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Кафедра иностранных языков №1

Наука и техника

Методическое пособие по развитию навыков чтения
на английском языке для студентов 1-2-го курсов
вечерней формы обучения
В 2-х частях
Часть 1

Science and Engineering

Methodical Directions
on the Development of the Skills of Reading
for the 1st and 2nd Year Students of the Evening Department

Part 1

Минск 2005

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Цель пособия – научить студентов читать и понимать научно-техническую литературу на английском языке по специальности, развивать навыки аннотирования и реферирования.

Каждый раздел сопровождается комплексом лексико-грамматических упражнений и грамматическим справочником, а также ключами в конце пособия.

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Unit I
Electricity
Vocabulary Study
Word List

Nouns and noun phrases

1. anode	анод
2. amplifier	усилитель
3. cathode	катод
4. charge	заряд, зарядение
electrical charge	электрический заряд
5. circuit	цепь, схема
6. current	ток
alternating current	переменный ток
direct current	постоянный ток
7. diode	диод
8. electrode	электрод
9. electron	электрон
10. enclosure	ограждение, ограждение, ограда
metal enclosure	металлический баллон
11. filament	нить накала, нить
12. flow	течение, поток, струя
13. grid	сетка
14. invention	изобретение
15. outside	наружная сторона, внешняя поверхность
16. oxide	окись
barium oxide	окись бария
strontium oxide	окись стронция
thorium oxide	окись тория
17. plate	пластина, полоса
18. power	энергия
19. rectifier	выпрямитель
20. supply	питание, снабжение, поставка, подвод
21. tube	(электронная) лампа, (электронный)
electron tube	прибор; трубка, труба
triode tube	триод
22. valve	электронная лампа
23. voltage	напряжение, вольтаж
Adjectives	
1. substantial	вещественный, реальный, значительный, заметный

Verbs

1. act	действовать
2. apply	применять, прилагать
3. cause	вызывать
4. coat	покрывать
5. conduct	проводить
6. control	регулировать, контролировать, управлять
7. emit	испускать, излучать
8. evacuate	очищать
evacuated atmosphere	выкаченный воздух
9. heat	нагревать, накалять
10. increase	увеличивать, расти
11. insulate	изолировать
12. place	класть, положить, помещать
13. seal	опечатывать, пломбировать
14. state	заявлять, сказать, утверждать
15. utilize	использовать, утилизировать

I. *Read and translate the following words. Arrange them into the groups: a) with one stress or stress on the first syllable; b) with the stress on the second syllable; c) with two or more stresses.*

Utilize, increase, insulate, filament, invention, electron, current, cathode, amplifier, diode, grid, oxide, plate, rectifier, substantial, apply, control, evacuate, emit, supply.

II. *Match the words on the left with the definitions on the right.*

- | | |
|--------------|---|
| 1) electrode | a. Flow of electricity through something or along a wire or cable. |
| 2) anode | b. Amount of electricity put into an accumulator, contained in a substance, etc. |
| 3) charge | c. Positively charged electrode (from which current enters). |
| 4) current | d. Negative electrode in the form of filament which, when hot, releases negative electrons which are attracted towards the anode. |
| 5) cathode | e. Closed path for an electrical current. |
| 6) circuit | f. Solid conductor by which an electric current enters or leaves a vacuum tube. |
| 7) filament | g. Slender thread, e.g. of wire in an electric light bulb. |
| 8) apply | h. Make practical use of (research, a discovery). |
| 9) conduct | i. Allow electric current to pass along or through. |
| 10) emit | j. Give or send out. |

III. Choose:

- a) a noun
 - 1. a) invent; b) invention; c) inventive.
 - 2. a) plateless; b) plateful; c) plate.
 - 3. a) application; b) apply; c) applicable.
 - 4. a) control; b) controllable; c) controller.
- b) a verb
 - 1. a) utilization; b) utilize; c) utilizable.
- c) an adjective
 - 1. a) cause; b) causal; c) causeless.
- d) an adverb
 - 1. a) increase; b) increasingly; c) increased.

IV. Define the meaning of the "x" words.

- 1) Enclose: enclosure = x: огораживание.
- 2) Oxide: oxidation = окислять: x.
- 3) Conduct: conductivity = x: проводимость.
- 4) Emit: emission = излучать: x.
- 5) Evacuate: evacuation = x: очищение.
- 6) Insulate: insulation = x: изоляция.

V. Make adjectives from the following nouns by adding the suffixes: -al, -able, -ous, -ic, -ive.

Substantiation, act, state, utilization, charge, circuit, electron, invention.

VI. Arrange the words with similar meaning of the two groups in pairs.

To amplify, enclosure, flow, to supply, tube, power, substantial, to act, to apply, to cause, to coat, to control, to emit, to place, to state.

To confirm, to strengthen, current, to provide, energy, real, to do, to use, to regulate, to put, to radiate, fencing, valve, to occasion, to cover.

VII. Match the words with their opposites, like the example:

- | <i>unknown</i> | <i>well-known</i> |
|----------------|-------------------|
| a) outside | 1) unreal |
| b) anode | 2) to rest |
| c) to rectify | 3) cathode |
| d) substantial | 4) inside |
| e) to act | 5) to distort |
| f) to coat | 6) to uncover |
| g) to evacuate | 7) to pollute |
| h) to heat | 8) to cool |
| i) to increase | 9) to decrease |
| j) flow | 10) stagnation |

VIII. Match the verbs from "a" with the nouns from "b".

a) emit	b) electrons
heat	cathode
utilize	filament
insulate	heater
increase	current
conduct	circuits
control	electrical charge
place	tube
cause	changes
amplify	voltage

IX. Complete the sentences with the given words.

Invention, diode, is insulated, emits, alternating, direct, detector, enclosure.

1. The simplest of electron tubes is the ..., which has two electrodes.
2. Modern electronic industry was born with the ... of the electron tube.
3. The heated cathode ... the electrons.
4. The heater ... from the metal tube.
5. Diode tubes are often used to change ... current to ... current.
6. The diode tube can be used as a
7. An electron tube consists of a glass or metal

X. Translate into English.

1. Диод состоит из катода и анода.
2. Нагреватель обычно изолируется от металлической трубки.
3. Диод позволяет току течь только в одном направлении.
4. Диоды могут использоваться в качестве выпрямителей, чтобы превратить переменный ток в постоянный.
5. Диоды часто используются в радио и телевизорах.
6. Триод состоит из трех элементов: катода, анода и сетки.
7. Триод может использоваться как усилитель.

A. Text Study

1. Look at the title. What do you think this reading will be about?

Text A

THE ELECTRON TUBE

It may be stated that the modern electronic industry was born with the invention of the electron tube. An electron tube, also called a vacuum valve, consists of a glass or metal enclosure in which electrodes are placed and sealed in either a gaseous or an evacuated atmosphere.

The simplest of electron tubes is the diode, which has two operating electrodes. One of these is the heated cathode, which emits the electrons, and the other is the plate or anode. The cathode may be directly heated or indirectly heated. The tube with the directly heated cathode utilizes the heated filament for the cathode; in this case the filament is coated with a special material, which greatly increases the number of electrons emitted. If the tube has an indirectly heated cathode, the cathode consists of a metal tube in the center of which is a filament or heater. The heater is insulated from the metal tube.

The outside of the cathode tube is covered with an electron-emitting material such as barium oxide, strontium oxide or thorium oxide.

The principal advantage of the diode tube is that it permits the flow of current in one direction only, that is, from the heated cathode to the anode. Alternating current applied to the cathode, the tube will conduct only during one half of each cycle, the cathode being negative and anode or plate being positive. For this reason diode tubes are often used as rectifiers to change alternating current to direct current. Diode tubes are used in the power-supply circuits of such electronic devices as radio and television. Another use of the diode tube is a detector (в качестве детектора).

The triode tube was discovered by adding a third element to the diode tube. The electron flowing from the cathode to the plate could be effectively controlled by changing the electrical charge on the grid placed between them. The effect of the grid in a triode makes it possible for the tube to act as an amplifier, small changes in voltage on the grid causing very substantial changes in the current flow from the cathode to the plate.

II. Read the text again carefully and answer the questions.

1. What was born with the invention of the electron tube?
2. What does an electron tube consist of?
3. What is the simplest of electron tubes?
4. What are the operating electrodes of the diode?
5. What is the difference between the tube with the directly and indirectly heated cathode?
6. What is covered with an electron-emitting material?
7. What is the principal advantage of the diode?
8. Why are diode tubes often used as rectifiers?
9. What does the triode tube consist of?
10. What does the grid make it possible to do in a triode?

III. Which of the vocabulary units used in paragraphs 1-2 could be regarded as international words?

IV. *Read the translation of the first paragraph. Compare it with the original and say if everything is right.*

Утверждают, что современная электронная промышленность началась с изобретения электронной лампы. Электронная лампа также называется вакуумной лампой. Она состоит из стеклянного или металлического баллона, в который помещаются электроды и запечатываются либо в газообразной, либо в вакуумной атмосфере.

V. *Find the English equivalents of the following words and word combinations in paragraph 2.*

Диод, два действующих электрода, нагретый катод, испускать электроны, анод, нагретая нить накаливания, в этом случае, покрывать особым веществом, изолировать.

VI. *Find the passage about the advantage of the diode and its use and translate it into Russian.*

VII. *Choose a passage and read it aloud (1-2 minutes).*

VIII. *Find complex grammar structures in the text and divide them into simple ones.*

IX. *Find out the subject-matter and the means of its secondary expression.*

e.g. *She likes to read books. **They** are interesting.*

X. *Find key words, phrases and the topic sentences which express the general meaning of each paragraph best of all.*

XI. *Using the information obtained from the paragraphs make a plan of the text.*

XII. *Speak about the electron tube using key words, phrases, the topic sentences and the plan of the text.*

B. Text Study

I. *Look at the title of the text. Make your predictions about the content of it. Read the text and answer the question.*

When can people get an electric shock?

Text B

ELECTRIC SHOCK AND SAFETY ELECTRIC SYSTEM

The strength of current depends on both the voltage and the resistance in a circuit. A current of 50 ma is dangerous for a man; it may result in an electric shock. One gets an electric shock in case one touches live conductors when the power is on. And a current of 100 ma and higher is

lethal. Thus, before working on a circuit, deenergize it and work on it with the power off.

Earthing system serves to protect attending personnel from electric shocks when voltage appears on parts that are normally dead. The risk of an electric shock decreases with decreasing voltage. In wet and hot atmosphere the risk of electric shock increases. Safe voltage for circuits used in dry atmosphere is under 36 V. When the power is on contacts live conductors are dangerous for life. When a live conductor is touched with both hands the resistance of the conductor is from 10,000 to 50,000 ohms. When a live conductor is touched with one hand the resistance is much higher. The higher is the body resistance, the smaller is the current that flows through the body. Take it into consideration and work with one hand if the power is on! Or work on the circuit with the power off!

Thus measures are taken to protect attending personnel from contacts with live parts of installations under voltage.

The danger of electric shock disappears provided the metal parts of installations under voltage are connected with ground by means of safety earthing. Connecting to ground is made by means of measuring devices. The faulty parts should be detected, eliminated, and replaced by new ones.

II. Read the text and define whether the following statements are true or false.

1. A current of 60ma isn't dangerous for a man.
2. When the power is on it's possible to get an electric shock.
3. It's impossible to protect people from electric shocks by means of earthing system.
4. The risk of electric shock decreases in wet and hot atmosphere.
5. The risk of electric shock is much higher when a live conductor is touched with one hand.

III. Expand the sentences.

1. The strength of current depends on both
2. One gets an electric shock in case
3. Safe voltage for circuits used in dry atmosphere is
4. When the power is on contacts live conductors are
5. The resistance of the conductor is from 10,000 to 50,000 ohms when
6. The higher is the body resistance, the smaller
7. The danger of electric shock disappears provided

IV. Now decide which of the following statements express important ideas or supporting details for this reading.

1. a) A current may be dangerous for a man, it may result in an electric shock.

- b) One gets an electric shock in case one touches live conductors when the power is on.
- c) A current of 100ma and higher is lethal.
2. a) When a live conductor is touched with both hands the resistance of the conductor is from 10,000 to 50,000 ohms.
- b) When a live conductor is touched with one hand the resistance is much higher.
- c) The higher is the body resistance, the smaller is the current that flows through the body.
3. a) Earthing system serves to protect personnel from electric shocks.
- b) Connecting to ground is made by means of measuring devices.
- c) The faulty parts should be detected, eliminated, and replaced by new ones.
- d) Safety measures should be taken to protect people from electric current.
- V. *Find the words – carriers of the primary and the secondary information in paragraph 1.*
- VI. *Define the function of commas in paragraph 2.*
- VII. *Find out the means of connection between clauses, parts of the sentence and sentences.*
- VIII. *Arrange the sentences in the logical order according to the text.*
1. Earthing system serves to protect attending personnel from electric shocks.
 2. The strength of current depends on the voltage and resistance in a circuit.
 3. Current may result in electric shock.
 4. It is necessary to work with one hand if the power is on or work with the power off.
- IX. *Give the main points of the text in 4-5 sentences.*

C. Text Study

- I. *Translate the text into Russian.*

Text C

INSULATORS

Insulating materials have a very low conductivity. They offer extremely high resistance to the flow of current. Insulators are used in electric devices to isolate conductors. Thus they should have a high dielectric strength and a

high resistivity. Their mechanical properties are also important for practical use.

Insulators are divided into gaseous, liquid and solid. They are also divided into groups according to their heat resistance.

The main gaseous insulator is air. At 20°C the dielectric strength of air is extremely low; it is lower than the strength of most liquid and solid dielectrics.

Liquid insulators are mineral oils, synthetic liquids, resins, and others. Of them mineral oils are used in oil transformers, cables and capacitors. In transformers, oil is used to insulate current conducting parts. Thus, it should have a high dielectric strength (10 to 20 mV/m). As to resins, at low temperatures they are amorphous. When heated, they become first plastic, then liquid. Resins are the most important components of many plastics. (Commonly used in electrical engineering are synthetic (polymeric) resins — polyethylene). Plastics are used as wire and cable insulation. Solid insulators are paper, cloth, plastics, and porcelain. Of them plastics are widely used in electrical engineering as insulating and structural materials. As to porcelain, it is highly resistant to mechanical factors and heat. Due to this property it is used to produce low- and high-voltage insulators.

