x; Having 18ed it the x was; Having been 19ed the x is; Having 20x̃ it the x xs were.

e) Having 21ed the x the x; Having been 22ed the x is; Having 23x̃ the x the x is; Having 24ed it the x; Having 25x̃ it the x xs were.

f) 26ing the x the x is; Having 27ed it the x; Having 28ed the x the x; Having 29x̃ it the x was; Having 30ed it the x xs were.

g) Having 31ed the x the x is; Having 32x̃ it the x; Having 33ed it the x was; Having 34ed it the x xs were; The x 35x̃ xing the x.

II. Find the participial constructions. Give the Russian equivalent of the following parts of sentences. Pay attention to the form of Participle I and Participle I Perfect in the attributive and adverbial participial constructions.

a) 1. People investigating a lot; 2. Speaking at the conference I…; 3. When using this device he …; 4. While calculating the figures again I…; 5. Having learnt it he …; 6. Having increased the rate they …; 7. Being worked out by the specialists the program is…; 8. Having been repaired the engine began … . 9. Having been studied in detail the method was …; 10. Having been tested successfully the model.

b) 1. People carrying out the research; 2. while calculating the figures; 3. the scientists conducting the experiment; 4. having attained the results; 5. IT specialists producing the final product; 6. the standard offering high-speed data; 7. early telegraphs using keyboards could produce tapes; 8. when drawing conclusions; 9. having discussed the questions; 10. while coming to an agreement.

III. Find the attributive and adverbial participial constructions with Participle I. Give their features and Russian equivalents.

1. Qualitative research has many uses, including exploring alternative communication messages and identifying strengths and weaknesses. 2. A backbone is a network transmission path handling major data traffic. 3. The ability of tiny computer devices to control complex operations has transformed the way many tasks are performed, ranging from scientific research to producing consumer products. 4. A router is a special computer directing messages when several networks are linked. 5. The Tor Project offers a channel for people wanting to route their online

communications anonymously. 6. Users wishing to take part in the bridging project, need to be subscribed to the Amazon service. 7. There have already been prototypes, attracting crowds at gadget shows.

IV. Compare the form and meaning of the participles in the following attributive and adverbial constructions. Define their similarity and difference. Suggest whether this difference influences their meaning.

1. But further measurements using a laser and looking for reflections showed that much of the ice is covered with a layer of dark material tens of centimeters thick. 2. This procedure was dropped, having given low yield of end products. 3. Having been carefully tested the device was put into operation. 4. Having determined the number of amperes and the number of volts, we can find the resistance of the coil by using Ohm's law. 5. Having lost electrons, the atom of the metal is pacifier. 6. Having studied all the known elements he drew up a table of elements. 7. Having been employed in many industrial processes electronic computers show a notable example of progress contributing to the development of industry. 8. The source code of the malware program has become available online, allowing experts to analyze its complicated design. 9. Having changed the program the robot's arm began to perform a new operation. 10. Having analyzed the situation he managed to carry out the experiment.

4.2.2. Признаки распознавания определительных и обстоятельственных причастных оборотов с причастием II

the x **xed/$\tilde{x}$ + зависимые слова** ↓ после существительного	*ОПРЕДЕЛИТЕЛЬНЫЙ* причастный оборот	*делаемый, сделанный* (*-нный, -емый, -имый, -тый, -шийся, -вшийся*), *придаточным*
The indirectly heated cathode consists of cylinder **heated by filament**.	Косвенно обогреваемый катод состоит из металлического цилиндра, *обогреваемого нитью накала*.	

(When) xed/$\tilde{x}$ … ↓ в начале предложения перед подлежащим	*ОБСТОЯТЕЛЬСТВЕННЫЙ* причастный оборот	а) придаточным обстоятельственным предложением: *когда сделали*; б) при + существительное от причастия: *при применении*
…(when) xed/$\tilde{x}$. ↓ в конце предложения;		
может вводиться союзами *when* (*когда*), *if* (*если*), *as* (*как*), *though* (*хотя*), *unless* (*если … не*), *until* (*пока … не*), *once* (*раз уж*), (*как только*) и др.		

When processed properly the substance receives the required properties.	*При обработке соответствующим образом* вещество получает необходимые свойства.
Certain materials emit electrons **when heated**.	*При нагревании* некоторые материалы испускают электроны.

***I. In each line find the attributive participial constructions, meaning «делаемый», «сделанный»*:**

a) The x has 1ed, the x 2ed in the x xed the x, the x 3$\tilde{x}$ by the x is, the xs 4ed with the x are, the xs 5ed by the x have.

b) The x 6ed after the x xed the x, the x is 7ed, the x 8ed at the x was xed, the x 9ed for the x was xed, the x 10$\tilde{x}$ by the x has.

c) The x 11ed in the x has xed, the x 12ed by the x is, the xs 13ed with the x are, the x 14$\tilde{x}$ at the x was xed, the xs have been 15ed.

d) The x 16ed for the x was xed, the x 17$\tilde{x}$ after the x is, the x will be 18ed, the x 19$\tilde{x}$ without the x xed the x, the x 20ed on the x is xed.

e) The x has been 21ed, the x 22ed by the x is, the xs 23$\tilde{x}$ with the x are, the x 24ed at the x was xed, the x 25$\tilde{x}$ for the x was xed.

f) The x 26ed for the x was xed, the x 27ed on the x is, the x 28ed after the x has, the x 29ed in the x will x, 30$\tilde{x}$ the x, the x is.

g) The xs were 31ed, the x 32ed by the x is, the xs 33$\tilde{x}$ with the x are, the x 34ed at the x was xed, the x 35ed for the x was xed.

***II. In each line find the adverbial participial constructions meaning «когда (если, пока не, хотя) сделали» or «при делании»*:**

a) When 1ed with the x; if 2$\tilde{x}$ by the x, the x; 3ed by the x, the x; x had 4ed; as 5$\tilde{x}$ the x.

b) The xs have been 6ed; though 7ed the x; unless 8ed the x; when 9ed with the x; if 10$\tilde{x}$ by the, the x.

c) 11ed by the x, the x; if 12$\tilde{x}$ by the x, the x; xs are 13ed; as 14ed the x; through 15ed the x.

d) when 16ed the x; xs were 17ed; unless 18$\tilde{x}$ the x; 19ed by the x, the x; when 20ed with the x.

e) if 21ed by the x, the x; the x was being 22ed; as 23ed the x; though 24$\tilde{x}$ by the x, the x; unless 25ed the x.

f) though 26$\tilde{x}$ the x; 27ed by the x, the x; when 28ed with the x, the x may be 29ed, if 30$\tilde{x}$ by the x, the x.

g) when 31ed the x; the x is 32ed; as 33$\tilde{x}$ the x; though 34ed the x; unless 35ed the x.

III. Find the attributive and adverbial participial constructions with Participle II. Give the Russian equivalents of the following parts of sentences:

1) If properly treated, the substance; 2) the elements used together; 3) the approach aimed at; 4) the chemical reactions involved in the process; 5) logical systems built on axioms, 6) the method applied in the experiment; 7) the speed

offered by WiGig; 8) malware designed to steal encrypted files; 9) a cyber-attack discovered last year; 10) when viewed as a whole, the instruction.