Grammar Study

Времена группы Simple

Если нужно сообщить о действии или состоянии в настоящем, прошедшем или будущем, не указывая на характер протекания действия, то употребляют Present, Past, Future Simple в зависимости от времени действия. Для образования вопросительной и отрицательной форм используются вспомогательные глаголы do (does) – Present Simple, did – Past Simple, shall / will – Future Simple.

Если сказуемое выражено глаголом to be, to have или модальными глаголами (can, may, must и др.), то отрицательная и вопросительная формы образуются ими самостоятельно, без помощи вспомогательных глаголов.

Спряжение глаголов группы Simple

	Present Simple	Past Simple	Future Simple
	1	2	3
Утвердительная	I ask, make He (she) asks, makes We (you, they) ask, make	I asked, made He (she) asked, made We (you, they) asked, made	I (we) shall ask, make He (she) will ask, make You (they) will ask, make

	1	2	3
Вопросительная	Do you ask? make? Does she ask? make?	Did you (they, we, he) ask? make?	Shall we ask? make? Will he (you, they) ask? make?
Отрицательная	I do not (don't) ask, make He (she) does not (doesn't) ask, make	I (he, she, they) did not (didn't) ask, make	I (we) shall not (shan't) ask, make He (she, you, they) will not (won't) ask, make

Глагол to be
(to be – was / were – been)

Синтаксическая функция и значение	Пример и перевод
1. Смысловый глагол со значением «быть», «находиться» (когда за ним следует существительное с предлогом или наречие)	The new device is in the laboratory. Новый прибор находится в лаборатории.
2. Глагол-связка (в сочетании с предикативом) со значением «быть», «являться», «состоять», «закключаться»	My father is a designer. Мой отец – конструктор. Our aim is to obtain reliable results. Наша цель состоит в том, чтобы получить надежные результаты.
3. Вспомогательный глагол для образования форм: а) Continuous, Perfect Continuous б) страдательного залога	She was listening to the radio in the kitchen. – Она слушала радио на кухне. It has been raining since 9 o'clock a.m. – Дождь идет с 9 часов утра. The telephone was invented by A.Bell. Телефон был изобретен А.Беллом.
4. Модальный глагол со значением «должен», когда он стоит перед инфинитивом смыслового глагола с частицей "to"	The lecture is to begin at 10 o'clock. Лекция должна начаться в 10 часов.

I. Choose the correct phrase underlined in each sentence.

1. What time go you/do you go to bed on Saturdays ?
2. Why are you waiting/do you waiting outside the door?
3. Don't ask Tim. He doesn't know/not knows the answer.
4. I having/I'm having my lunch at the moment.
5. When you leave/do you leave the house ?
6. I don't understand. What is happening/is happen?
7. Excuse me, does you know/do you know the time?
8. This is a great party. I'm having/Am I having a lovely time.
9. We can't use the lift because it don't works/doesn't work.
10. What you are doing/are you doing here?

II. Read the answers and then complete the questions.

1. Where ..does Sue.....live.....?
Sue? She lives at the end of Axwell Road.
2. Do?
Jim? No, I don't know him.
3. What?
At the moment? I'm doing my homework.
4. Are?
Here? No, I'm sitting over there.
5. Do?
Here? No, we change trains at the next station.
6. Why?
I'm wearing two pullovers because I feel cold!
7. Is?
David? No, he's not staying with Tom.
8. When?
Kate? She comes home at 6.30.

III. Rewrite each sentence so that the verb underlined is a negative contraction.

1. Naomi and Bill are watching television.
Naomi and Bill aren't watching television.
2. Pater likes chocolate cake.
.....
3. Carol drives a little red sports car.
.....
4. I'm using this pencil at the moment.
.....
5. The children are having lunch in the kitchen.
.....

6. The sun sets in the east.
.....

7. I get up early on Saturday.
.....

8. Kate is writing a novel.
.....

9. Sue lives in London.
.....

10. We're waiting for you.
.....

IV. Choose the correct sentence in each context.

a) You want to invite a friend to your party on Friday. You say:

1. I have a party on Friday. Do you want to come?
2. I'm having a party on Friday. Do you want to come?

b) You find a wallet on your desk and ask the people nearby:

1. Who does this wallet belong to?
2. Who is this wallet belonging to?

c) A friend invites you to a snack bar at lunch time. You say:

1. Thanks, but I always go home.
2. Thanks, but I'm always going home.

d) A friend opens the door and says: What are you doing? You reply:

1. I work as a secretary.
2. I'm repairing the computer.

e) A friend asks: Do you like lemon tea? You reply:

1. I prefer tea with milk.
2. I'm preferring tea with milk.

f) You haven't decided yet about buying a new bike. You say:

1. I think about it.
2. I'm thinking about it.

g) A friend asks you if you have finished the book she lent you. You say:

1. Sorry, I still read it.
2. Sorry, I'm still reading it.

h) It is a hot day, but a friend has a heavy coat on. You ask:

1. Why are you wearing a heavy coat?
2. Why do you wear a heavy coat?

V. Choose the correct word or phrase underlined in each sentence.

1. That can't be right! (I don't believe / I'm not believing it!
2. Carol can't swim today. She has/is having a cold.
3. See you in the morning. I leave/I'm leaving now.
4. What do you do/are you doing? If you drop it, it will explode!
5. Stop doing that, Billy! You are /You are being very silly.

6. I drive/I'm driving! You can sit in the back with Martin.
7. What do we eat/are we eating this evening? I'm really hungry!
8. You're a great cook! This cake tastes/is tasting wonderful.
9. Where do you go/are you going? I haven't finished speaking to you!
10. Chemistry is hard. I am not understanding/I don't understand it.

VI. Put each verb given into present simple or present continuous.

1. Ugh, don't show me that picture! I (hate) .../.....*hate*..... spiders!
2. Who (you, go with)to the match on Saturday?
3. In the winter, what (you, wear).....?
4. I can't stand horror films. I (think).....*they're* really silly!
5. Diana (not, usually, sit)*next* to Ellen.
6. Why (you, look at)..... me like that? Have I done something wrong?
7. Excuse me, but (this bus, stop)..... outside the Post Office?
8. I(not take) the bus to school today. My mother (give) ...
..... me a lift.
9. Don't worry about the cat. It (only eat).....*once* a day.
10. I can't work out the answer, (you, know) what it is?
11. What's the matter? Why (you, stare)*at* me like that?
12. Excuse me, but (you, speak) ... English? I'm looking for a hotel.
13. Helen (stay) with her brother while her house is being repaired.
14. You should go on a diet. (you, put)*on* weight.
15. (they, speak) French or German? I can't tell the difference.

VII. Choose the correct sentence, 1 or 2, in each mini-dialogue.

- a) A: Can you come dancing tomorrow night?
B: 1) Sorry, I'll play basketball.
2) Sorry, I'm playing basketball.
- b) A: What are your plans for the summer?
B: 1) I'll spend a month in the mountains.
2) I'm going to spend a month in the mountains.
- c) A: What do you think about the weather?
B: 1) It'll probably rain tomorrow.
2) It's raining tomorrow.
- d) A: What about tomorrow at about 5.30.?
B: 1) OK, I'll see you then.
2) OK, I'm seeing you then.
- e) A: Mary is buying a dog next week.
B: 1) Really? What is she going to call it? 2) Really ? What is she calling it ?
- f) A: It would be nice to see you next week.

- B: 1) Are you doing anything on Wednesday ?
2) Will you do anything on Wednesday?

VIII. Put the verb given into a form of will, going to or present continuous. More than one answer may be possible.

1. Have you heard the news? Harry (join) ...us.
2. Sorry to keep you waiting. I (not be).....long.
3. According to the weather forecast, it (snow) tomorrow.
4. I'm sorry I can't meet you tonight. I (go out) with my parents.
5. Careful! You (knock)that jug off the table!
6. In fifty years' time, most people (probably ride)bicycles to work.
7. Our teacher (give).....us a test tomorrow.
8. I (go)..... to Manchester at the end of next week.
9. Look out! You (hit)that tree!
10. I think our team (probably win).....

IX. Analyze the functions of the verb to be. Translate the sentences into Russian:

1. The results of the experiment are of great importance for our further work.
2. There are no chemical plants in our town.
3. The substance that we are speaking about is water.
4. We are to translate technical literature in the second year.
5. Technical progress is impossible without high quality materials.
6. Electronics is being used more and more throughout the industry.
7. The electron is a particle.
8. Our task is to finish the test by 7 o'clock.
9. Smoking is dangerous.
10. This scientific discovery was the result of six years research.
11. Our aim is to accomplish this task as soon as possible.
12. Their house is in the middle of the village.

Unit II
Computers
Vocabulary Study
Word List

Nouns and noun phrases

- | | |
|----------------|---|
| 1. application | применение |
| 2. approach | подход, приближение |
| 3. circuitry | электрические схемы, компоновка электрической схемы |
| 4. computation | вычисление |

5. condition	условие
6. creation	создание
7. determination	определение, решение
8. efficiency	эффективность
9. employment	применение, использование
10. engineering sciences	технические науки
11. field	отрасль
12. information flow	поток информации
13. objective	цель
14. possibility	возможность
15. reliability	надежность, прочность
16. sequence	последовательность
17. transmission	передача
18. variety	разнообразие
19. view	намерение

Adjectives

1. complicated	сложный
2. great	великий, большой
3. low-cost	низкой стоимости
4. main	главный, основной
5. modern	современный
6. particular	особенный, особый
7. simple	простой
8. sufficient	достаточный
9. wide	широкий

Verbs and verbal phrases

1. adopt	принимать, усваивать
2. apply	применять
3. base	базировать, основывать
4. create	создавать
5. design	предназначать, проектировать
6. employ	употреблять, применять, использовать
7. express	выражать
8. fulfil	выполнять, осуществлять
9. govern	управлять, регулировать
10. lead	вести
11. pave	мостить, прокладывать
12. perform	выполнять, осуществлять
13. require	требовать
14. permit	позволять

- 15.solve
- 16.utilize
- 17.work out

решать, разрешать (проблему)
использовать
составлять, разрабатывать

Adverbs

1. easily
2. entirely
3. quite
4. rather

легко
всецело, совершенно
довольно, совершенно
достаточно, довольно

I. Read and translate the following words. Arrange them into the groups: a) with one stress or stress on the first syllable; b) with the stress on the second syllable; c) with two or more stresses.

Reliability, technique, govern, modern, computation, require, fulfil, logical, sequence, subdivision, information, employment, objective, program, process, automatic, possibility, importance, control, system, technical, industrial, machine.

II. Match the words on the left with the definitions on the right.

- | | |
|-----------------|--|
| 1) Objective | a) mathematical calculation |
| 2) computer | b) what you are trying to achieve |
| 3) technique | c) an electronic machine that can quickly make calculations, store information |
| 4) computation | d) a particular method of doing something |
| 5) instructions | e) clear and detailed information on how to do something, especially written information |

III. Choose:

a) a noun

1. a) provide; b) providing; c) provision; d) provided.

b) a verb

1. a) application; b) apply; c) applied; d) applicable.

c) an adjective

1. a) solve; b) solution; c) solvable; d) solved.

d) an adverb

1. a) widen; b) widely; c) wide; d) width.

IV. Define the meaning of the "x" words.

1. Produce: production = производить: x.
2. Consider: consideration = рассматривать: x.
3. Include: inclusion = включать: x.

4. Absorb: absorption =поглощать: х.
5. Operate: operator = работать:х.
6. Develop: development = развивать:х.
7. Replace: replacement = заменять:х.
8. Create: creature = создавать:х.
9. Differ: difference = различать:х.

V. Make adjectives from the following nouns by adding the suffixes: - al, -ic, -ous and translate them into Russian.

Industry, mathematics, logic, digit, arithmetics, atmosphere, metal, base, electron, harmony, monotony, danger, fame, religion, courage.

VI. Arrange the words with similar meaning of the two groups in pairs.

- | | |
|----------------|-----------------|
| 1) entirely | a) fulfil |
| 2) create | b) evolution |
| 3) field | c) employment |
| 4) importance | d) principal |
| 5) objective | e) significance |
| 7) main | f) purpose |
| 8) development | g) branch |
| 9) application | h) completely |
| 10) perform | i) produce |

VII. Match the words with their opposites, like the example:

- | <i>easy</i> | <i>hard</i> |
|----------------|--------------|
| 1) high | a) before |
| 2) possibility | b) low |
| 3) after | c) difficult |
| 4) new | d) simple |
| 5) easy | e) the same |
| 6) complicated | f) old |
| 7) different | g) narrow |
| 8) soon | h) lately |

VIII. Match the verbs from "a" with the nouns from "b".

- a) to transmit, to solve, to govern, to pave, to utilize, to fulfil, to develop, to work out, to perform;
- b) problems, information, the way, processes, the program, techniques, operations, principles, the algorithms.

IX. Complete the sentences with the given words.

Are applied, systems, technical possibilities, programs, cybernetics, objectives, engineering sciences, control algorithms, technical cybernetics.

1. The computers have created entirely new
2. The computers paved the way for a new field of science -
3. The importance of cybernetics is great in the sphere of
4. A newly developed field of knowledge is
5. Its ... are to control automatic industrial processes.
6. One of the main problems of technical cybernetics is the development of
7. The algorithms worked out for employment in control machines are called....
8. Two ... of computers are now created for control computer design.
9. In our country both systems of control

X. Translate into English.

1. Компьютеры создали новые технические возможности автоматического контроля промышленных процессов.
2. Значение кибернетики велико.
3. Целью технической кибернетики является контроль автоматических промышленных процессов.
4. Программы – это алгоритмы, разработанные для использования в контрольных машинах.
5. Электронные цифровые компьютеры выполняют как арифметические, так и логические операции.
6. Компьютеры позволяют управлять процессами в довольно сложных условиях.

A. Text Study

II. Look at the title. What do you think this reading will be about? Read the text and define its main idea.

Text A

COMPUTERS AND CYBERNETICS

The computers or high-speed electronic machines of today have created entirely new technical possibilities in automatic control of industrial processes. First designed for solving mathematical problems, they soon paved the way for a new field of science — cybernetics — that studies general principles of control both in life and non-live systems. The importance of cybernetics is great in the sphere of engineering sciences. A newly developed field of knowledge is technical cybernetics. Its objectives are to

control automatic industrial processes, to study problems of transmission of information and to develop new principles of automatic control.

One of the main problems of technical cybernetics is the development of control algorithms to be used in processing and control of information flows. The algorithms worked out for employment in control machines are called programs. These are based on subdivision of the computation process into simple arithmetical operations and on determination of the logical operations to be performed with a view to fulfil the program which gives the sequence of the machines and must be coded or expressed in the adopted code systems.

Two systems of computers are now created for control computer design.

One of these is the development of general-purpose control machines that may have much wider application but require more complicated logical circuitry and greater number of instructions and commands employed in the computer. This approach permits control of a great variety of industrial units with the aid of one and the same computer.

The second system utilizes modern microcomputer techniques to develop special-purpose machines designed to control a particular process. This leads to the creation of more easily operated and low-cost control computers. Tests of some control computers manufactured for specific industrial units have shown their efficiency and quite sufficient reliability.

In our country both systems of control are applied. Electronic digital computers perform both arithmetical and logical operations, making it possible to govern processes under rather complicated conditions.

II. Read the text again carefully and answer the questions.

1. What possibilities have the computers created?
2. What does cybernetics study?
3. What are the objectives of technical cybernetics?
4. What is the main problem of technical cybernetics?
5. Where are control algorithms used?
6. What are programs?
7. What are programs based on?
8. How many systems are now created for control computer design?
9. What can you say about the first system?
10. What does the second system utilize?
11. Where are both systems of control applied?
12. What do electronic digital computers perform?

III. Which of the vocabulary units used in paragraphs 1-2 could be regarded as international words (scientific terms)?

IV. Read the translation of the first and the second paragraphs. Compare it with the original and say if everything is right.

Третья система использовала современную технологию микрокомпьютеров для развития машины специального назначения, сконструированной для контроля за отдельными процессами. Это привело к созданию легко работающего и дорогого контрольного компьютера. Тесты контрольного компьютера, изготовленного для специфического промышленного прибора, показывают его эффективность и недостаточную надёжность.

В нашей стране применялись все системы контроля, электронный цифровой компьютер выполняет арифметические и логические операции, делающие возможным управлять процессом в самых простых условиях.

V. Find the English equivalents of the following words and word combinations in paragraph 4:

применение, требовать, сложный, компоновка электрической схемы, подход, разнообразие, помощь, устройство;

in paragraph 5:

особенный, создание, низкая стоимость, действенность, достаточный, надёжность.

VI. Find passage about one of the main problems of technical cybernetics and translate it into Russian.

VII. Choose a passage and read it aloud (1-2 minutes).

VIII. Find complex grammar structures in the text and divide them into simple ones.

IX. Find out the subject-matter and the means of its secondary expression. e.g. The children are hungry. Give them something to eat.

X. Find key words, phrases and the topic sentences which express the general meaning of each paragraph best of all.

XI. Using the information obtained from the paragraphs make a plan of the text.

XII. Speak about computers, technical cybernetics using key words, phrases, the topic sentences and the plan of the text.

B. Text Study

1. Look at the title of the text. Make your predictions about the content of it. Read the text and answer the questions.

- a. What applications of computers do you know?
- b. Where else may computers be used?
- c. How does an ordinary computer operate?
- d. What types of computers do you know?

Text B

COMPUTERS CONCERN YOU

When Ch. Babbage, a professor of mathematics at Cambridge University, invented the first calculating machine in 1812 he could hardly have imagined the situations we find ourselves in today. Almost everything in modern world is done with the help of computers – the complicated descendants of his simple machine. Computers are being used more and more extensively in the world today, for the simple reason that they are far more efficient than human beings. They have much better memories and can store great amount of information and they can do calculations in a fraction of the time required by a human mathematician. No man alive can do 500,000 sums in one second, but a modern computer can.

In fact, computers can do many things we do, but faster and better. They can control machines at factories, work out tomorrow's weather and even play chess, write poetry or compose music. Let's look now at some of the ways in which computers concern people in their daily lives and work.

Many people associate computers with the world of science and mathematics, but they are also a great help to scholars in other subjects: in history, literature and so on. It is now possible for a scholar to find a book or an article he needs very quickly, which nowadays when a million or more new books are published each year is quite an advantage. You tell the computer which subject you are interested in and it produces any microfiche you need in seconds.

There are also systems which are being developed to translate articles from foreign magazines by computer and to make up many lists of information which are needed in a modern library. So, computer can help us to deal with the knowledge explosion in many ways. One can imagine a time when libraries will be run by computers, without human being at all.

Or, let's take another example. When a man drives a car for long distances he has two problems: to keep the car at constant speed and watch that he does not run into the car in front of him. Engineers are now experimenting with a system which has a computer control of these two

problems. The car's computer keeps the speed constant. At the same time the distance between the car and any other car in front of it is measured by a beam of light transmitted forwards. The beam meets the rear reflectors of the car in front and it is reflected back, which enables to measure the distance. This information is fed to the computer which adjusts (регулировать) its speed control accordingly.

II. Read the text and define whether the following statements are true or false.

1. Charles Babbage invented the first calculating machine in the 18th century.
2. Computers play a very important role in modern life.
3. Computers are less efficient than human beings.
4. Computers can store great amount of information.
5. It's impossible to imagine a time when libraries will be run by computers, without human beings at all.

III. Expand the sentences.

1. Ch. Babbage invented the first calculating machine.
2. Almost everything in modern world is done with the help of computers.
3. Computers do many things.
4. Computers are also a great help to scholars.
5. The car's computer adjusts its speed control accordingly.

IV. Now decide which of the following statements express important ideas or supporting details for this reading.

1. a) Everything in modern world is done with the help of computers.
b) Computers are being used more extensively in engineering.
c) Computers have a very good memory.
2. a) Computers are able to do many things.
b) Computers can control machines at factories, play chess, compose music.
c) Computers concern people in their life and work.
3. a) Computers are associated with the world of science.
b) Computers help scholars in different subjects.
c) Computers can help you to find a book or an article you need.

V. Find the words – carriers of the primary and the secondary information in paragraph 1.

VI. Define the function of commas in paragraph 3, 5.

VII. Find out the means of connection between clauses, parts of the sentence and sentences.

VIII. Arrange the sentences in the logical order according to the text.

- A. Computers help people to study.

- B. The creator of the first calculating machine couldn't predict its significance.
- C. Computers help drivers.
- D. The possibilities of computer are unlimited.
- E. Computers are widely used in our everyday life.

IX. Give the main points of the text in 4-5 sentences.

C. Text Study

I. Translate the text into Russian.

Text C

HARNESSING THE SPEED OF LIGHT

When the American scientist Alan Huang revealed his plans to build an optical computer, most scientists considered this idea as hopeless. It was impractical, if not possible, they said, to create a general-purpose computer that could use pulses of light rather than electrical signals to process data. During one of the scientist's lectures on the subject, a third of the audience walked out. At another one, some of the scientists laughed, calling the researcher a dreamer.

That was several years ago. Now the scientist demonstrated his experimental computing machine based on optics. It took him five years to develop it. The device – a collection of lasers, lenses and prisms – can serve as the basis for future optical computers 100 to 1,000 times as powerful as today's most advanced supercomputers. The potential applications are remarkable: robots that can see, computers that can design aircraft, processors that can convert spoken words into written text and vice versa. Such practical optical computers are still years away – some would say light-years.

Yet many scientists are predicting that the device will have an impact similar to that of the integrated circuit which made small personal computers possible.

Photons, the basic unit of light beams, can in theory be much better than electrons for moving signals through a computer. First of all, photons can travel about the times as fast as electrons. And while electrons react with one another, beams of photons, which have no mass or charge, can cross through one another without interference. Thus, photons can move in free space. This could open the door to radically new and different computer designs, including so-called parallel processor that could work on more than one problem at a time instead of one after another, as today's new generation computers do.

Grammar Study

Времена группы Continuous

Времена группы Continuous образуются с помощью вспомогательного глагола to be в соответствующем времени, лице и числе и причастия I, т.е. по формуле to be + Participle I (ing).

The Continuous (Active)

	Present	Past	Future
Утвердительная форма	I am writing <u>he, she, it</u> is writing <u>we, you, they</u> are writing	<u>I, he, she, it</u> was writing <u>we, you, they</u> were writing	<u>I, we</u> shall be writing <u>he, she, it, we, you, they</u> will be writing
Вопросительная форма	Am I writing? Is <u>he, she, it</u> writing? Are we, you, they writing?	<u>was I, he, she, it</u> writing? were <u>we, you, they</u> writing?	Shall <u>I, we</u> be writing? Will <u>he, she, it, we, you, they</u> be writing
Отрицательная форма	I am not writing <u>he, she, it</u> is not writing <u>we, you, they</u> are not writing	<u>I, he, she, it</u> was not writing <u>we, you, they</u> were not writing	<u>I, we</u> shall not be writing <u>he, she, it, we, you, they</u> will be not writing

Времена группы Continuous употребляются для выражения действия, происходящего в какой-то определенный момент времени в настоящем прошедшем и будущем. Этот момент может подразумеваться из контекста или может быть обозначен либо конкретным указанием на время, например: в 10 часов, либо указанием на другое однократное действие, например: когда мы вошли; когда мы вернулись и т.д.

В Present Continuous момент может быть выражен словами now сейчас, at the moment в этот момент. Например,

They are doing grammar exercises now. Они делают грамматические упражнения сейчас.

They were doing grammar exercises when he came in. Они делали грамматические упражнения, когда он вошел.

They will be doing grammar exercises at 10 o'clock tomorrow. Они будут делать грамматические упражнения завтра в десять часов.

Глаголы, выражающие чувства: to love (любить), to like (нравиться), to hate (ненавидеть) и т.п., восприятия: to see (видеть), to hear (слышать), to feel (чувствовать), to know (знать), to remember (помнить), to understand (понимать) и т. п., а также глаголы to belong (принадлежать), to contain (содержать), to consist (состоять), to possess (обладать), как правило, в форме Continuous не употребляются, например,
Thank you, I feel much better now. – Благодарю Вас, я чувствую себя гораздо лучше.

На русский язык времена группы Continuous переводятся глаголами несовершенного вида настоящего, прошедшего или будущего времени. Длительный характер действия передается словами сейчас, в данный момент, в это время и т. д.:

You can talk to him. He is not working.	Вы можете поговорить с ним. Он не работает в данный момент.
He was getting ready for his final exams when I came in.	Он готовился к выпускным экзаменам, когда я пришел.
She will be working at her article at that time tomorrow.	Завтра в это время она будет работать над своей статьей.

The Continuous (The Passive)

To be + being + Participle II								
Present	<table border="0"> <tr> <td>I</td> <td>am</td> <td rowspan="3">} being written</td> </tr> <tr> <td>he, she, it</td> <td>+ is</td> </tr> <tr> <td>we, you, they</td> <td>are</td> </tr> </table>	I	am	} being written	he, she, it	+ is	we, you, they	are
I	am	} being written						
he, she, it	+ is							
we, you, they	are							
Past	<table border="0"> <tr> <td>I</td> <td>was</td> <td rowspan="3">} being written</td> </tr> <tr> <td>he, she, it</td> <td>+ were</td> </tr> <tr> <td>we, you, they</td> <td>were</td> </tr> </table>	I	was	} being written	he, she, it	+ were	we, you, they	were
I	was	} being written						
he, she, it	+ were							
we, you, they	were							

В страдательном залоге Future Continuous не употребляется. Три способа перевода страдательного залога справедливы и для перевода времен группы Continuous, но последние переводятся глаголом несовершенного вида, например: Книгу читают. – The book is being read.

Глагол to have (to have – had – had)

Синтаксическая функция и значение	Пример и перевод
1. Смысловый глагол со значением «иметь», «обладать» (перед именем существительным, числительным, местоимением)	Now Belarus has many educational establishments. Сейчас в Беларуси имеется много учебных заведений.
2. Вспомогательный глагол для образования времен Perfect (перед причастием прошедшего времени)	Many years have passed since the day when radio was invented. Прошло много лет с тех пор, как было изобретено радио.
3. Эквиваленты модального глагола в значении долженствования (перед инфинитивом смыслового глагола с частицей «to»)	He had to make a lot of experiments. Ему пришлось проводить много экспериментов.

I. Explain the use of Continuous Tense in the following sentences. Translate the sentences into Russian.

1. I am at my English lesson. I am sitting and doing my exercises. My friend is not sitting, he is standing at the blackboard and looking at me.
2. It is getting cold now, isn't it? Look out. Is it raining now?
3. You are late. What were you doing? I was translating a text.
4. When I came home my parents were having supper and at the same time they were watching TV.
5. What was he doing when I rang up an hour ago? He was looking through a newspaper when I rang up.
6. Tomorrow we shall be preparing for a test for the whole evening.
7. In July they will be taking their exams for the whole month.

II. Choose the right form of the verb in brackets.

1. We (are translating, translate) a technical text now.
2. We usually (are not translating, do not translate) stories.
3. She (does not look, is not looking) through all the newspapers every evening.
4. He (looked, was looking) through a newspaper when the telephone rang.
5. What (were, was) you doing a minute ago? I (was watching, watched) television.
6. I (watch, am watching) television every day.
7. I had a late night, I (worked, was working) until midnight.
8. Yesterday he (worked, was working) a lot.
9. The students (had, were having) an interesting discussion when the teacher came in.

III. Define the functions of the verb to have in the following sentences. Translate them.

1. Cosmic television has a great future.
2. He had to work hard to complete his investigation on time.
3. The engineer will have to improve the accuracy of this machine-tool.
4. A new method has been used in order to investigate this problem.
5. I have to do this work now.
6. Our planet has powerful sources of energy.
7. You will have to go to the library to get this book.
8. We've got a new teacher.
9. She will have many new subjects next term.
10. They have already passed the examination in electrical engineering.

IV. Choose the correct variant.

- a) While I washed/was washing my hair, the phone rang/ringed.