IV. Find the attributive and adverbial participial constructions with Participle II. Give their features and Russian equivalents:

1. The conference attended by scientists from different countries discussed new trends and methods in this field of research. 2. This guide, written especially for students of English as a foreign language, demonstrates the basic sentence patterns of contemporary English. 3. When heated, a body usually expands. 4. Once started, the process is difficult to stop. 5. An electronic computer forms an impressive complex device when viewed as a whole. 6. A body at rest remains at rest unless acted upon by an external force. 7. Written in pencil the article was difficult to read. 8. The devices produced by our plant are of improved quality.

V. Give the Russian equivalents of the following sentences. Pay attention to the translation of the participial constructions with Participle II.

1. The experiment made in our laboratory was a failure. 2. The information obtained by them is of great importance. 3. Once said a word cannot be unsaid. 4. Most of the liquid ethers decompose slowly if kept at room temperature. 5. Though generally criticized, this formula does describe the essential characteristics of the process. 6. Some heat-resistant types of glasses can be heated until they are red and they do not break, if then placed into ice water. 7. The indirectly heated cathode consists of a metal cylinder heated by filament placed inside. 8. One of the rights enjoyed by University scientists is that of combining research with teaching. 9. When adequately heated the semiconductor doesn't work well.

VI. Read the text paying attention to the participial constructions. Give their Russian equivalents.

Most chromium compounds have brightly coloured hues, and as a result, they are widely used as colouring agents, pigments, in paints. In addition to having a pleasing color, a paint must protect the surface to which it is applied and be easy to apply in a thin, uniform coat.

All paints consist of two parts. One is powder of solid particles that is the source of the color and the opaqueness and is known as the pigment. The other, called the binder, is the liquid into which the pigment is blended. The binder used in some paints is made from oily solvents such as those derived from petroleum resources. When applied, these solvents evaporate, leaving deposits of pigment on the surface.

VII. Read the sentences, choose the right variant of the words in bold.

1. A computer **infected/infecting** with financial malware will wait until you visit a banking site. 2. People become hackers for different reasons **included/including**: making money, criminal purposes, or to expose political information. 3. Webpages are documents **designed/designing** for use on the World Wide Web which is an Internet service that allows users to view linked webpages **stored/storing** on Web server computers. 4. A bridge is a hardware and software combination **used/using** to connect

the same type of data. 5. The Samsung-manufactured laptop and desktop PCs include processors **based/basing** on Intel's Sandy bridge technology. 6. Volunteers were set tasks by a computer which imitated the instructions **given/giving** by a vehicle's navigation system. 7. Webpages can be created **used/using** a very basic word processor program **known/knowing** as a text editor, but special programs are available that allow the user to create webpages without **known/knowing** about HTML. 8. The quantum key distribution has until now needed a dedicated fibre separate from that **used/using** to carry data. 9. The man **developing/developed** this program is a very talented man. 10. The people **participated/participating** in this project were well-trained. 11. Amazon's first Kindle e-reader used a plastic non-rigid screen – **known/knowing** as an optical frontplane – to display its images.

4.2.3. Особенности перевода определительных оборотов с причастием II

the x + **xed/** $\tilde{\mathbf{x}}$ **+(prp)** ↓ после существительного	*ОПРЕДЕЛИТЕЛЬНЫЙ* причастный оборот[1]	*Определительным придаточным предложением, начинающимся с соответствующего предлога* **… о которой** говорят

[1]Английские причастные обороты, образованные от глаголов, соответствующие русские эквиваленты которых принимают предложные дополнения.

This is the book ***so much spoken about.*** Вот книга, ***о которой так много говорят.***

Запомните значения следующих глаголов:

a) agree upon (on) — договориться, условиться о
arrive at — приходить к (заключению, решению)
depend on (upon) — зависеть от
insist on (upon) — настаивать на
look at — смотреть на
look after — наблюдать за
refer to — ссылаться на; упоминать о
send for — посылать за
speak, talk about (of) — говорить о (об)

b) attack (smb., smth.) — начинать (работу, исследование)
follow (smb., smth.) — следовать, следить за кем-либо, чем-либо; следовать чему-либо
join (smb., smth.) — присоединяться (к группе); поступать (на работу)
influence(smb., smth.) — влиять, оказывать воздействие на что-либо, кого-либо

I. Choose the attributive constructions with participle II the translation of which starts with the preposition.

a) 1 agreed upon, 2 arrived at, 3 followed by, 4 attacked by, 5 joined by, 6 referred to, 7s carried out;

b) 8 insisted upon, 9s influenced by, 10 looked at, 11 looked after, 12 relied on, 13 founded in, 14 send for.

II. Give the Russian equivalents of the following parts of sentences. Pay attention to the translation of attributive constructions with participle II.

The invention followed by, the method agreed upon, the data looked at, the properties depended on, the results arrived at, the discovery spoken about, the figures looked at.

III. Give the Russian equivalents of the following sentences. Pay attention to the translation of attributive constructions with passive participle.

1. The report followed by a lively discussion was rather cognitive. 2. The terms agreed upon were favorable. 3. The paper often referred to by many scientists was published two times. 4. The figures referred to in the report appeared last year. 5. The terms insisted upon could not be accepted. 6. The experiment watched with interest attracted attention of many researchers. 7. The new invention much spoken about was a real break through. 8. The data looked at with great attention were unique.9. The lecture followed by experiments took place last week. 10. The laboratory of microelectronics joined by Professor Brown was established ten years ago. 11. The properties of the material influenced by electromagnetic radiation were taken into consideration.

IV. Define what part of speech the following words are. Explain the way they were formed and give their Russian equivalents.

High-speed, wirelessly, implementation, including, limit, obvious, replacement, fast, prevent, connect.

V. Match each English word from the left column with the correct Russian equivalent.

high-speed transfers	один главный недостаток
wireless standard	высокоскоростные передачи
instantly download	намного более короткий диапазон
much shorter range	мгновенно загрузить
one major drawback	беспроводной стандарт

VI. Match each English word with the correct Russian equivalent:

to colour	решать
coloured	цветной
colourful	решение
to solve	окрашивать
solving	решённый
solved	окрашенный

VII. Define the meaning of the following verbs* to have, to be *in the sentences below:

1. Qualitative research has many uses. 2. A virus is an unwanted program that has entered a user's system without them knowing about it. 3. Most people have access to the Internet. 4. The most popular Internet service is e-mail. 5. I have to draw up a laboratory report. 6. He has never read these instructions.

VIII. In the text find a word derived from the verb* to implement. *Give other derivatives of this verb.

IX. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) drawback, information, disadvantage, data, sponsor, backer, a use, application;

b) longer, shorter, download, wired, faster, upload, slower, wireless.

***X. Read the text and find the answer to the question:* What is the wireless standard offering high-speed data transfer between devices?**

Realising the High-Speed Wire-Free Dream

1. Can you imagine pulling up outside a petrol station and being able to instantly download an HD movie in less time than it takes to fill the car with fuel? Or at home, wirelessly connecting together your TV, tablet, PC and mobile phone and being able to shunt around huge amounts of data between them without long waits. A California laboratory has been testing a new technology that promises to turn these scenarios into reality. It is called Wireless Gigabit - and the Santa Clara lab recently put so-called WiGig devices through their paces to check they were interoperable. The event was very successful. Participant companies were excited about their implementation of the WiGig specifications. It is another step along the road for the high-speed wireless standard which was created in May 2009.