- b) How did you felt/did you feel yesterday afternoon?
- c) When I reached/was reaching home I received/was receiving David's phone call.
- d) Last summer I was going swimming/went swimming every weekend.
- e) When the dog bit/was biting Laura's leg, she screamed/was screaming.
- f) We sang/sung some songs and then ate/eat some sandwiches.
- g) When you fell/felt over the cliff, what happened/was happening next?
- h) While Mary washed up/was washing up, she broke/was breaking a cup.
- i) I didn't see/didn't saw where the bus-stop was, so I was missing/missed the bus.
- j) What did you do/were you doing when I phoned/was phoning you last night? There was no reply.

V. Complete the sentences with the given words and phrases.

ago	in	last week	at	when	while
-----	----	-----------	----	------	-------

- a) Two burglars broke into the house *while* we were watching television.
- b) I met an old friend of mine in the city center.
- c) What were you doing the police officer knocked on the door?
- d) Jan met Sarah half-past eight outside the cinema.
- e) Dick was preparing lunch, he cut his finger badly.
- f) I first came to this town more than twenty years
- g) Jim was studying to be a doctor he met Sally.
- h) Tony bought his first motorbike 1992.
- i) did you start playing basketball?
- j) Most of the young people left this village a long time

VI. Put verbs into past simple or past continuous.

- a) When Harry (wake up) *woke up*, we (tell) *told* him the good news.
- b) Where (you leave) your wallet when you (go) swimming?
- c) Everyone (wait) for the concert to begin when a message (arrive)
- d) When Tom (finish) his letter, he (take) it to the post office.
- e) Pam (want) a relaxing holiday, so she (choose) to stay on a small island.
- f) When I (study) abroad, my parents (phone) me every week.
- g) I (find) my lost pen while I (look for) my pencil sharpener.
- h) Ann (watch) television when Julie (arrive)
- i) When the lights (go out), I (lie) in bed reading.

- j) When you (go) to the new Chinese restaurant, what (you eat)?

VII. Underline the errors. Rewrite the sentences.

- a) When we had ate lunch, we were sitting in the garden.
When we had eaten lunch, we sat in the garden.
- b) While I looked for my keys, I remembered I left them at home.
- c) Anna had used to play badminton when she had been at school.
- d) When I got into bed, I was falling asleep immediately.
- e) When I was finally finding the house, I was knocking at the door.
- f) After Jill was giving Nick his books, she went home.
- g) Maria would live in Sweden when she was a child.
- h) I was using to get up early when I had gone sailing.
- i) The Vikings had sailed to North America a thousand years ago.
- j) Sue was sure she was seeing the tall man before.

Unit III
Communication
Vocabulary Study
Word List

Nouns and noun phrases

- | | |
|------------------------|---|
| 1. apparatus | - аппарат, прибор, аппаратура |
| 2. application | - применение |
| 3. border | - граница |
| 4. break | - прорыв |
| 5. cell | - (биол.) клетка, ячейка, сота; (эл.) элемент |
| 6. communication | - связь |
| cellular communication | - сотовая связь |
| video communication | - видеосвязь |
| 7. conception | - понятие; понимание |
| 8. data | - данные, факта, информация |
| 9. device | - устройство |
| 10. exhibition | - выставка |
| 11. housewife | - домохозяйка |
| 12. Internet | - Интернет, всемирная информационная сеть |
| mobile Internet | - мобильный Интернет |
| 13. kilobit | - килобит |
| 14. "know-how" | - "ноу-хау", - способ передовой технологий |

15. language	- язык
electronic language	- электронный язык
Internet language	- язык Интернета
16. mail	- почта
electronic mail (e-mail)	- электронная почта
17. mankind	- человечество
18. message	- сообщение
19. megabit	- мегабит
20. net	- сеть; паутина
video communication net	- сеть видеосвязи
21. receiver	- телефонная трубка; - радиоприемник; получатель
22. ring	- звонок
local ring	- местный звонок
23. speed	- скорость
24. sense	- чувство, ощущение
25. sphere	- область, поле деятельности, сфера
26. subscriber	- абонент
27. tendency	- тенденция
28. trade	- торговля
29. user	- лицо, осуществляющее - пользование (пользователь); потребитель
30. web	- сеть; паутина
31. World Wide Web	- всемирная информационная сеть

Adjectives

1. accessible	доступный, достижимый
2. cellular	сотовый
3. enormous	громадный, огромный
4. electronic	электронный
5. impossible	невозможный, невыполнимый, невероятный
6. local	местный
7. main	главный, основной
8. mobile	мобильный; передвижной
9. ordinary	обычный
10. wide	широкий; большой, обширный

Verbs

- | | |
|-----------------|---|
| 1. book | заказывать (билет) |
| 2. carry out | выполнить, проводить, осуществлять |
| 3. compare with | сравнивать с |
| 4. cost | стоить |
| 5. create | создавать |
| 6. expose | выставлять |
| 7. link | связывать, соединять; быть связанным |
| 8. obtain | получать; достигать, добиваться |
| 9. transmit | передавать; отправлять, посылать; (радио, тлв. транслировать) |
| 10. use | употреблять, пользоваться, применять |
| 11. work out | разрабатывать |

Adverbs

- | | |
|--------------------|---------------------------------------|
| 1. all | всецело, вполне; совершенно |
| all over | повсюду, кругом |
| all over the world | по всему свету; совершенно, полностью |
| 2. especially | особенно, главным образом |
| 3. even | даже |
| 4. nowadays | в наше время; теперь |

I. Read and translate the following words. Arrange them into the groups: a) with one stress or stress on the first syllable; b) with the stress on the second syllable; c) with two or more stresses.

Problem, television, compare, conception, user, mobile, ticket, tendency, message, communication, nowadays, apparatus, mankind, operation, technology, Internet, application, cellular, enormous, expose, exhibition, ordinary, telephone, device, different, wireless, transmit, electronic.

II. Match the words on the left with the definitions on the right.

- | | |
|---------------|--|
| 1) telephone | a) information, usually in the form of facts or statistics. |
| 2) bit | b) a system that lets you send a message directly from your computer to someone else's computer. |
| 3) television | c) some kind of specialized knowledge. |
| 4) mega- | d) available for people to use or see. |
| 5) e-mail | e) the practical application of scientific knowledge, especially in the form of advanced scientific methods and equipment. |
| 6) apparatus | f) the system of sending pictures and sounds by electrical signals over a distance so people can |

- receive them in their homes.
- 7) technology g) the equipment needed for some task or activity.
 8) accessible h) an electrical system you use to talk to someone in another place by dialing a number on a piece of equipment and speaking into it.
 9) data i) a piece of information or a request which you send to someone, or leave for them.
 10) know-how j) the smallest unit of information held in a computer's memory.
 11) message k) At the beginning of a unit of measurement means it is a million times greater than another unit.

III. Choose:

a noun

1. a) communicative; b) communicate; c) communication.
2. a) receiver; b) receive; c) receivable.
3. a) use; b) user; c) useful.
4. a) conception; b) conceptual; c) conceptualize.

a verb

5. a) transmit; b) transmission; c) transmitter.
6. a) creation; b) creative; c) create.
7. a) subscription; b) subscriber; c) subscribe.
8. a) operational; b) operate; c) operation.

an adjective

9. a) different; b) differentiate; c) differently.
10. a) mobility; b) mobilize; c) mobile.
11. a) electronic; b) electron; c) electronics.
12. a) mainframe; b) main; c) mainly.
13. a) cellular; b) cell; c) cellule.

an adverb

14. a) especial; b) especially.
15. a) enormously; b) enormousness; c) enormous.
16. a) high; b) highly; c) highness.
17. a) ordinarily; b) ordinary.

IV. Define the meaning of the "x" words. Improve: improvement =
 =улучшать: x. (глагол: существительное)

1. Communicate: communication = x: сообщение
2. Create: creation = создавать: x
3. Receive: receiver = принимать: x
4. Exhibit: exhibition = x: выставка
5. Use: user = x: пользователь

6. Subscribe: subscription = подписываться: х
7. Expose: exposition = выставлять: х
8. Transmit: transmitter = х: передатчик
9. Tend: tendency = иметь тенденцию: х

V. *Make adjectives from the following nouns by adding the suffixes: -al, -ical, -y, -less, -ible, -ic, -ful, -able and translate them into Russian. Technology, electron, operation, speed, sphere, voice, help, theatre, sense, break.*

VI. *Arrange the words with similar meaning of the two groups in pairs.*

- | | |
|------------------|--------------------------|
| 1) communication | a) portable |
| 2) enormous | b) exposition |
| 3) mankind | c) frontier |
| 4) mobile | d) huge |
| 5) conception | e) field, area |
| 6) exhibition | f) usual, standard |
| 7) trade | g) rapidity |
| 8) sphere | h) contact; transmission |
| 9) device | i) trend |
| 10) ordinary | j) commerce |
| 11) border | k) humanity |
| 12) tendency | l) idea |
| 13) speed | m) at the present time |
| 14) nowadays | n) net |
| 15) web | o) implement |

VII. *Match the words with their opposites, like the example:*

dirty

clean

- | | |
|-----------------|----------------------|
| a) ordinary | 1) destroy |
| b) obtain | 2) static |
| c) create | 3) tiny |
| d) different | 4) business |
| e) mobile | 5) narrow |
| f) impossible | 6) lose |
| g) non-business | 7) unusual |
| h) main | 8) possible |
| i) enormous | 9) similar, ordinary |
| j) wide | 10) minor |

VIII. *Match the verbs from "a" with the nouns from "b"*

a) transmit
book

b) devices
bank operations

expose	net
obtain	Internet
create	electronic language
carry out	tickets
cost	telephone receiver
use	data
work out	ring
be linked with	speed

IX. Complete the sentences with the words given below.

1. Most devices of ... communications will be exposed as an Internet language.
2. Mobile Internet is the main
3. By the year 2001 more than a half ... of mobile nets will use WAP.
4. In the West millions of ... people, even housewives have two or three apparatus of cellular communication.
5. The speed of ... transmitting is the main problem nowadays.
6. By the year 2004 there will be 120 million users of ... Internet and every fourth user will do it with the help of cellular ... for working in the W.W.W.
7. World Wide ... is the system that stores information for computer users around the world to use.
8. Mobile ... and mobile ... are impossible without speed.
9. Telephone, television, cellular communication and W.W.W. create an enormous ... for mankind.
10. The ... mail, voice message, trade, bank operations will be carried out with the help of an electronic language.

Video, subscribers, Internet, data, electronic, "know-how", non-business, web, mobile, communication, net, cellular.

X. Translate into English.

1. На Западе миллионы неделовых людей и даже домохозяйки имеют аппараты сотовой связи.
2. Мобильный Интернет невозможен без скорости.
3. Скорость передачи данных является главной проблемой сегодняшнего дня.
4. Используя Интернет, человечество будет иметь сотовую голосовую и видеосвязь по всему миру, и стоит она будет не больше, чем местный телефонный звонок.
5. Различные банковские услуги, покупки, заказ билетов на все виды транспорта, в театры и на выставки будут доступны в любое время и в любом месте.
6. Электронная почта, голосовые сообщения, торговые и банковские операции будут осуществляться с помощью интернетовского языка.

7. К 2001 году более половины абонентов мобильных сетей будут использовать электронный язык, разработанный специально для мобильного Интернета.

A. Text Study

1. Look at the title (and the pictures). What do you think this reading will be about? Read the text and define its main idea.

Text A

CELLULAR COMMUNICATION AND MOBILE INTERNET

Telephone, television, cellular communication and W. W. W. (World Wide Web — Internet) — all these are different conceptions creating an enormous net for mankind.

Mobile Internet is the main "know-how"; it is a break into and out of the borders.

In the West millions of non-business people, even housewives have two or three apparatus of cellular communication.

Speed is the main problem of today in that sphere of technology, which is linked in our sense with an ordinary telephone receiver.

Mobile Internet and mobile video are impossible without speed, as the speed of data transmitting is the main problem nowadays.

By the year 2004 there will be 120 million users of Mobile Internet and every fourth user will do it with the help of cellular communication for working in the W. W. W. Different services of banks, shopping, booking tickets for all kinds of transport, for cinemas, exhibitions, theatres — all these will be accessible at any time and place.

By the year 2001 more than a half subscribers of mobile nets will use WAP (Wireless Application Protocol) — it is an electronic language worked out especially for the Mobile Internet.

Most devices of cellular communications will be exposed as an Internet Language.

The electronic mail, voice messages, trade, bank operations, etc. will be carried out with their help.

With the help of high technology there is a tendency to obtain the speed of 11 megabits per second, comparing with the speed of 9,8 kilobits nowadays.

Using Internet mankind will have cellular voice and video communication nets all over the world, and its ring will cost no more than a local ring.

II. Read the text again carefully and answer the questions.

1. What conceptions create an enormous net for mankind?
2. What main "know-how" is a break into and out of the borders?
3. What people have apparatus of cellular communication?
4. What are Mobile Internet and mobile video impossible without?
5. What is the main problem of today in that sphere of technology, which is linked in our sense with an ordinary telephone receiver?
6. What is W.W.W.?
7. What communication will be used by users of Mobile Internet for working in the W.W.W. by the year 2004?
8. What services will be accessible at any time and place?
9. When will more than a half subscribers of mobile nets use WAP?
10. What speed can be obtained with the help of high technology?
11. What will mankind have using Internet?

III. Which of the vocabulary units used in paragraphs 1-5 could be regarded as international words?

IV. Read the translation of the third and fourth paragraphs. Compare it with the original and say if everything is right.

На Востоке миллионы деловых людей, а не домохозяек, имеют по два и три аппарата сотовой связи.

Скорость в наши дни не проблема в той области техники, которая связана с восприятием обычного радиоприемника.

V. Find the English equivalents of the following words and word combinations in paragraphs 4, 5 and 6.

Область техники, обычная телефонная трубка, мобильный Интернет, скорость передачи данных, главная проблема, пользователь, сотовая связь, всемирная информационная сеть, различные банковские услуги, заказ билетов, быть доступным в любое время, в наши дни.

VI. Find a passage about WAP and translate it into Russian.

VII. Choose two passages and read them aloud (1-2 minutes).

VIII. Find complex grammar structures in the text and divide them into simple ones.

IX. Find out the subject-matter and the means of its secondary expression. e.g. Take the book from the table and put it into your bag.

X. Find key words, phrases and the topic sentences which express the general meaning of each paragraph best of all.

XI. Using the information obtained from the paragraphs make a plan of the text.

XII. Speak about cellular communication and Mobile Internet using key words, phrases, the topic sentences and the plan of the text.

B. Text Study

1. Look at the title of the text. Make your predictions about the content of it. Read the text and answer the questions:

- a. What is Facsimile Transmission?
- b. When did Facsimile machines come into use?
- c. Can personal computers imitate the operation of fax machines?

Text B

FACSIMILE TRANSMISSION

Facsimile Transmission is a communication system that copies, sends, and receives documents by way of telephone lines. Also called faxing, this method of communication allows people to share exact copies of important papers by duplicating and sending them on one end, and then receiving and reproducing them on the other.

Facsimile machines came into use in the early 20th century when newspaper companies began using them to transmit photographs between branch offices. By the mid-1980s use of desktop facsimile machines had become commonplace for business and personal correspondence throughout the world. Since the 1990s many people have used personal computers to send and receive facsimile transmissions, or faxes, eliminating the need for a separate facsimile machine. In the latter half of the decade, Internet fax services grew increasingly popular. These services provide the ability to receive faxes to anyone who has Internet access.

Personal computers can imitate the operation of fax machines. Computer-based faxing enables people to transmit electronic computer files as faxes to another computer or to a conventional fax machine.

To send and receive facsimile transmissions, a computer must be equipped with faxing software and a fax modem, and it must be connected to a telephone line. The faxing software prompts the computer user to enter the fax number of the receiving computer or fax machine. The software compresses the file so it can be transmitted more efficiently, and then sends it to the fax modem. The modem converts digital computer files into analog signals so they can travel via telephone lines.

The fax modem of the receiving computer reconverts the analog telephone signal into a digital computer file. The faxing software on the receiving machine decompresses the file, and then notifies the computer user that a fax has been received. The receiver may choose to either view the fax in its electronic format or print it.

II. Read the text and define whether the following statements are true or false.

1. Facsimile Transmission allows people to share exact copies of important papers by duplicating and sending them on one end, and then receiving and reproducing them on the other.
2. Facsimile machines came into use 20 years ago.
3. Since the 1990s few people have used personal computers to send and receive facsimile transmissions.
4. Personal computers can imitate the operation of fax machines.
5. To send and receive facsimile transmissions, a computer must be connected to a telephone line and doesn't need any additional equipment.

III. Expand the sentences.

1. Facsimile Transmission is a communication system that copies, sends and receives documents by way of
2. Also called faxing, this method of communication allows people to share exact copies of important papers by
3. Facsimile machines came into use in the early 20th century when
4. By the mid-1980s use of desktop facsimile machines had become commonplace for
5. Since the 1990s many people have used personal computers to send and receive facsimile transmissions, or faxes, eliminating
6. These services provide the ability to receive faxes to anyone who
7. Personal computers can imitate
8. To send and receive facsimile transmissions, a computer must be equipped with
9. The modem converts digital computer files into
10. The fax modem of the receiving computer reconverts the analog telephone signal into

IV. Now decide which of the following statements express important ideas or supporting details for this reading.

1. a) Faxing allows people to share exact copies of important papers.
b) Faxing duplicates and sends documents on one end, and then on the other.
c) Facsimile Transmission, also called faxing, is a communication system that copies, sends, and receives documents by way of telephone lines.
2. a) Facsimile machines came into use in the early 20th century.
b) Since the 1990s many people have used personal computers to send and receive facsimile transmissions, or faxes.
c) Nowadays Internet fax services provide the ability to send and receive faxes to anyone who has Internet access, eliminating the need for a separate facsimile machine.

3. a) To send and receive facsimile transmissions, a computer must be equipped with faxing software and a fax modem, and it must be connected to a telephone line.
b) The software compresses the file and then send it to the fax modem.
c) The modem converts digital computer files into analog signals so they can travel via telephone lines.

4. a) The fax modem of the receiving computer reconverts the analog telephone signal into a digital computer file.
b) The faxing software on the receiving machine decompresses the file, and then notifies the computer user that a fax has been received.
c) The receiver may choose to either view the fax in its electronic format or print it.

V. *Find the words – carriers of the primary and the secondary information in paragraph 1.*

VI. *Define the function of commas in paragraph 2.*

VII *Find out the means of connection between clauses, parts of the sentence and sentences.*

VIII. *Arrange the sentences in the logical order according to the text.*

1. Personal computers can imitate the operation of fax machines.
2. Faxing allows people to share exact copies of important papers by duplicating and sending them on one end, and then receiving and reproducing them on the other.
3. The receiver may choose to either view the fax in its electronic format or print it.
4. Computer – based faxing enables people to transmit electronic computer files as faxes to another computer or to a conventional fax machine.
5. Since the 1990s many people have used personal computers to send and receive facsimile transmissions, or faxes, eliminating the need for a separate facsimile machine.

IX. *Give the main points of the text in 4-5 sentences.*

C. Text Study

I. *Translate the text into Russian.*

Text C

TALKING VIA SPACE

Communication has come a long way from the time when an Indian beat a drum in the forest to the time when a scientist receives messages from a satellite. In this space age communication has become a highly developed field. The system of communication in large countries is unthinkable today without space satellites. Besides large distances, there is a great time difference: the territories of some countries comprise up to 11 zones. Satellites help to minimize all the difficulties that may appear. They rapidly transmit TV and radio programs to different towns, cities, and distant areas.

Space systems and electronic technology have made it possible to set up an automatic system of communication designed for rapid transmission of all kinds of information.

People write letters and send telegrams. But at the same time people living in various cities like to exchange news on the telephone. Statistics reports that the number of long-distance telephone calls is about 2,000 million per year. A person in Moscow talking on the phone with Vladivostok must know that this conversation is carried on through a satellite.

Trains and cars can use mobile radio telephones to make calls. Businessmen can use teletypewriters to send messages via telephone lines to other teletypewriters in another city which automatically print them as they are received. Even photographs can be sent over telephone wires.

Practically all the population in large countries can watch TV programs via satellites. The orbital communication systems make it possible for people from different continents to see and hear one another.

The importance of space means of communication is increasing every year. The communication satellites of the international organization "INTERSAT" enable people to keep reliable telephone, telegraph and telex communication in any weather with ships practically in every part of the World Ocean.

Grammar Study

Времена группы Perfect

Группа совершенных времён (Perfect Tenses) обозначает, что действие закончилось, завершилось к определённом моменту в настоящем, прошедшем или будущем: I have seen this film (Я (уже) посмотрел этот фильм). He had finished his work by 10 o'clock in the

morning (Он завершил работу к 10 часам утра). Ann will have written her article by 3 o'clock. (Анна напишет статью к 3 часам).

В центре внимания – результат действия, а не время его выполнения. Сказуемое во временах группы Perfect образуется при помощи вспомогательного глагола to have в настоящем (have, has), прошедшем (had) или будущем (shall have, will have) неопределённом времени и III формы смыслового глагола.

Запомните порядок слов в различных типах предложений во временах группы Perfect, приведённых в таблице. Здесь, как и во временах группы Continuous, при постановке вопроса на первое место ставится первый вспомогательный глагол.

Спряжение глаголов группы Perfect

Форма	Present Perfect	Past Perfect	Future Perfect
Утвердительная	I have (I've) } written He has (He's) } the letter	I had (I'd) written the letter by 2 o'clock	I shall (I'll) } have He will (He'll) } written the letter by 2 o'clock
Вопросительная	Have I } written the Has he } letter?	Had I written the letter by 2 o'clock	Shall I } have Will he } written the letter by 2 o'clock?
Отрицательная	I have } written the He has } letter I've } not written the He's } letter	I had not written the letter by 2 o'clock. I'd not written...	I shall } not have He will } written the letter by 2 o'clock I'll } not have He'll } written...

Распознавательные элементы группы Perfect:

1. Present Perfect.

Действие совершилось к настоящему моменту. Результат этого действия налицо. Это время широко употребляется в разговорной речи со следующими словами: ever, already, just, lately, yet, since.

2. Past Perfect.

Действие совершилось к определённому моменту в прошлом. Этот момент передаётся обстоятельствами времени: by that time, by 2 o'clock, by the end of the year (month).

Past Perfect употребляется также в тех случаях, когда мы хотим подчеркнуть предшествование одного действия другому: He said that he had left his key at home.

3. Future Perfect.

Действие совершится к или до определённого момента в будущем. Момент может быть указан: by Sunday, by 3 o'clock, by that time. Future

Perfect употребляется редко, чаще оно заменяется формой Future Indefinite.

I. Use the verbs to make a form of the present perfect simple.

Model: The ship(not sink)....but it's in a dangerous condition.
The ship hasn't sunk but it's in a dangerous condition.

1. (your sister write) to you yet?
2. I (have) a headache ever since lunchtime.
3. Nadia (never see) any Chinese films.
4. Someone (steal) Mr Grant's.
5. The passengers are tired because they (not sleep) all night.
6. I'm afraid we (just break) your window. Sorry!
7. David (not, win) a prize this time, I'm afraid.
8. (you ever eat) Spanish food? It's great.

II. Put a time word or phrase from the list into each space.

yet	for	since	often	ever
never	already	so far	just	always

Model: Carlos has lived in the city centre since 1996.

1. Thanks for the present! I'vewanted a pet goldfish!
2. Have youdrunk pineapple juice? It's fantastic!
3. I've.....heard some fantastic news! I've passed my exams!
4. Hurry up! Haven't you finished? You are a slow-coach!
5. Nina has worked in this companyfive years.
6. I'vebeen on a big ship before. It's an interesting experience!
7. We're very busy today.we've sold over a hundred bikes.
8. I've.....passed this building, but this is the first time I've been inside.
9. Can I have a different book? I'veread this one.

III. Complete the second sentence so that it has a similar meaning to the first sentence.

Model: We started working here three years ago.

We have worked here forthree years.

- a) This is the first time I've been on a plane.
I before.
- b) That's strange! My pen isn't here!
That's strange! disappeared!
- c) Nicky and Jan aren't at this school any more.
Nicky and Jan this school.
- d) I saw a friend of yours a few moments ago.

- I a friend of yours.
- e) I'm still writing my letters.
I my letters yet.
- f) Is this your first visit to South America?
Have before?
- g) Oh bother! My wallet is still in the car.
Oh bother! I my wallet in the car.
- h) It's a long time since we spoke to your sister.
We to your sister for a long time.
- i) Is Anna still asleep?
Has up yet?

IV. Choose the correct word or phrase underlined in each sentence.

Model: While I had waited/was waiting/waited at the bus-stop, I had noticed/was noticing/noticed a new shop which wasn't/had not been in the street the day before.

- I had gone/went out into to the garden to fetch my bike, but found/was finding that someone stole/had stolen it.
- When George met/was meeting Diane for the first time, he knew/was knowing that he met/had met/was meeting her somewhere before.
- Helen got off/was getting off the bus, and walked/was walking into the bank when she realized/had realized/was realizing that she left/had left/was leaving her handbag on the bus.

V. Put each verb given into past simple, past continuous or past perfect. More than one answer may be possible. The first answer (a) is given for you.

The police suspected that Brian (a) *had broken* (break) the window at his house because he (b) (want) to make them think that a burglar (c) (steal) his valuable stamp collection. They (d) (think) that Brian (e) (do) this because he (f) (need) the money. However, they (g) (not know) that Brian (h) (fly) to Brazil the week before, and (i) (be) abroad when the burglary (j) (take place).

VI. Complete each part sentence "a" to "g" with one of the part sentences 1 to 8. More than one answer may be possible.

Model: As soon as I hear from Helen, 6.

- By the time Mary arrives
- Please take a seat
- This time next week
- Next time you see me
- We'll have time to have some lunch

- f) In a few moments
- g) There won't be any more lessons

- 1) until the dentist is ready.
- 2) the match will be over.
- 3) I'll have had my haircut and you won't recognize me.
- 4) It will have stopped raining.
- 5) Before the train leaves.
- 6) I'll ask her to phone you.
- 7) Until the teachers' strike is over.
- 8) We'll be enjoying ourselves on holiday.

Времена группы Perfect Continuous

Глаголы этой группы выражают действия, которые: а) начались раньше указанного момента в настоящем, прошедшем или будущем и продолжают совершаться после этого момента; б) совершались некоторый отрезок времени до определенного момента.

Времена группы Perfect Continuous (совершенные длительные) образуются с помощью вспомогательного глагола **to be** в соответствующем времени (Present Perfect, Past Perfect, Future Perfect) и четвертой формы смыслового глагола.

Спряжение глаголов группы Perfect Continuous

Present Perfect Continuous	Past Perfect Continuous	Future Perfect Continuous
Утвердительная форма		
I have } been writing He has } the letter for an hour. <i>Я пишу письмо (уже) час.</i> <i>(Он пишет ...)</i>	I had been writing the letter for an hour when he came. <i>Я писал письмо (уже)</i> <i>час, когда он пришел.</i>	I shall } have been He will } writing the letter for an hour when he comes. <i>Я буду писать письмо (уже)</i> <i>час, когда он придет. (Он</i> <i>будет писать ...)</i>
Вопросительная форма		
Have I } been writing Has he } the letter for an hour? 	Had I been writing the letter for an hour when he came? 	Shall I } have been Will he } writing the letter for an hour when he comes?
Отрицательная форма		
I have } not been He has } writing the letter for an hour. <i>(I haven't ..., He hasn't ...)</i>	I had not been writing the letter for an hour when he came. <i>(I hadn't ...)</i>	I shall } not have been He will } writing the letter for an hour when he comes. <i>(I shan't ..., He won't ...)</i>

Распознавательные элементы группы Perfect Continuous:

1. Present Perfect Continuous.

Выражает длительное действие, которое началось в прошлом и еще совершается в настоящее время.

Всегда указан период времени: for an hour (в течение часа), for a long time (долгое время), since five o'clock (с пяти часов) и т.д., кроме того, выражает длительное действие, которое началось в прошлом и закончилось перед моментом речи.

2. Past Perfect Continuous.

Выражает длительное прошедшее действие, которое началось ранее другого прошедшего действия и все еще происходит в момент его наступления или закончилось непосредственно перед моментом наступления другого прошедшего действия.

Период действия может быть указан: for two hours (в течение двух часов), for three months (в течение трех месяцев), for a long time (долго, давно) и т.д. В том случае, когда действие закончилось, период может быть и не указан.