2. The standard was put through its paces at a PlugFest event in the US. It operates in the unlicensed 60GHz spectrum band, which has little interference**,** meaning it can offer speeds far higher than traditional Wi-Fi - up to 7Gbps (gigabits per second). This is a revolution in communication. It offers tools that customers never had before. It is a game-changer in wireless communication and in a couple of years who knows how many new applications there will be for it. That promise has helped attract several high profile backers including Intel, Microsoft, Cisco and Nokia. The speeds offered by WiGig mean it can shift data in a way that Wi-Fi can only dream of. Wi-Fi networks are very busy and over-crowded and cannot deal with bandwidth-heavy applications. However, it has one major drawback. WiGig's range is limited to between 10 to 15 meters - a factor that may prevent it being crowned the next-generation wireless standard. Its much shorter range means it isn't so much a replacement for Wi-Fi as for cable.

3. Even so, the appeal of a cable-free future is obvious. People's desire for fast data downloads has caused countless living room corners to resemble spaghetti wire junctions. As devices continue to swap more data, more often with a rising number of other products, there is a growing need for faster wireless transfers.

4. Interconnectivity of devices in the home will be the key to utilizing the ever faster connections we can get because people want easy ways of getting HD video from their camcorder onto their TV, and also onto their tablets.

5. WiGig is not the only wireless standard offering high-speed data transfers between devices. Ultra-wideband is also designed to carry large amounts of bandwidth over short distances. But so far it has failed to catch on. There are no standards for it and the industry has not really adopted it. Meanwhile WiGig steams ahead. The adoption curve will be slower than for Wi-Fi because it will rely on a whole ecosystem, and that will take a while to put in place. At first we will see it in laptops and PCs and the peripherals that connect to them.

XI. Read the text. Agree or disagree with the following sentences:

1. Wi-Gig offers the same speed as Wi-Fi does.
2. Wi-Gig's main advantage is that it can operate within the range of 10–15 meters.
3. Among standards offering high-speed data transfers between devices Wi-Gig is the only one.
4. This technology will be available in laptops and PCs and the peripherals that connect to them.

XII. Read sentence 3 of passage 1 and divide it into sense groups. State the dependency relations between them.

XIII. Translate passage 2 into Russian.

XIV. Read passage 3 of the text and define the connectors between its sentences.

4.2.4. Признаки распознавания независимого причастного оборота

The x + xing[1]**,** the x … ↓ в начале предложения	*НЕЗАВИСИМЫЙ* причастный оборот	*Придаточным предложением* **Когда (так как, поскольку) … делает, делал, будет делать**

The experiment being carried out, I will show the results to you. ***Когда эксперимент будет проведен***, я покажу вам результаты.

…, **(with) the x xing**[1] ↓ в конце предложения	*НЕЗАВИСИМЫЙ* причастный оборот	*Отдельным предложением* **и (а, но) … делает, делал, будет делать**

There are many theatres in Moscow, ***the most beautiful the Bolshoi Theatre having been reconstructed lately***. В Москве много театров, ***причем (и, а, но) самый красивый Большой театр был недавно реконструирован.***

[1]Употребляются формы причастий having xed, being xed, xed /3-я форма неправильных глаголов(x̃), having been xed.

Примечание. Формы, начинающиеся с заглавной буквы The, Xed, Xing, означают начало предложения.

I. In each line find the absolute participial constructions in the active form meaning «когда кто-то делал» and «когда кто-то сделал», «и кто-то делает (делал)», «и кто-то сделал».

a) The x has been 1ed, the x; The x 2ing, the x; The x having 3ed, the x; , the x 4ing; , the x having 5ed.

b) ,the x 6ing.; ,the x having 7ed.; The x is being 8ed,; The x 9ing, the x; The x having 10ed, the x.

c) The x 11ing, the x; The xs are 12ing; The x having 13ed, the x; ,the x 14ing.; ,the x having 15ed.

d) ,the x 16ing.; ,the x having 17ed; The x was 18ing; The x 19ing, the x; The x having 20ed, the x.

e) The x having been 21ed, the x; The x 22ing, the x; The x having 23ed, the x; ,the x 24ing.; ,the x having 25ed.

f) ,the x having 26ed.; The x being 27ed, the x; The x 28ing, the x; The x having 29ed, the x; , the x 30ing.

g) ,the x 31ing.; The x having 32ed, the x; The x having been 33ed, the x; ,the x 34ing.; The x 35ing, the x.

II. In each line find the absolute participial constructions in the passive form meaning «когда кто-то делалось», «когда кто-то было сделано», «и кто-то делалось», «и кто-то было сделано».

a) The x having been 1ed, the x; The x 2ing, the x; The x 3ed, the x; The x having been 4ed, the x; The x being 5ed, the x.

b) The x 6ed, the x; The x having been 7ed, the x; The x being 8ed, the x;, with the x 9ed; The x having 10ed, the x.

c) The x being 11ed, the x; The x having 12ed, the x; The x having been 13ed, the x; ,the x being 14ed.; ,with the x 15ed.

d) The x 16ing, the x; The x 17ed, the x; The x having been 18ed, the x; The xs having been 19ed, the x; The x being 20ed, the x.

e) The x 21ed, the x; The x having been 22ed, the x; The x being 23ed, the x; The x having 24ed, the x;, with the x 25ed;

f) The x having been 26ed, the x; The x 27ed, the x; The x having been 28ed, the x; The x being 29ed, the x; The x 30ing, the x.

g) The x being 31ed, the x; The x 32ed, the x,; ,with the x 33ed; The x having 34ed, the x; The x having been 35ed, the x.

III. Define the similarities and differences of the parts of sentences in bold and give their Russian equivalents.

1. **Some new devices having been obtained**, the researchers could make more complex experiments. 2. **It being late**, we decided to stop working. 3. The average height of the Ural mountains is 800 meters, **the highest point being 1,500 meters above sea level**. 4. The installation was automized last year, **its capacity rising by 25 per cent**. 5. The students wrote their English test-paper, **each doing his variant**. 6. **An electron leaving the surface**, the metal becomes positively charged. 7. There

are two diagrams in this figure, **one of them showing the relation between volume and temperature**. 8. **With research involving more and more people**, the profession of a scientist has become one of the most popular nowadays. 9. Mathematization of science is witnessed in almost all its branches, **with specialists in humanities hurriedly joining the process**.

IV. Define the place of the absolute participial constructions and their features. Give the Russian equivalents of the following sentences.

1. The temperature of a conductor being raised, the motion of the electrons in the conductor increases. 2. The resistance being very large, the current in the circuit was small. 3. Transistors are very sensitive to light, some of them reacting even to star-light. 4. The first man-made satellite having been set up, it became possible to investigate various types of radiation. 5. A new radio-set having been shown to them, they began to examine its details. 6. We defined the volume, all the measurements having been done with respect to the instruction. 7. Many substances are semi-conductors, germanium and silicon being the most important of them. 8. Part of energy being changed into heat, not all the chemical energy of the battery is transformed into electrical energy. 9. Some scientists do not distinguish between pure and applied mathematics, the distinction being, in fact, of recent origin. 10. They took all the measurements during the actual operation of the machine, this being the usual practice in those days.