3. Future Perfect Continuous.

Выражает длительное будущее действие, которое начинается ранее другого будущего действия и будет еще совершаться в момент его наступления. Это время употребляется очень редко.

I. Choose the correct word or phrase underlined in each sentence.

Model: I live here/I have lived here since the end of last year.

1. Someone has just stolen/has just been stealing my bicycle.
2. I'm afraid the last train left/has left an hour ago.
3. Yesterday I lost/have lost my wallet.
4. Thank you for your offer, but I've decided/I decided not to accept it.
5. Take your umbrella with you. It's started/It started raining.
6. We're enjoying our trip. We have visited/visited two countries so far.
7. I'm standing here/I've been standing here for hours and I feel tired.
8. This has been/was a busy day and it isn't over yet!
9. I feel really tired. We went/have been to a party last night.

II. Complete each mini-dialogue, using the verbs given, in either present perfect simple or present perfect continuous.

Model: A: "Terminator 2" is on at the "Rex"?

(you see) **Have you seen** it?

B: No, not yet. Shall we go? I (look forward) **am looking forward** to seeing it.

1) A: What's the matter? You look really tired!

B: I am! I (study) _____ all day, and I (not finish) _____ yet.

A: Oh well, time for a break.

2) A: I (phone) _____ Carol all day, but there's no reply.

- B: I expect she (go) _____ swimming with her friends.
- 3) A: (you hear) _____ the news?
B: What news?
A: Someone (rob) _____ the bank at the end of the road.
- 4) A: Why is your leg in plaster?
B: That's a silly question! I (break) _____ it, of course.
A: Someone (write) _____ "Time for a break" on the plaster!

III. Complete the second sentence so that it has a similar meaning to the first sentence.

Model: I came to live here three months ago.

I **have been living here** for three months.

- Mary is out at the shops at the moment.
Mary _____ to the shops.
- I have had French lessons since March.
I _____ French since March.
- I'm still reading this book.
I _____ reading this book yet.
- Paul left the room a moment ago.
Paul has _____ the room.
- Ten of the letters are ready.
I _____ ten letters so far.
- It's ages since I last went to the cinema.
I _____ to the cinema for ages.
- This is the first time I've eaten snails.
I _____ snails before.
- I don't remember Helen's phone number.
I have _____ Helen's phone number.
- David has a different opinion now.
David _____ his mind.

IV. Answer the questions according to the model:

Have you been staying here long? (for a month)

I have been staying here for a month.

- Has he been talking about his plan long? (all these days)
- Have children been swimming long? (for half an hour)
- Have they been working in the garden long? (since 10 o'clock)
- Have you been watching TV long? (for two hours)
- Has he been sitting here long? (for a long time)
- Have you been looking for the book long? (the whole day)
- Had it been raining long? (for a week)
- Has it been snowing long? (since yesterday)
- Have you been translating the article long? (for three hours)
- Have you been working long? (since early morning)

V. Read the situations and make sentences from the words in brackets.

Model: I was very tired when I arrived home.

(I/work/hard all day) I had been working hard all day.

1) The two boys came into the house. They had a football and they were both very tired.

(they/play/football) _____.

2) There was nobody in the room but there was a smell of cigarettes.

(somebody/smoke/in the room) _____.

3) Ann woke up in the middle of the night. She was frightened and didn't know where she was.

(she/dream) _____.

4) When I got home, Mike was sitting in front of the TV. He had just turned it off.

(he/watch/TV) _____.

VI. Read the situation and complete the sentences.

Model: We played tennis yesterday. Half an hour after we began playing, it started to rain.

We had been playing for half an hour when it started to rain.

1. I had arranged to meet Tom in a restaurant. I arrived and waited for him. After 20 minutes I suddenly realized that I was in the wrong restaurant.

I _____ for 20 minutes when I _____.

2. Sarah got a job in a factory. Five years later the factory closed down.

At the time factory _____, Sarah _____ there for five years.

3. I went to a concert last week. The orchestra began playing. After about ten minutes a man in the audience suddenly began shouting.

The orchestra _____ when _____.

4. This time make your own sentence: I began walking along the road.

I _____ when _____.

VII. Put the verb into the most suitable form, past continuous (I was doing),

past perfect (I had done) or past perfect continuous (I had been doing).

Model: It was very noisy next door. Our neighbours were having (have) a party.

Model: We were good friends. We had known (know) each other for a long time.

1. John and I went for a walk. I had difficulty keeping up with him because he _____ (walk) so fast.

2. Mary was sitting on the ground. She was out of breath. She _____ (run).

3. When I arrived, everybody was sitting round the table with their mouths full. They _____ (eat).
4. When I arrived, everybody was sitting round the table and talking. Their mouths were empty but their stomachs were full. They _____ (eat).
5. Jim was on his hands and knees on the floor. He _____ (look) for his contact lens.
6. When I arrived, Kate _____ (wait) for me. She was rather annoyed with me because I was late and she _____ (wait) for a very long time.
7. I was sad when I sold my car. I _____ (have) it for a very long time.
8. We were extremely tired at the end of the journey. We _____ (travel) for more than 24 hours.

Глагол to do

(to do – did – done)

Синтаксическая функция и значение	Пример и перевод
1	2
1. Смысловой глагол: «делать», «проводить», «выполнять», «совершать».	An electric motor <u>does</u> mechanical work. Электрический мотор совершает работу.
2. Вспомогательный глагол: а) для образования вопросительной и отрицательной форм в Present, Past Indefinite; б) для образования отрицательной формы повелительного наклонения; в) для усиления значения глагола – сказуемого.	- <u>Do</u> you <u>know</u> how to use this device? - Yes, I <u>do</u> . – Вы знаете, как пользоваться этим прибором? – Да. - <u>Did</u> you <u>see</u> this film yesterday? - No, I <u>didn't</u> . – Ты видел этот фильм вчера? – Нет. <u>Don't use</u> this tool, it is broken. Не пользуйся этим резцом, он сломан. Only then <u>did</u> he <u>understand</u> his mistake. Только тогда он понял свою ошибку. We <u>do realize</u> what great importance this discovery has for the future work. Мы действительно понимаем, какое огромное значение имеет это открытие для нашей будущей работы.

1	2
3. Глагол – заместитель (во избежание повторения смыслового глагола).	The last experiments gave us much better results than did the previous ones. Последние эксперименты дали нам гораздо лучшие результаты, чем предыдущие.

Unit IV

Data Transport and Means of Communication

Vocabulary Study

Word List

Nouns and noun phrases

- | | |
|------------------------|------------------------------|
| 1. aerial | - антенна |
| 2. application | - программа; применение |
| 3. availability | - наличие; готовность данных |
| 4. bandwidth | - ширина полосы частот |
| 5. bursts of light | - вспышки света |
| 6. capacity | - емкость, объем |
| 7. compression | - сжатие данных |
| 8. consumer | - потребитель |
| 9. core | - сердцевина, жила кабеля |
| 10. fiber | - волокно |
| 11. limitation | - ограничение |
| 12. link-up | - соединение, связь |
| 13. medium (pl. media) | - средство, способ |
| 14. mode | - метод, способ |
| 15. range | - диапазон, предел |
| 16. rate | - темп, скорость |
| 17. strand of hair | - прядь волос |
| 18. transport | - передача (данных) |
| 19. trunk line | - магистральная линия |

Verbs and verbal phrases

- | | |
|-------------|---------------------------------|
| 1. explode | - внезапно и быстро развиваться |
| 2. handle | - обрабатывать |
| 3. increase | - возрастать, увеличивать(ся) |
| 4. launch | - запускать |
| 5. multiply | - увеличивать(ся); умножать |
| 6. relay | - передавать (дальше) |
| 7. transmit | - передавать |
| 8. utilize | - использовать |

Adjectives and adverbs

- | | |
|--------------|-------------------------------|
| 1. assorted | - подходящий, соответствующий |
| 2. currently | - в настоящее время |
| 3. digital | - цифровой |
| 4. du jour | - (франц.) современный |
| 5. internal | - внутренний |
| 6. wireless | - беспроводный, радио- |

I. Read and translate the following words. Arrange them into the groups: a) with one stress or stress on the first syllable; b) with the stress on the second syllable; c) with two or more stresses.

Storage, capacity, media, availability, rate, device, trunk line, satellite, telecommunications, demand, transport, wireless, access, information, limitation, fiber-optic cable, application, bandwidth, consumer, core, transceiver, towards, link-up, decompression, handle, standard, button, increase, range, consider, burst of light, analog, telephone call, data, digital, relay, launch, site, copper wire.

II. Match the words on the left with the definitions on the right.

- | | |
|-----------------|---|
| 1) aerial | a) apparatus for sending out radio/TV signals. |
| 2) transport | b) readiness to be used. |
| 3) currently | c) to make use of something. |
| 4) communicate | d) device for sending or receiving radio or television signals. |
| 5) availability | e) strong material made of woven threads of glass. |
| 6) utilize | f) to move from one place to another. |
| 7) fiberglass | g) to pass information to someone/to be in touch with someone. |
| 8) transmitter | h) at the present time; frequently. |

III. Choose:

a) a noun

1. a) apply; b) application; c) applied; d) applicable.
2. a) transmitted; b) transmissible; c) transmit; d) transmission.
3. a) compressible; b) compress; c) compression; d) compressed.
4. a) communicative; b) communicable; c) communication; d) communicate.

b) a verb

1. a) multiply; b) multiple; c) multiplier; d) multiplication.
2. a) difference; b) different; c) differential; d) differ.
3. a) transportation; b) transportable; c) transport; d) transporter.
4. a) informative; b) inform; c) information; d) informer.

c) an adjective

1. a) solve; b) solvency; c) solvable; d) solvability.
2. a) access; b) accessible; c) accessibility; d) accession.
3. a) breakable; b) break; c) breaker; d) breakage.
4. a) normalize; b) norm; c) normal; d) normality.

d) an adverb

1. a) light; b) lighter; c) lightness; d) lightly.
2. a) close; b) closing; c) closely; d) closeness.
3. a) high; b) highly; c) higher; d) highness.
4. a) increase; b) increasing; c) increased; d) increasingly.

IV. Define the meaning of the "x" words. Convert: conversion =
=превращать: x. (глагол: существительное)

- 1) transmit: transmission = передавать: x.
- 2) limit: limitation = ограничивать: x.
- 3) compress: compression = сжимать: x.
- 4) apply: application = применять: x.
- 5) provide: provision = обеспечивать: x.
- 6) compute: computation = вычислять: x.
- 7) connect: connection = соединять: x.
- 8) reflect: reflection = отражать: x.

V. Make adjectives from the following nouns by adding the suffixes: -al, -ible, -ful, -less, -able and translate them into Russian.

Access, medium, use, wire, wonder, digit, transport, limit, break, norm, form.

VI. Arrange the words with similar meaning of the two groups in pairs.

a) device, transport, currently, apply, data, process, media, rate, link-up

b) utilize, means, apparatus, speed, handle, connection, transmit, at present, information.

VII. Match the words with their opposites.

- | | |
|--------------|----------------|
| a) wire | 1) decrease |
| b) ability | 2) external |
| c) common | 3) unlimited |
| d) compress | 4) disability |
| e) limited | 5) unnecessary |
| f) increase | 6) wireless |
| g) necessary | 7) uncommon |
| h) internal | 8) decompress |

VIII. Match the verbs from "a" with the nouns from "b".

- | | |
|--------------|------------|
| a) transport | b) letters |
| launch | button |
| increase | principle |
| click on | data |
| reflect | network |
| exchange | satellite |
| develop | light |
| base on | speed |

IX. Complete the sentences with the words given below.

1. The telecommunications age increases ... for greater bandwidth and more storage capacity.
2. There are different methods of ... such as telephone lines, wireless communications, etc.
3. Communications satellites ... a worldwide link-up of radio, telephone and television.
4. The transceivers ... information to each other via radio signals.
5. The ... transmission is based on the principle of total internal reflection.
6. In fiber-optic cables information is carried in the form of ... bursts of light.
7. The Internet contains assorted media, computers and
8. Limitations exist in every ... of transport a user chooses.

Relay, mode, digital, the demand, applications, fiber-optic, provide, data transport.

X. Translate into English.

1. Радиоиндустрия стала быстро развиваться после запуска первого спутника связи.
2. Телефон – самое распространенное средство связи.
3. Волоконно-оптический кабель обеспечивает более высокое качество передачи информации, а также увеличение скорости.
4. Число постоянных пользователей Интернета увеличивается каждый день.
5. Выбирая средство передачи данных, нужно учитывать наличие ширины полосы частот.
6. Различные программы требуют соответствующих диапазонов ширины полосы частот.
7. Персональные компьютеры и факсы считались новыми технологиями в 1980-х годах.
8. Волокно обладает почти неограниченной шириной полосы частот.

A. Text Study

1. Look at the title. What do you think this reading will be about? Read the text and define its main idea.

Text A

DATA TRANSPORT THROUGH A SPEEDY WORLD

One hundred years ago people communicated exchanging letters, fifty years ago it was a telephone call, and in the 1980s personal computers and fax machines were the technology du jour (современная). In the telecommunications age, the demand for greater bandwidth, more storage capacity, and accelerated data transport speeds is increasing faster than you can click on your send button. When choosing a transport medium you should consider the amount of bandwidth that is guaranteed (bandwidth is the ability to transport data). Different ranges of bandwidth are necessary for different applications.

The most common methods of data transport are telephone lines, wireless communications, the Internet and fiber optics. A standard telephone line can only handle 56k (one k = 1000 bits); most standard wireless systems can give 10Mb of bandwidth. Today's highest speed on the Internet is 45Mb/sec on major trunk lines, and most Internet users access the Web at around 56K. Fiber has closed to unlimited bandwidth and can be broken up into many streams of light carrying 194 Mb.

Since the early 1960s when the first communications satellite was launched, the satellite aerial/wireless industry has exploded. Communications satellites provide a worldwide link-up of radio, telephone and television.

The wireless system consists of a receiver and transmitter located at each end of the connecting sites. These transceivers relay information to each other via radio signals.

Telephone line is the most commonly used communications device. With today's transmission of video and data, a standard telephone line has only enough bandwidth to transmit 56 k data and either analog or digital voice. In order to transmit video over telephone lines, a CODEC (a compression / decompression device that breaks up the video and data into packets) is required.