V. Find the participial constructions and give the Russian equivalents of the following sentences:

1. With everyone being a layman in most fields but his own, it is very important to exchange information on major developments. 2. The universe is now essentially composed of about 90 percent hydrogen and 9 percent helium, with the remaining 1 percent accounting for the more complex atoms. 3. The project abandoned, the leadership in this field passed to another institute. 4. Originally a mathematician, he became engaged first in theoretical physics and then in space research, all these field being closely interconnected. 5. The problems of nanotechnologies attacked at the laboratory are of utmost interest. 6. He will achieve success working hard. 7. The results obtained by the researchers provided the same solution to the problem. 8. Having developed a new type of robot he felt very excited. 9. Having made a mistake the designer couldn’t continue his work. 10. A computer infected with financial malware will wait until you visit a banking site. 11. Webpages can be created using a very basic word processor program known as a text editor, but special programs are available that allow the user to create webpages without known about HTML.

VI. Arrange in pairs the words with a) similar meaning, b) contrary meaning:

a) to refer, performed, to control, done, to manage, to be related to;

b) inconsistent, transmitted, consistent, received, low-level, heated, high-level, cooled.

VII. Match each English word with the correct Russian equivalent:

to calculate	вычислять
calculations	программировать
calculated	вычисления
calculating	программирующий
to program	вычисленный
programming	программист
programmer	вычисляющий
programmed	запрограммированный

VIII. Match the words from the left column with their definitions:

1) acronym	a) a series of operations on data, esp. by a computer
2) specify	b) able to be transferred from one machine or system to another
3) compile	
4) data processing	c) a collection of programs with related functionality
5) portable	d) identify clearly and definitely
6) package	e) a word formed from the initial letters of other words
	f) interpret into machine code

IX. Study the following words and choose:

a) nouns:

1) specification, specify, specific, specified, specifically;
2) require, required, requirement;
3) link, linkage, linked, linker, linking;

b) verbs:

1) compilation, compiler, compile, compiled;
2) process, processing, procession, processed;
3) convert, converted, convertibility, converter;

c) adjectives:

1) compatible, compatibility, compatibly;
2) operation, operate, operating, operated;
3) payable, payment, pay, paid.

X. Choose an appropriate word and fill in the sentences:

a) Instruction, instruct, instructed, instructor:

1) Our maths ___ explained to us the principles of binary arithmetic.
2) We were ___ to document our programs very carefully.
3) Both ___ and data have to be changed to machine code before the computer can operate on them.

b) Compilation, compiler, compile, compiled:

1) Our university computer doesn't have a PASCAL ___.
2) Usually, a programmer ___ his program before he puts in the data.
3) A source program can't be directly processed by the computer until it has been ___.

c*) *Result, results, resulting:

1) The linkage editor links systems routines to the object module. The ___ program, referred to as the load module, is directly executable by the computer.

2) The ___ of these mathematical operations were obtained from the university mainframe and not from my micro.

d*) S*pecification, specify, specific, specified, specifically:

1) Our company applies three packages with very ___ applications: payroll, accounts receivable, and accounts payable.

2) An applications program is designed to do a ___ type of work, such as calculating the stress factor of a roof.

3) Did the analyst give the new programmer the ___ necessary to start on the project?

XI. Read the text and find the answer to the question: **What is a source programme?**

Programs and Programming Languages

1. Computers can deal with different kinds of problems if they are given the right instructions for what to do. Instructions are first written in one of the high-level programming languages, depending on the type of problem to be solved. A program written in one of these languages is often called a source program, and it can't be directly processed by the computer until it has been compiled, which means interpreted into machine code. Here is a brief description of some of the many high-level languages:

2. **FORTRAN** acronym for FORmula TRANslation. This language is used for solving scientific and mathematical problems. It consists of algebraic formulae and English phrases. It was first introduced in the US in 1954.

COBOL acronym for COmmon Business-Oriented Language. This language is used for commercial purpose. COBOL, which is written using English statements, deals with problems that do not involve a lot of mathematical calculations. It was first introduced in 1959.

ALGOL acronym for ALGOrithmic Language. Originally called IAL, which means International Algebraic Language. It is used for mathematical and scientific purposes. ALGOL was first introduced in Europe in 1960.

PL/1 Programming Language 1. Developed in 1964 to combine features of COBOL and ALGOL. Consequently, it is used for data processing as well as scientific applications.

BASIC acronym for Beginner's All-purpose Symbolic Instruction Code. Developed in 1965 at Dartmouth College in the United States for use by students who require a simple language to begin programming.

C was developed in the 1970s to support the UNIX operating system. C is a highly portable general-purpose language.

3. When a program written in one of these high-level languages is designed to do a specific type of work, it is called an applications program.

4. The program produced after the source program has been converted into machine code is referred to as an object program or object module. This is done by a computer program called the compiler, which is unique for each computer.

5. The compiler is a systems program which may be written in any language, but the computer's operating system is a true systems program which controls the central processing unit, the input, the output, and the secondary memory devices. Another systems program is the linkage editor, which fetches required systems routines and links them to the object module. The resulting program is then called the load module, which is the program directly executable by the computer. Systems programs being the part of the software, they are usually provided by the manufacturer of the machine.

XII. Read sentence 3 of passage 1 and divide it into sense groups. State the dependency relations between them.

XIII. Generalize information about programming languages. Fill in the table.

Language	**Developed**	**Function**	**Characteristic**
FORTRAN			
	1959		
		mathematical and scientific purposes	
			combines features of COBOL and ALGOL
BASIC			
		to support Unix operating system	

XIV. Read passage 4 and define the connectors in the sentences.

XV. Which sentence corresponds to the content of the text?

1. Instructions for computers are written in one of the high-level languages.
2. FORTRAN is the language used for solving only scientific problems.
3. The compiler is a system program which is written only in COBOL.
4. The load module is the program directly performed by the computer.

XVI. In passage 5 pay attention to the sentences describing three system programs of the computer. Translate the passage.

4.3. Причастие I, II и герундий

I. Point out Participle I and Perfect Participle in the passive form:

a) 1ing, 2ed, having been 3ed, being 4ed, having 5ed;
b) having been 6ed, 7ing, 8ed, having 9ed, being 10ed;
c) being 11ed, having 12ed, 13ing, 14ed, having been 15ed;

d) having 16ed, 17ing, 18ed, being 19ed, having been 20ed;
e) 21ed, having been 22ed, being 23ed, having 24ed, 25ing;
f) 26ing, having been 27ed, 28ed, being 29ed, having 30ed;
g) 31ed, 32ing, having 33ed, having been 34ed, being 35ed.

II. Find active and passive forms of the participles:

a) having 1ed, have 2ed, being 3ed, be 4ed, has 5ed;
b) had 6ed, 7ing, have been 8ed, being 9ed, having 10ed;
c) has been 11ed, be 12ed, having been 13ed, had been 14ed, 15ing;
d) had been 16ed, 17ed, having 18ed, has 19ed, is 20ed;
e) are 21ed, be 22ed, being 23ed, having 24ed, have 25ed;
f) was 26ed, to be 27ed, having been 28ed, 29ing, has 30ed;
g) were 31ed, be 32ed, is 33ing, had 34ed, 35ed.

***III. Using the tables on pages 104 and 105 in each line find the forms meaning*:**
a*) *когда делается (p. 104):

1ing, having 2ed, having been 3ed, being 4ed, be 5ed, have 6 ed, have been 7ed, being 8 ed, are 9 ed, 10ed;

b*) *после того как был сделан (p. 105):

1ing, having 2ed, having been 3ed, being 4ed, be 5ed, have 6ed, have been 7ed, having been 8ed, has been 9 ed, had been 10ed.