As digital trend grows, copper wire utilized for long distances has been replaced by glass cables as thin as strand of hair. Fiber-optic cable offers increased call-carrying capacity, higher speed, and greater transmission quality. The fiber-optic transmission is based on the principle of total internal reflection. Light travels inside the core of the fiber and reflects any light trying to escape from the core. Fiber-optic cable carries information in the form of

digital bursts of light, at data rates that are thousands of times greater than those of normal phone lines.

The Internet is a network that contains assorted media, computers, and applications. Today the Internet is over-utilized and bandwidth is limited. As the number of online users multiplies, the amount of space on the Web and the bandwidth availability decrease.

Internet II, a higher speed network currently being developed, may go a long way towards solving these problems.

No matter which mode of transport a consumer chooses, limitations exist in every one of them. It is important to understand how to get the most from a chosen medium.

II. Read the text again carefully and answer the questions.

1. How did people communicate before the advent of personal computers and fax machines?
2. What requirements are increasing in the telecommunications age?
3. What should you consider when choosing a mode of transport?
4. What methods of data transmission do you know?
5. Why has wireless industry exploded since 1960s?
6. What is required to transmit video over telephone lines?
7. What has been replaced by glass cable?
8. What beneficial effects does fiber-optic cable have?
9. What principle is the fiber-optic transmission based on?
10. Why is the Internet over-utilized?
11. What is Internet II?
12. Is there a transport medium without any limitations?

III. Which of the vocabulary units used in paragraphs 1-2 could be regarded as international words?

IV. Read the translation of the sixth paragraph. Compare it with the original and say if everything is right.

С появлением цифровой связи использование медного провода для передачи данных на близкие расстояния заменили волоконными кабелями толщиной в человеческий палец. Благодаря применению волоконного кабеля увеличился объем передаваемых звонков, скорость и качество передачи. Волоконно-оптическая передача информации основана на принципе частичного внешнего отражения. Свет перемещается по волокну и отражается при попытке выйти за его пределы. Волоконно-оптический кабель передает информацию в виде импульсов в тысячу раз быстрее, чем стандартные телефонные линии.

V. Find the English equivalents of the following words and word combinations in paragraph 6.

Передавать информацию, использовать, волоконно-оптический кабель, цифровой, вспышки света, сердцевина оптического волокна, увеличивать, основываться на чем-либо, отражение.

VI. Find the passage about data transmission over telephone lines and translate it into Russian.

VII. Choose a passage and read it aloud (1-2 minutes).

VIII. Find complex grammar structures in the text and divide them into simple ones.

IX. Find out the subject-matter and the means of its secondary expression. e.g. Betty has a temperature. Give her some tablets.

X. Find key words, phrases and the topic sentences which express the general meaning of each paragraph best of all.

XI. Using the information obtained from the paragraphs make a plan of the text.

XII. Speak about various transport media available, their limitations and benefits using key words, phrases, the topic sentences and the plan of the text.

B. Text Study

I. Look at the title of the text. Make your predictions about the content of it. Read the text and answer the questions.

1. What is radio communication?
2. What are the main components of radio?
3. What is the difference between radio waves and other waveforms?

Text B

RADIO COMMUNICATION

Radio communication is the transfer of high-frequency energy from the transmitter to the receiver without wires.

Radio is a device that transmits and receives signals and programs by electromagnetic waves. Since the process of radio communication includes transmission and reception of signals, the necessary components of radio are a transmitter and a receiver.

The transmitter is a device that produces radio-frequency energy. The main parts of a transmitter are a high-frequency oscillator including an oscillatory circuit and one or more amplifiers. In modern transmission electron tubes are used to amplify currents and give greater transmitting range and better reception.

The receiver is a device that receives waves sent out by a transmitter. Radio receiver demodulates the waves and they are heard as speech, music and signals.

Electric oscillations are produced in the antenna of the transmitter. They travel in all directions.

Radio waves are electric waves of very high frequency; they travel through space at the speed of light. They differ from other waveforms only in frequency (number of vibrations per second).

II. Read the text and define whether the following statements are true or false.

1. Radio communication means the transfer of high-frequency energy along the wires.
2. The main components of radio are a transmitter and a receiver.
3. The transmitter consists only of some amplifiers.
4. Radio waves are low-frequency electric waves.
5. Radio waves differ from other waveforms in wavelength.

III. Expand the sentences.

1. Radio communication is a communication without wires.
2. Radio is a device for transmitting and receiving signals and programs by electromagnetic waves.
3. A transmitter and a receiver are the main elements of radio.
4. Radio waves are electric waves of very high frequency.

IV Now decide which of the following statements express important ideas or supporting details for this reading.

1. a) Radio is a device that transmits and receives signals by electromagnetic waves.
b) The process of radio communication includes transmission and reception of signals.
c) The necessary components of radio are a transmitter and a receiver.
2. a) The receiver is a device that receives waves sent out by a transmitter.
b) Radio receiver demodulates the waves.
c) Demodulated waves are heard as speech, music and signals.
3. a) Radio waves are electric waves of high frequency.
b) The travelling speed of radio waves through space is equal to the speed of light.
c) Radio waves differ from other waveforms in frequency.

V. Find the words – carriers of the primary and the secondary information in paragraph 3.

VI. Define the function of commas in the text.

VII. Find out the means of connection between clauses, parts of the sentence and sentences.

VIII. Arrange the sentences in the logical order according to the text.

1. In up-to-date transmission electron tubes are utilized to amplify currents.
2. Radio waves travel through space at the speed of light.
3. The main parts of the transmitter include a high-frequency oscillator and one or more amplifiers.
4. Radio communication is the transfer of high-frequency energy without wires.
5. The waves are demodulated by radio receiver and heard as speech, music and signals.

IX. Give the main points of the text in 4-5 sentences.

C. Text Study

I. Translate the text into Russian.

Text C

TELEGRAPH

Benjamin Franklin, an American who is famous for his interesting and useful inventions, published his ideas about electricity in 1752. Scientists in many countries became interested in this wonderful form of energy. They wanted to find the answer to a very important question: could the electricity be used to develop a fast, efficient system of long-distance communication? Experiments proved that electricity could travel instantly over a very long piece of wire. But a note that was written on a piece of paper couldn't be put into a wire. How could electricity be used to send a message? A Danish scientist discovered that electricity could move a needle from left to right and that the needle could be pointed at letters on a piece of paper. Then a German government worker made up a code system that could be used with an electric needle. In 1837 two English scientists sent a message by electric telegraph for a distance of more than 1.6 kilometers.

Samuel Morse, an American portrait painter, was experimenting with an electric telegraph too. At first he connected a pencil to an electric wire. When the electricity came through the wire the pencil made wavy lines. Then Morse invented a code that used dots and dashes for the letters of the alphabet. Finally, he discovered that telegraph messages did not have to be written, they could be sent in sound.

On May 24, 1844, the first long-distance message was sent by telegraph for 64 kilometers.

Telegraph companies were formed in many cities. By 1861 telegraph wires stretched from the Atlantic to the Pacific. In Europe too, Samuel Morse's system became popular.

But telegraph wires couldn't be hung over an ocean. Messages to and from Europe had to be sent by ship – a journey of two or three weeks. A new method was needed.

The Atlantic Telegraph Company which was organized in 1856 wanted to try to lay a cable on the floor of the Atlantic Ocean.

The 4,000-kilometer cable broke three times. Each time a new cable had to be made. Finally, on July 27, 1866, the first transatlantic message was sent from Newfoundland to Ireland.

Later cables were laid to Asia and Australia. At last news and business information could be sent instantly to almost every country in the world.

Grammar Study

The Passive Voice

Определение

Сказуемое, выраженное глаголом в страдательном залоге, указывает на то, что действие совершается над предметом, выраженным подлежащим.

Образование

Страдательный залог образуется при помощи вспомогательного глагола to be в соответствующем времени и Participle II смыслового глагола.

I. Система грамматических времен в страдательном залоге (English Tenses in the Passive Voice)

	Simple	Continuous	Perfect	Perfect Continuous
	1	2	3	4
Infinitive	To help	To be being helped	To have been helped	–
Present	My friend <u>is</u> always <u>helped</u> with his compositions. Моему другу всегда помогают писать сочинения.	My friend <u>is</u> <u>being helped</u> with his composition now. Сейчас моему другу помогают писать сочинение.	My friend <u>has</u> already <u>been helped</u> with his composition. Моему другу уже помогли написать сочинение.	–

	1	2	3	4
Past	My friend <u>was helped</u> with his composition yesterday. Вчера моему другу помогли написать сочинение.	My friend <u>was being helped</u> with his composition for 2 hours yesterday. Вчера моему другу помогали писать сочинение два часа.	My friend <u>had been helped</u> with his composition before his mother came home. Моему другу помогли написать сочинение до прихода мамы.	–
Future	My friend <u>will be helped</u> with his composition tomorrow. Завтра моему другу помогут написать сочинение.	–	My friend <u>will have been helped</u> with his composition by 4 o'clock. Моему другу помогут написать сочинение к 4 часам.	–

II. Способы перевода глагола-сказуемого

а) сочетанием глагола «быть» с краткой формой прилагательного страдательного залога. Глагол «быть» в настоящем времени не переводиться:

This church was built in 1815. Эта церковь была построена в 1915 году.

б) глаголом несовершенного вида, оканчивающимся на –ся, -сь:

The conference is held in April every year. Конференция проводится в апреле каждого года.

в) неопределенно-личной формой глагола в действительном залоге в третьем лице множественного числа (при отсутствии действующего лица):

At our faculty students are trained in four specialities. На нашем факультете студентов обучают по четырем специальностям.

г) личной формой глагола в действительном залоге (при наличии дополнения с предлогом by) Дополнение с предлогом by часто переводится на русский язык подлежащим:

America was discovered by Columbus. Колумб открыл Америку.

Примечания:

1. В английском языке существует ряд глаголов, которые требуют прямого дополнения, т.е. являются переходными, в то время как соответствующие глаголы в русском языке являются непереходными. Такие глаголы переводятся глаголами с предлогами.

to follow – следовать (за)

to address – обращаться (к кому-либо)

to influence – влиять (на)

to attend – присутствовать (на)

to affect – влиять (на)

и др.

Yesterday the lecture was attended by a few students. Вчера на лекции присутствовали несколько студентов.

2. Некоторые глаголы могут иметь два объекта. Примерами таких глаголов являются include, buy, give, lend, offer, promise, sell, take, promise, send.

Существуют 2 способа употребления этих глаголов в страдательном залоге:

a) Karen was given a present by Peter;

b) A present was given to Karen by Peter.

3. Выражение to be born - форма страдательного залога, но не имеет на самом деле значения страдательного залога.

I was born in Uruguay. Я родился в Уругвае.

4. Have something done

- Мы употребляем выражение Have something done, когда обслуживающий персонал (например, плотник, механик и др.) выполняет для нас какой-либо вид работ.

- Have может использоваться в любом времени.

We had our houses painted last year.

I'm having my car serviced tomorrow.

I've had my room decorated.

5. - Мы также употребляем Have something done, когда происходит неприятное событие.

She had house broken into.

Tim had his arm broken playing rugby.

III. Способы перевода подлежащего

Подлежащее английского предложения со сказуемым в страдательном залоге на русский язык переводится:

а) существительным (или местоимением) в именительном или винительном падежах (когда после сказуемого стоит косвенное или предложное дополнение):

A parcel has just been delivered to Mrs. Green.

Посылка была только что доставлена, миссис Грин.

Посылку только что доставили, миссис Грин;

б) существительным (местоимением) в дательном падеже (когда после сказуемого стоит прямое дополнение):

We were brought the bill.

Нам принесли счет;

в) предлогом, стоящим после глагола в страдательном залоге и не относящимся к следующим за ним словам; при переводе на русский язык ставится перед тем словом, которое в английском языке является подлежащим:

He is often spoken about.

О нем часто говорят.

I. . Complete each sentences with a passive verb and translate it into Russian.

1. The police questioned George. – George was questioned by the police.
2. Millions of people watch this programme. – This programme _____ by millions of people.
3. They will finish our new house at the end of the month. – Our new house _____ at the end of the month.
4. They have elected a new president. – A new president _____.
5. They are rebuilding the damaged stadium. – The damaged stadium _____.
6. They have closed the mountain road. – The mountain road _____.
7. Students write most of this magazine. – Most of this magazine _____ by students.
8. A burglar stole my television. – My television _____ by a burglar.
9. Somebody will meet you at the bus-station. – You _____ at the bus-station.
10. United won the cup last year. – Last year the cup _____ by United.

II. Underline the errors in these sentences. Rewrite each sentence and translate it into Russian.

1. Many pet dogs are losing every year. – Many pet dogs are lost every year.
2. The ill man was been taken to hospital.
3. A new bridge is be built across the river.
4. All the food at the party was ate.
5. Nothing will being decided before next Saturday.
6. The meeting is holding every Friday.
7. This book was writing by Sam's father.

III. Rewrite each sentence with a passive verb, and so that the names of people are not mentioned.

1. The authorities have closed the casino. – The casino has been closed.
2. Someone broke into the flat last week.
3. People all over the world speak English.
4. The authorities have opened the new swimming-pool.
5. Someone left this purse in the classroom yesterday.
6. The city council has banned traffic from the city centre.
7. The clubs have postponed the match.

IV. Choose the correct word or phrase underlined in each sentence.

1. I'm having my hair/cut/to cut tomorrow.
2. The children were took/taken/taking to the seaside for the day.
3. I was sending/sent/send here by the manager.
4. Kate is having her car services/servicing/serviced tomorrow.
5. Sue had her windows breaking/broken/broke by vandals.
6. David has been offer/offering/offered a new job in Brazil.
7. Where exactly were you born/did you born/did you bear?
8. I've just had my like repaired/repair/repairing.

V. Rewrite each sentence beginning and ending as shown.

1. Someone stole Bob's bike. – Bob had his bike stole.
2. John lent me this book. – This book _____ John.
3. The dentist took out one of my teeth yesterday. – Yesterday I _____ out.
4. Cairo is my place of birth. – I _____ in Cairo.
5. A rock concert ticket was sold to me by a friend. – I was _____ by a friend.
6. Someone broke into Tom's house last week. – Tom had _____ last week.
7. When is your date of birth? – When exactly _____ born?
8. My parents gave me this ring? – I _____ parents.