IV. Find Participle I and Perfect Participle in a) active, b) passive forms. Give their Russian equivalents:

a) translating; having translated; having been translated; being translated writing; having written; having been written; being written; asking; having asked; having been asked; being asked; finishing; having finished; having been finished; being finished;

b) receiving; having received; having been received; being received; doing, having done; having been done; being done; calling; having called; having been called; being called; learning; having learnt; having been learnt; being learnt.

V. Find Participle I, state its function and give their Russian equivalents.

1. They are developing a new method now. 2. The linking networks were maintained by the company. 3. Being familiar with the problem he didn't find it interesting. 4. Not knowing the topic well, he got confused. 5. They have been producing circuits with germanium as the semiconductor material since May. 6. When combining, hydrogen and oxygen form water. 7. While making the experiment, the lab assistant put down all the necessary data. 8. The quantity of flowing electricity is directly related to the formula presented.

VI. Give the Russian equivalents of the following parts of sentences with Participle II.

Indirectly heated cathode; specifically targeted files; the data used is consistent; images drawn dates back to; is a collection of stored operational data; data used by all

the application systems, files are replaced by organized collection; as seen, these engines; when heated, the polymer.

VII. Find the similarities and differences in the parts of sentences in bold. Give the Russian equivalents of the sentences.

1. The **performed** work showed good results. 2. **Heated** glass is plastic. 3. The **received** message said that the experiment had been **completed**. 4. They saw the **broken** tubes in the laboratory. 5. They saw overturned tables and chairs and pieces of **broken** glass all over the room. 6. An eavesdropper trying to intercept the key would be **found out**. 7. Most QKD systems are currently **restricted** to tightly controlled lab conditions. 8. The discovery **mentioned** remained unknown to the world for a long time. 9. The results **received** changed with material used. 10. When **carried**, the television channels transmitted better pictures.

4.3.1. Сравнение функций причастия I и герундия

Participle I		Gerund	
1	2	3	4
is/are **xing** делает/делают has been **xing**/have been **xing**	часть простого сказуемого	–	не употребляется
–	не употребляется	is/are **xing** …есть делание	именная часть составного сказуемого
–	не употребляется	begins[1] **xing** (начинает) делать	часть составного глагольного сказуемого
The **xing** x делающий (какой) the x xing делающий	определение	a) of (about, for, in, at, **xing**) делания; б) the **xing** x (для чего?) делания	определение: а) после существительного; б) перед существительным
(When) **xing** … (While) **xing**… …**xing**…	обстоятельство	For **xing**… …for **xing.** делания, придаточное предложение	обстоятельство (всегда с предлогом)
–	не употребляется	**xing** is делание, делать	подлежащее
–	не употребляется	а) **xing** делать; б) of **xing** о делании	дополнение: а) без предлога; б) с предлогом

[1] После глаголов, выражающих начало, продолжительность или конец действия: continue, cease, start, etc.

Герундий может иметь перед собой:
– предлог, e.g.: *with*;
– притяжательное местоимение *my (our, your, his, her, its, their) xing*;
– существительное в притяжательном падеже *Tom's xing.*

I. State the Gerund in the active/passive forms.

1ing, being 2ing, having 3ing, have 4ed, has been 5ing, having been 6ed, of 7ing, to have been 8ing, 9ing, having been 10ed, to 11, to 12ing, 13ed, have 14ing, having been 15ed.

II. Give the Russian equivalents of the following parts of sentences. Pay attention to the form of the Gerund.

1) to avoid making mistakes; 2) to deny not having done the work; 3) excuse my coming here so late; 4) to forgive his interfering; 5) to go on making a presentation; 6) to keep insisting on her continuing the project; 7) to stop conducting the research; 8) not to mind consulting an expert; 9) could not help trying again; 10) can not put off doing these calculations.

III. Find differences and similarities of the structures in bold. Give the Russian equivalents of the following sentences.

a) He does not like **being told** what to do.
Telling the truth helps everybody.

b) He likes **being asked** for his expert advice.
The initial difficulties of **asking** for the necessary information were overcome.

c) He was charged with **having committed** plagiarism.
Committing a bill always leads to difficulties.

d) He was afraid of **being informed** about system failure.
Informing the team on time leads to a more effective work.

e) **Not knowing** what to do, they stopped the process.
I know every research in the field that is worth **being known**.

f) There is no hope of **his finishing the project** on time.
I called him to say about my **having completed the project**.

IV. Find the Gerund, define its features. Give the Russian equivalents of the following sentences.

1. The user selects the commands by simply looking at the blinking arrows on the screen. 2. Using video cameras, the robot studies its surroundings before planning its movements. 3. This new method shakes up conventions, but is definitely helping children to learn better, because at this age touching is one of their most developed senses and comes naturally. 4. Apple had initially been accused of infringing on six patents for iPhone-related technology covering everything from reducing signal noise to programming the device's touch screen. 5. The potential is boundless, according to some educational specialists, they see it as a way of providing students in the developing world with access to the international educational ladder. 6. This rapidly expanding method is catching on, but with a high drop-out rate is it really up to replacing the on-campus experience? 7. Conceptually it's possible for you to organize your life in such a way as you can move around all the things you might want to do without having to stand in a queue line, and you can do that from your sitting room.

8. I don’t think we are going to see education becoming nothing but playing digital games, but I don’t think you can do education with just one method. 9. Learning from playing computer games is not only for school children. In Germany lots of different people benefit from games, including students, people with special needs and even adult professionals. 10. After all, the concept – creating flexible electronics and assembling them on equally flexible plastic – has been touted since the 1960s, when the first flexible solar cell arrays appeared. 11. Controlling the TV without a remote would eliminate the need to look for it.

V. Find the Gerund, define its functions. Give the Russian equivalents of the following sentences.

1. Using this technique gives you more flexibility. 2. Typing text messages on a mobile phone via the tiny soft keyboard is very cumbersome. 3. A user can navigate through various on-screen menus by simply focusing attention on the commands. 4. Researchers also expect the system to contribute to reducing up to 30 percent of CO2 emissions from sports facilities. 5. Zach helped develop «A Slower Speed of Light», a videogame which explains the theory of relativity by enabling gamers to experience it. 6. Many countries have not only started using computer games in the classroom, but are also encouraging students to build their own games, even at a very young age. 7. New ways of interacting with computers have proliferated in recent years with technology like touch screens, motion-sensing and eye-tracking.

VI. Read the sentences and decide whether the words in bold are the Gerund or Participle I.

1**. Freezing** an Android phone can help reveal its confidential contents. 2. The advance could speed the development of smarter artificial skin capable of «**feeling**» activity on the surface. 3. The researchers discovered that quickly **connecting and disconnecting** the battery of a frozen phone forced the handset into a vulnerable mode. 4. After all, the concept – **creating** flexible electronics and **assembling** them on equally flexible plastic – has been touted since the 1960s. 5. **Using** bundles of vertical zinc oxide nanowires, the researchers built arrays **consisting of** about 8,000 transistors. 6. **Mimicking** the sense of touch electronically has been challenging, and can be achieved by **measuring** changes in resistance prompted by mechanical touch. 7. They include **finding** more efficient ways to sort through nanotubes which are made in a wide variety of sizes and types. 8. This gives a way to gain performance while **shrinking** the device. 9. In the early 1980s viruses depended on humans to do the hard work of **spreading** the virus to other computers. 10. Some harmful programs can create a backdoor, **allowing** a remote user to access the victim's computer system. 11. At that point, the system reverts to essentially **guessing** the location.

4.4. Герундиальные обороты

Герундий с относящимися к нему словами образует герундиальные обороты.

Признаки распознавания независимого герундиального оборота

1 (of) the x's (x) **xing +** зависимые слова 2 (of) my **xing** + зависимые слова ↓ – оборот стоит после предлога; – герундий стоит после существительного в притяжательном или общем падеже, притяжательного местоимения	*НЕЗАВИСИМЫЙ* герундиальный оборот	*– придаточным предложением с союзами что; то, что; о том, чтобы; в том, что;* *– существительным*

We all know of **their designing** a new type of semiconductor device.

Мы все знаем, **что они проектируют** новый тип полупроводникового устройства.

Prof. Smith's studying the properties of fiber attracted our attention.

То, что профессор Смит изучает свойства волокна, привлекло наше внимание.

Изучение профессором Смитом волокна привлекло наше внимание.

Признаки распознавания зависимого герундиального оборота

(by) **xing+** зависимые слова ↓ герундий стоит после предлога	*ЗАВИСИМЫЙ* герундиальный оборот	*– придаточным предложением с союзом то, что (о том, чтобы; в том, что) в том падеже, который определяется предлогом;* *– существительным*

This device differs from that one **by having** *a higher efficiency.*

Это устройство отличается от того устройства **тем, что** *оно* **имеет** *более высокую производительность*.

Это устройство отличается от того устройства **наличием** *более высокой производительности*.

I. Point out independent and dependent gerundial constructions.

In addition to 1ing…; by 2ing…; of Tom's 2ing …; in spite of 3ing …; his having 4ed …; of their 5ing …; of our 6ing …; due to the x being 7ed…; without being 8ed…; on the x being 9ed…; from not having 10ed…; owing to the x being 11ed.

II. Find the gerundial construction. Give the Russian equivalents of the following parts of sentences.

1. The molecules because of their being reactive. 2. Having discovered radium enabled to isolate. 3. Substituting this value in the equation. 4. His being late at the conference. 5. Without realizing the outcomes. 6. In spite of preventing from errors. 7. Our aim is studying science. 8. Impeded in making further discoveries. 9. He preferred changing the course of his research. 10. This implies knowing the basics of the theory.

III. Give the Russian equivalents of the following sentences. Pay attention to the translation of the gerundial constructions in the sentences. Find out the sentence without the gerundial construction.

1. In spite of not having the necessary expertise, the scientist made his great discovery. 2. These substances are alike in having high melting points. 3. Adding more turns makes the magnetic field stronger. 4. It is worthwhile considering more carefully the implication of the research results. 5. The scientist investigated the possibility of these rays being charged particles. 6. The analyst's efficiency may be attributed to his having acquired, by constant training, the necessary technique. 7. To calculate the motion of an electron, we investigate the accompanying wave motion instead of using classical point mechanics. 8. The physicist's being awarded the Nobel Prize soon became widely known. 9. Being appointed the head of the Department, Dr. Black started his work on atomic collisions. 10. The actual number of electrons depends upon the atom being considered.

IV. Give the Russian equivalents of the adjectives in the left column paying attention to the forms and meanings of the words they were derived from in the right column.

1. flexible	a) favour
2. bendable	b) compare
3. foldable	c) read
4. rollable	d) bend
5. wearable	e) flex
6. comparable	f) bear
7. favourable	g) wear
8. readable	h) fold
9. bearable	i) roll

V. State the differences of the following forms of the nouns. Explain how these differences effect their meaning.

Science – scientist
Research – researcher
Manufacture – manufacturer
Consumer – consumption
Innovation – innovator
Technology – technologist

Product – production
Indication – indicator
Sign – signature
Company – companion
Friend – friendship
Companion – companionship

VI. Match the words in the left column with their Russian equivalents.

durable	новаторский, инновационный
duration	прочность, долговечность
durability	новшество, нововведение
physics	математика
physicist	математик
physical	физик
mathematical	физика
mathematics	физический
mathematician	математический
innovate	продолжительность, длительность
innovation	вводить новшества; производить перемены
innovative	надёжный, прочный, долговечный

VII. In the text find the derivatives of the verb* to indicate*. Give other derivatives of this verb.

VIII. Arrange in pairs the words with a) similar meaning, b) contrary meaning.

a) substitute, shine, quality, material, imitate, replace, revolutionize, reach, property, research, substance, develop, common/usual, investigate, achieve, change/transform, mimic, glow, conventional, design/work out;

b) the same, consumer, stationary, decrease, regress, advance, producer, unusual, opaque, different, transparent, inner, thin, outer, mobile, ordinary, increase, thick

***IX. Read the text and find the answer to the question:* How is the capability of playing video in colour of a paper-like flexible screen obtained?**

Bend Me, Shape Me: Flexible Phones

1. Can you roll a telephone up, drop it, squish it in your backpack or step on it – without any damage? Researchers are working on just such handsets – razor-thin, paper-like and bendable. Numerous companies are working on the technology – LG, Philips, Sharp, Sony and Nokia among them – although reports suggest that South Korean phone manufacturer Samsung will be the first to deliver. Morph is one of the bendable prototypes Nokia has been working on. Samsung favours smartphones with so-called flexible OLED (Organic Light Emitting Diode) technology, and is confident that they will be «very popular among consumers worldwide». Their screens will be foldable, rollable, wearable and more, [and] will allow for a high degree of durability

through their use of a plastic substrate that is thinner, lighter and more flexible than conventional LCD technology.

2. There are other technologies that could make a smartphone bendy. E-ink is an innovation developed by a US company of the same name. The screens are black and white, and work by reflecting natural light instead of glowing themselves, mimicking the way text looks in paper books. There are about 30 million flexible e-ink displays in the field today. They are well-suited for simple phones, memory and battery indicators, smart credit cards, wristwatches, and signs. To have a fully flexible finished product, both parts of the display have to be flexible – the optical frontplane and backplane, where transistors are – as well as the device`s battery, the outer shell, the touchscreen and other components.

3. South Korean film LG Displays has just begun mass-producing fully flexible e-ink screens. Another company working with E-Ink is UK firm Plastic Logic. It uses the US firm`s optical frontplane but adds on its own backplane made out of non-rigid plastics, and then sells the part to device-makers. In 2012, Plastic Logic demonstrated a paper-like flexible screen capable of playing video in colour, which is achieved by placing a filter on top of the original black-and-white display.

4. Some other researchers are taking a different approach. Prof Andrea Ferrari from Cambridge University works on future bendy displays using graphene. The material was first produced in 2004 by two Russian-born scientists at the University of Manchester.

5. Graphene is a sheet of carbon just one atom thick – yet it is stronger than diamond, transparent, lightweight, has great conducting properties – and is flexible. Researchers believe that graphene may in future replace silicon and revolutionize electronics as we know it.

6. Whatever the technology, it seems certain that very soon our phones will be not just smart, but bendy too.

X. Say which sentence corresponds to the contents of the text:

1. Fully flexible e-ink screens started to be manufactured by South Korean manufacturer Samsung.
2. It is necessary to make both parts of the display flexible to get a fully flexible finished product.
3. Samsung is really quite advanced in this field.
4. The material that is tougher than diamond is graphene.
5. US company and e-ink technology have the same name.

XI. Read sentence 2 of passage 1 and divide it into sense groups. State the dependency relations between them.

XII. Compress passage 2 of the text to the maximum. Express its main idea in 3 sentences.

XIII. Translate passage 3 and 4 into Russian.

Итоговый тест

I. Подберите слово близкое по значению данному.

1. accurate:
a) careless; b) tidy; c) exact; d) beautiful;

2. to adjust:
a) to change; b) to fix; c) to develop; d) to agree;

3. drawback:
a) point; b) reason; c) cause; d) disadvantage;

4. application:
a) a use; b) data; c) device; d) property.

II. Заполните пропуски в тексте подходящим по смыслу словом:

a) including; b) being done; c) called; d) processing; e) cutting; f) creating.

Scientists are developing a revolutionary technology that could replace paper, **(5)**___electronic ink. E-Ink technology aims at **(6)** ___ a digital book that can type-set itself and that readers could leaf through just as if it were made of regular paper. E-Ink has several advantages, **(7)** ___: low power usage, flexibility and readability. Moreover, the technology saves trees by **(8)** ___ the demand on paper!

III. Поставьте глагол, данный в скобках, в нужную неличную форму глагола.

9. The computers **(link)** the two networks are being adjusted now.
10. Work **(do)**, the scientists can apply the results.
11. While **(calculate)** the speed the student made a mistake.
12. The material **(investigate)** is of great value.

IV. Выберите русский эквивалент для английской конструкции:

13. is the first to mention about the electric current	a) оказалось, что ошибки были обнаружены
14. competent enough to fulfill	b) полученные сведения были представлены
15. having been repaired the device was used	c) достаточно компетентный, чтобы выполнить задание
16. the error turned out to have been found out	d) после того как его отремонтировали, устройство использовалось
	e) первый, кто упомянул про электрический ток

V. Каждому из предложений в левой колонке подберите соответствующий элемент из правой колонки.

17. The team seems ___ a positive feedback from the software consultant.	a) to be connected
18. ___ the situation he managed to carry out the experiment.	b) used
	c) to have received
	d) is reported

19. For the experiment we need several electric devices ___ in series.

20. A bridge is a hardware and software combination ___ to connect the same type of data.

e) being described
f) having analyzed

VI. Заполните пропуски в тексте:

a) closed;
b) to be;
c) converting;
d) charged;
e) having sent;
f) lightning.

Electricity is something we do not notice until we do not have it. So, what is electricity? Electricity is simply a movement of **(21)** ___ particles through a **(22)** ___ circuit. The electrons, which flow through this wire, carry a negative charge. A **(23)** ___ discharge is the same idea, just without the wire. Electricity is made by **(24)** ___ some form of energy into flowing electrons at the power plant. The type of power plant depends on the source of energy used: thermal power, solar power, kinetic power and chemical power.

VII. Прочитайте текст. Затем изучите утверждения после текста и отметьте: T (true), если утверждение верное; F (false), если утверждение неверное; N (no information), если в тексте об этом не говорится.

A robot is a machine that gathers information about its environment and uses that information to follow instructions to do work. Imitating humans, robots also sense magnetic fields and ultrasonic waves. Robotic light sensors work by creating or changing an electric signal when light falls on them. When navigating, the robot sends out a beam of infrared light, which bounced off objects and returns to a light sensor of the robot. However, making 3D images requires large amounts of computer memory. Most robots have a microcomputer for «brains», which allows programming a lot of information. Neural networks are modelled after the human brain. Once trained, the neural net responds to an input with a likely output. Unlike rule-based systems, neural networks are incapable of giving definite answers. So, if robots eventually think like us, detect and express emotions, pursue their own interests and even make copies of themselves, drawing the line between machines and living things will be increasingly difficult.

25. When light falls on robots robotic light sensors start to function.

26. Most robots can «think», so it is possible to programme a great amount of information.

27. Neural networks are complicated systems used in the field of artificial intelligence.

28. The neural net of a robot responds to an input data without a likely output information.

APPENDIX

Словообразование
Word Formation

Образование глаголов путём конверсии

Существительное	*Глагол*
change – изменение lecture – лекция	to change – менять to lecture – читать лекцию
Прилагательное	*Глагол*
empty – пустой clean – чистый	to empty – опустошать to clean – чистить

Образование глаголов путём изменения места ударения

Существительное	*Глагол*
export /'ekspɔ:t/ – экспорт contest /'kɒntest/ – спор	to export /ɪk'spɔ:t/ – экспортировать to contest /kən'test/ – оспаривать

Образование глаголов путём чередования звуков

Существительное	*Глагол*
use /ju:s/ – употребления house /haʊs/ – дом, жилище	to use /ju:z/ – употреблять to house /haʊz/ – поселить, приютить

Образование глаголов путём присоединения префиксов

противоположное действие:		
dis-	to connect – соединять	to **dis**connect – разъединять
	to trust – доверять	to **dis**trust – не доверять
un-	to lock – запирать	to **un**lock – отпирать
de-	to code – кодировать	to **de**code – декодировать
«неверно, неправильно»:		
mis-	to apply – использовать	to **mis**apply – неверно использовать
	to hear – слышать	to **mis**hear – ослышаться
«снова, заново, вновь»:		
re-	to attach – присоединять	to **re**attach – повторно присоединять
	to write – писать	to **re**write – переписать
«сверх, чрезмерно»:		
over-	to load – грузить	to **over**load – перегружать
«перед, ранее»:		
pre-	to charge – заряжать	to **pre**charge – предварительно заряжать
для образования глагола:		
en-	large – большой	to **en**large – увеличить
	circle – круг	to **en**circle – окружать

Образование глаголов путём присоединения суффиксов

-ate	active – активный	to activ**ate** – активизировать
-ify	simple – простой	to simpl**ify** – упрощать
-en	short – короткий	to short**en** – укорачивать
	strength – сила	to strength**en** – усиливать
-ize	character – характер	to character**ize** – характеризовать

Словообразовательные суффиксы существительных

	Глагол:	*Существительное, обозначающее лицо или механизм, производящее действие:*
-or	to operate – работать	operat**or** – оператор
-er	to transmit – передавать	transmitt**er** – передатчик
		Существительное обозначает лицо, на которое направлено действие:
-ee	to employ – нанимать	employ**ee** – сотрудник
-ent	to study – изучать	stud**ent** – студент
-ant	to assist – помогать	assist**ant** – помощник
		Существительные отвлечённые, обозначающие общие понятия (процессы состояния, свойства и т. п.):
-ion	to construct – строить	construct**ion** – строительство
-tion	to produce – производить	produc**tion** – производство
-ation	to combine – соединять, совмещать	combin**ation** – комбинация, сочетание
-sion	to decide – решать	deci**sion** – решение
-ssion	to admit – допускать	admi**ssion** – допущение
-ment	to move – двигать(ся)	move**ment** – движение
-ure	to press – давить	press**ure** – давление
-ance	to perform – исполнять	perform**ance** – исполнение
-ence	to differ – отличаться	differ**ence** – различие
-age	to pass – проходить	pass**age** – проход
		Существительные, указывающие на профессию:
-ist	to type – печатать	typ**ist** – машинистка
-yst	to analyze – анализировать	anal**yst** – аналитик
	Прилагательное:	*Существительные абстрактные, обозначающие общие понятия, качество и т. п.:*
-ness	effective – эффективный	effective**ness** – эффективность
-ity	active – активный	activ**ity** – активность
-ty	safe – безопасный	safe**ty** – безопасность
-th (с изменением гласной)	long – длинный	leng**th** – длина
	Прилагательное и существительное:	*Существительное отвлечённое:*
-dom	free – свободный	free**dom** – свобода
-ship	leader – вождь, руководитель	leader**ship** – руководство
-ism	patriot – патриот	patriot**ism** – патриотизм
	Существительное:	*Указывает на национальность, профессию:*
-ian	Belarus – Беларусь	Belarus**ian** – белорус
-ese	Japan – Япония	Japan**ese** – японец
-ian	electricity – электричество	electric**ian** – электрик
-ist	science – наука	scientist – ученый

Словообразовательные суффиксы прилагательных

a) образованные от существительных:

-en	gold	золото	gold**en**	золотой
-ic	history	история	histor**ic**	исторический
-ical	logics	логика	logic**al**	логичный
-ian	Belarus	Беларусь	Belarus**ian**	белорусский
-ful	use	польза	use**ful**	полезный
- ic	economy	экономия	econom**ic**	экономический
-ly	day	день	dai**ly**	ежедневный
	friend	друг	friend**ly**	дружеский
-less	use	польза	use**less**	бесполезный
	truth	правда	truth**less**	ложный
-ous	fame	известность	fam**ous**	известный
	danger	опасность	danger**ous**	опасный

b) образованные от глаголов:

-able	to move	двигаться	move**able**	подвижный
-ible	to sense	понимать, осознавать	sens**ible**	разумный, благоразумный
-ant	to resist	сопротивляться	resist**ant**	сопротивляющийся
-ent	to depend	зависеть	depend**ent**	зависимый
-ive	to create	создавать	creat**ive**	созидательный
-tive	to talk	разговаривать	talka**tive**	разговорчивый

Предложные фразы (Prepositional phrases)

at the beginning of sth (when sth started) ***but:*** in the beginning = originally	в начале первоначально
at the end of sth (when sth is finished) ***but:*** in the end = finally	в конце, наконец, в конце концов
at all costs	любой ценой
at first	сперва, сначала
at hand	под рукой, рядом
at last	наконец
at least	по крайней мере
at the moment	в данный момент
at once	сразу, немедленно
at present	в настоящее время
at random	наобум, наугад, наудачу
at the same time	в то же самое время
at a time	за один раз, одновременно
at times	иногда, временами
by chance	случайно
by means of	посредством
by all means	во что бы то ни стало
by no means	ни в коем случае
one by one	по одному
step by step	шаг за шагом, постепенно

for the time being	в данное время, на данный момент
for a while	на (некоторое) время
in addition to sth	в дополнение к чему-либо, кроме
in advance	заранее, заблаговременно
in brief	вкратце, в немногих словах
in any case	во всяком случае
in addition to	кроме, в дополнение
in order to	для того, чтобы
in question	о котором идёт речь

Таблица неправильных глаголов

№	*Infinitive*		*Past Indefinite*	*Participle II*
1.	awake	будить	awoke	awoke, awaked
2.	be	быть	was, were	been
3.	bear	носить; рождать	bore	born
4.	beat	бить	beat	beaten
5.	become	становиться	became	become
6.	begin	начинать	began	begun
7.	bend	сгибаться	bent	bent
8.	bite	кусаться	bit	bitten
9.	bow	дуть	blew	blown
10.	break	ломать	broke	broken
11.	bring	приносить	brought	brought
12.	build	строить	built	built
13.	burn	гореть	burnt, burned	burnt
14.	burst	разрываться, лопаться	burst	burst
15.	buy	покупать	bought	bought
16.	catch	ловить	caught	caught
17.	choose	выбирать	chose	chosen
18.	come	приходить	came	come
19.	cost	стоить	cost	cost
20.	cut	резать	cut	cut
21.	deal	иметь дело (с кем-либо)	dealt	dealt
22.	do	делать	did	done
23.	dig	копать, рыть	dug	dug
24.	draw	чертить, рисовать	drew	drawn
25.	drink	пить	drank	drunk
26.	drive	водить машину	drove	driven
27.	eat	есть	ate	eaten
28.	fall	падать	fell	fallen
29.	feed	кормить	fed	fed
30.	feel	чувствовать	felt	felt
31.	fight	сражаться	fought	fought
32.	find	находить	found	found
33.	fly	летать	flew	flown
34.	forbid	запрещать	forbade	forbidden
35.	forget	забывать	forgot	forgotten
36.	forgive	прощать	forgave	forgiven
37.	freeze	замерзать	froze	frozen

38.	get	получать, доставать	got	got
39.	give	давать	gave	given
40.	go	ходить	went	gone
41.	grind	молоть	ground	ground
42.	grow	расти	grew	grown
43.	hang	висеть	hung	hung
44.	have	иметь	had	had
45.	hear	слышать	heard	heard
46.	hide	прятать	hid	hidden
47.	hit	ударять	hit	hit
48.	hold	держать	held	held
49.	hurt	ушибить	hurt	hurt
50.	keep	держать	kept	kept
51.	know	знать	knew	known
52.	lay	класть	laid	laid
53.	lead	вести	led	led
54.	learn	учиться	learned, learnt	learned, learnt
55.	leave	оставлять	left	left
56.	lend	давать взаймы	lent	lent
57.	let	позволять	let	let
58.	lie	лежать	lay	lain
59.	light	зажигать(ся), освещать	lighted, lit	lighted, lit
60.	lose	терять	lost	lost
61.	make	делать	made	made
62.	mean	означать	meant	meant
63.	meet	встречать	met	met
64.	pay	платить	paid	paid
65.	put	класть	put	put
66.	read	читать	read	read
67.	retell	пересказывать	retold	retold
68.	ride	ездить	rode	ridden
69.	ring	звенеть	rang	rung
70.	rise	вставать, подниматься	rose	risen
71.	run	бегать	ran	run
72.	say	сказать	said	said
73.	see	видеть	saw	seen
74.	sell	продавать	sold	sold
75.	send	посылать	sent	sent
76.	set	ставить, класть	set	set
77.	shake	трясти	shook	shaken
78.	shine	светить	shone	shone
79.	shoot	стрелять	shot	shot
80.	show	показывать	showed	shown
81.	shrink	сокращаться, сморщиваться	shrank	shrunk
82.	shut	закрывать	shut	shut
83.	sing	петь	sang	sung
84.	sink	погружаться	sank	sunk
85.	sit	сидеть	sat	sat
86.	sleep	спать	slept	slept

87.	slide	скользить	slid	slid
88.	smell	нюхать, пахнуть	smelt, smelled	smelt, smelled
89.	speak	говорить	spoke	spoken
90.	spell	писать или произносить слово по буквам	spelt, spelled	spelt, spelled
91.	split	раскалывать(ся), расщеплять(ся)	spilt	spilt
92.	spend	тратить	spent	spent
93.	spread	распространяться	spread	spread
94.	stand	стоять, ставить	stood	stood
95.	stick	приклеивать, наклеивать	stuck	stuck
96.	strike	ударять	struck	struck, stricken
97.	swim	плавать	swam	swum
98.	take	брать	took	taken
99.	teach	учить	taught	taught
100.	tear	рвать(ся)	tore	torn
101.	tell	рассказывать	told	told
102.	think	думать	thought	thought
103.	throw	бросать	threw	thrown
104.	understand	понимать	understood	understood
105.	wake	просыпаться	woke	waken
106.	wear	носить	wore	worn
107.	win	выигрывать, побеждать	won	won
108.	write	писать	wrote	written

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