Unit V

Electricity: Energy of the Future

Vocabulary Study

Word List

Nouns and noun phrases

advance
appearance
appliance
application

продвижение, успех, прогресс
появление
приспособление, прибор
применение

beam	луч, пучок
cable	кабель
cycle	цикл
device	устройство, аппарат, прибор
gear	шестерня, зубчатая передача
health	здоровье
in the case of ...	в случае ...
labour	труд, работа
mankind	человечество
property	свойство, качество
pulley	шкив, блок, ворот
range	сфера, зона, амплитуда
research	(научное) исследование
source	исток, источник
workshop	мастерская, цех

Adjectives

efficient	действенный, эффективный
evident	очевидный, ясный
expensive	дорогой (о цене)
specific	особый, особенный, характерный
successful	успешный
universal	всеобщий, универсальный
various	разный, разнообразный
wide	широкий

Verbs

charge	заряжать, загружать
consume	потреблять
cover	покрывать, охватывать
design	проектировать, конструировать
double	удваивать
imagine	представлять, воображать
improve	улучшать(ся), совершенствовать(ся)
invent	изобретать
light (lit)	освещать, зажигать
provide	снабжать, обеспечивать
realize	представлять себе, осуществлять
reduce	понижать, сокращать
replace	заменять, замещать
save	беречь, экономить
set up	воздвигать, устанавливать
support	поддерживать, подкреплять
transform	преобразовывать
turn	поворачиваться, обратиться

I. Read and translate the following words. Arrange them into the groups: a) with one stress or stress on the first syllable; b) with the stress on the second syllable; c) with two or more stresses.

Pollute, natural, panel, solar, consider, non-traditional, advantage, photoelectric, expensive, tunnel, consumption, thermal-chemical, civilization, population, motorway, photocopying, power, accumulate, during, remain, electrometallurgy, environment, battery, lighting, individual, therefore, sun-powered, unlimited, mechanical, hydraulic, geothermal, transformation, concentrate, enough, area, supply.

II. Match the words on the left with the definitions on the right.

- | | |
|---------------|--|
| 1) motor | a) place from which something comes or is got |
| 2) device | b) cause to exist or occur, produce |
| 3) beam | c) create or design (sth not existing before) |
| 4) technology | d) make less, make smaller in size, number, degree, price |
| 5) invent | e) change the shape, appearance, quality or nature |
| 6) research | f) something thought out, invented or adapted, for a specific purpose |
| 7) source | g) investigation undertaken in order to discover new facts |
| 8) power | h) study, mastery and utilization of manufacturing and industrial methods |
| 9) generate | i) device which imparts or utilizes power (esp electric power) to produce motion, but not used of a steam engine |
| 10) reduce | j) ray or stream of light |
| | k) strength; force |

III. Choose:

a) a noun

1. a)invent; b)inventor; c)inventive; d)invention.
2. a)transform; b)transformer; c)transformation; d)transformed.
3. a)generator; b)generative; c)generate; d)generation.
4. a)pollutant; b)pollute; c)pollution; d)polluter.

b) a verb

1. a)operation; b)operator; c)operate; d)operating.
2. a)apply; b)appliance; c)applicable; d)application.
3. a)indicator; b)indicate; c)indication; d)indicative.
4. a)producer; b)productive; c)produce; d)product.

c) an adjective

1. a) effect; b) effective; c) effectiveness; d) effectively.
2. a) vary; b) variation; c) variety; d) various.
3. a) possibility; b) possibly; c) possible; d) impossible.
4. a) power; b) powerful; c) powerless; d) powerfully.

d) an adverb

1. a) intensive; b) intensity; c) intensively; d) intensify.
2. a) mechanics; b) mechanic; c) mechanize; d) mechanically.
3. a) economy; b) economical; c) economist; d) economically.
4. a) warm; b) warmth; c) warmly; d) warmish.

IV. Define the meaning of the "x" words.

- 1) provide: provider
обеспечивать: x (снабженец, поставщик)
- 2) induce: induction
индуктировать: x
- 3) accumulate: accumulator
накапливать: x
- 4) transmit: transmission
передавать: x
- 5) consume: consumer
потреблять: x
- 6) reduce: reduction
сокращать: x
- 7) design: designer
проектировать: x
- 8) improve: improvement
улучшать: x
- 9) apply: application
применять: x
- 10) combine: combination
комбинировать: x
- 11) populate: population
населять: x
- 12) operate: operator
управлять, работать: x

V. Make adjectives from the following nouns by adding the suffixes: -al, -ful, -ic and translate them into Russian.

Industry, success, universe, economy, nature, part, power, tradition, metallurgy, theory, digit, use, logic, electricity, structure, hope, idea, form, skill, science, profession, physics, experiment, help, practice

VI. Arrange the words with similar meaning of the two groups in pairs.

- a) reduce, various, advance, property, application, device, latest, power, enable, reach, transform, longstanding, research, supply
b) turn to, make it possible, use, achieve, old, appliance, most recent, energy, different, investigation, progress, quality, provide, lower.

VII. Match the words with their opposites, like the example:

<i>usual</i>	<i>unusual</i>
a) future	1) save
b) unlimited	2) narrow
c) with	3) backward
d) waste	4) increase
e) necessary	5) worsen
f) wide	6) past
g) cover	7) disappear
h) consume	8) limited
i) reduce	9) produce
j) improve	10) vague
k) expensive	11) unnecessary
l) advanced	12) discharge
m) appear	13) without
n) evident	14) discover
o) charge	15) cheap

VIII. Match the verbs from «a» with the nouns from «b».

a) develop	b) consumption
accumulator	solar power stations
solve	streets
offer	energy
transform	new appliances
improve	wind power
need	a problem
replace	the efficiency of...
light	transmission shafts
charge	a new source of
design	energy
double	service
	a battery

IX. Complete the sentences with the words given below.

1. Electricity has many useful...: it is clean and...no by-products. 2. The latest laser devices have found...in medicine. 3. The...of electricity has doubled

every ten years. 4. We have many various electric...in our houses. 5. The generator...batteries that had been used before. 6. That electricity is clean and easily-regulated is its great.... 7. Our lives have been completely transformed with...of electricity. 8. A combination of electric lines and networks are being...throughout the country. 9. Electric power has become.... 10. The...of nation development is how much electricity is consumed per capita.

Advantage, appliances, universal, set up, appearance, indicator, replaced, application, properties, consumption, generates.

X. Translate into English.

Эффективное применение этого устройства, проектировать новую электростанцию, снижать потребление энергии, заряжать аккумулятор, универсальные свойства, очевидный успех, улучшать здоровье людей, устанавливать линии связи, заменять старые источники энергии, осуществлять международный проект, экономить ресурсы, дорогие приборы, преобразовывать одни виды энергии в другие, совершенствовать электрогенератор, появление новых нетрадиционных источников энергии.

A. Text Study

I. Look at the title. What do you think this reading will be about?

Text A

ELECTRICITY

It is impossible to imagine our civilization without electricity: economic and social progress will be turned to the past and our daily lives completely transformed.

Electrical power has become universal. Thousands of applications of electricity such as lighting, electrochemistry and electrometallurgy are longstanding and unquestionable.

With the appearance of the electrical motor, power cables replaced transmission shafts, gear wheels, belts and pulleys¹ in the 19th century workshops. And in the home a whole range of various time and labour saving appliances² have become a part of our everyday lives.

Other devices are based on specific properties of electricity: electrostatics in the case of photocopying machine and electromagnetism in the case of radar and television. These applications have made electricity most widely used.

The first industrial application was in the silver workshops in Paris. The generator – a new compact source of electricity – was also developed there. The generator replaced the batteries and other devices that had been used before.

Electric lighting came into wide use at the end of the last century with the development of the electric lamp by Thomas Edison. Then the transformer was invented, the first electric lines and networks were set up, dynamos and induction motors³ were designed.

Since the beginning of the 20-th century the successful development of electricity has begun throughout the industrial world. The consumption of electricity has doubled every ten years.

Today consumption of electricity per capita⁴ is an indicator of the state of development and economic health of a nation. Electricity has replaced other sources of energy as it has been realized that it offers improved service and reduced cost.

One of the greatest advantages of electricity is that it is clean, easily-regulated and generates no by-products⁵. Applications of electricity now cover all fields of human activity from house washing machines to the latest laser devices. Electricity is the efficient source of some of the most recent technological advances such as the laser and electron beams. Truly⁶ electricity provides mankind with the energy of the future.

Notes to the Next

- 1) transmission shafts, gear wheels, belts and pulleys – трансмиссионные валы, зубчатые колёса, ремни и блоки
- 2) time and labour saving appliances – электроприборы, экономящие время и труд
- 3) induction motors – индукционные моторы
- 4) per capita – на душу населения
- 5) by-products – побочные продукты
- 6) truly – поистине

II. Read the text again carefully and answer the questions.

1. Why is it simply impossible to imagine our civilization without electricity?
2. What industrial applications of electricity do you know?
3. What home applications of electricity can you recollect?
4. Where was the generator developed?
5. What devices did the generator replace?
6. Who invented the electric lamp?
7. Do you know who invented the dynamo?
8. When did the successful development of electricity begin?
9. What does the consumption of electricity per capita indicate today?
10. Why has electricity replaced other sources of energy?
11. What spheres of human activity do applications of electricity cover?
12. What recent technological advances does electricity provide?

III. Which of the vocabulary units used in paragraphs 1, 2, 4 and 5 could be regarded as international words?

IV. Read the translation of the last paragraph. Compare it with the original and say if everything is right.

Одним из самых больших преимуществ электрической энергии является то, что она чистая, легко управляемая и не дает никаких побочных продуктов. В наше время электричество обеспечивает все сферы человеческой деятельности, от домашних стиральных машин до новейших лазерных устройств. Электричество является эффективным источником для самых последних технологических изобретений, таких как лазер и электронные лучи. Поистине электричество обеспечивает человечество энергией будущего.

V. Find the English equivalents of the following words and word combinations in paragraphs 4-7.

Новый компактный источник, первые электрические линии и сети, потребление электричества, особенные свойства электричества, мастерские по изготовлению изделий из серебра, наиболее широко используемое, по всему индустриальному миру, в конце прошлого века, заменил батареи и другие приборы, изобрести трансформатор, успешное развитие электричества

VI. Find passages about industrial applications of electricity and translate them into Russian.

VII. Choose a passage and read it aloud (1-2 minutes).

VIII. Find out the subject-matter and the means of its secondary expression. e.g. I like your report on electricity. It is made with great enthusiasm.

IX. Find key words, phrases and the topic sentences which express the general meaning of each paragraph best of all.

X. Using the information obtained from the paragraphs make a plan of the text.

XI. Speak about electricity and its applications using key words, phrases, the topic sentences and the plan of the text.

B. Text Study

I. Look at the title of the text. Make your predictions about the content of it. Read the text and answer the questions.

a) How is the problem of power supply for distant areas being solved at present?

b) What are the advantages of solar power?

Text B

SOLAR LIGHT BY NIGHT

Most people living in towns consider it a usual thing that streets are lit at night. But street lights need a power supply (источник энергии) therefore distant areas with no source of electricity remain in darkness until the sun comes up again.

With new appliances now offered by several British firms, many distant places could be lit with solar-powered street lights. It may seem strange that the lamps can use the power of the sun which shines by day when the lamps are needed at night, but they work by using energy accumulated during the day from a solar panel. The solar panel produces electricity which charges a battery. When the sun goes down the battery power is then used for lighting. Each lamp has its own panel so the system can be used for one individual light or a number of them.

In the south of Saudi Arabia a motorway tunnel miles from any power supply is lit day and night by solar-powered devices. The solar panels provide power during the day and charge batteries which accumulate enough power to light the tunnel at night. The generation of electricity by batteries is still expensive but the advantage of sun-powered lamps is that they can bring light to areas distant from any other power supply.

There is one more advantage of solar power: not only it is unlimited, but also its use does not pollute the environment. That is why it is very important to develop devices which make it possible to transform solar power into mechanical or electric forms of power.

II. Read the text and define whether the following statements are true or false.

1. Street lights do not need a power supply nowadays.
2. Distant areas with a source of electricity never remain in darkness.
3. With new appliances now offered by several American firms, many distant places could be lit with solar-powered street lights.
4. A motorway tunnel in Saudi Arabia is lit day and night by wind-powered devices.
5. The generation of electricity by batteries is rather expensive.
6. There is one more disadvantage of solar power: its use does not pollute the environment.
7. The development of devices which make it possible to transform solar power into mechanical or electric forms of power is very important.

III. Expand the sentences.

1. Distant areas with no source of electricity remain in darkness.
2. Several British firms have offered new appliances.

3. The lamps can use the power of the sun at night.
4. Each lamp has its own panel.
5. The generation of electricity by batteries is still expensive.

IV. Now decide which of the following statements express important ideas or supporting details for this reading.

1.
 - a) Streets in cities, towns and some villages are lit at night.
 - b) Street lights need a power supply.
 - c) The sun does not shine at night.
2.
 - a) Electricity is a source of light as well as heat.
 - b) Almost all metals are good conductors of electricity.
 - c) Several British firms have offered new devices using solar light.
3.
 - a) No other source of energy has been so widely used as electricity.
 - b) The solar panel produces electricity which charges the battery.
 - c) Each lamp has its own solar panel.
4.
 - a) Solar power is beneficial means of energy.
 - b) One of the advantages of solar power is that it doesn't pollute the environment.
 - c) Sun-powered lamps can bring light to areas distant from any other power supply.

V. Find the words and word combinations – carriers of the primary and the secondary information in paragraphs 3 and 4.

VI. Define the function of commas and a colon in paragraphs 2 and 4.

VII. Find out the means of connection between clauses, parts of the sentence and sentences.

VIII. Arrange the sentences in the logical order according to the text.

1. Solar power is unlimited.
2. The solar panel produces electricity which charges a battery.
3. A motorway tunnel in Saudi Arabia is lit day and night by solar-powered devices.
4. Streets in cities and towns are lit at night.
5. The generation of electricity by batteries is still expensive.
6. Solar power does not pollute the environment.
7. Distant areas with no source of electricity remain in darkness.
8. When the sun goes down the battery power is then used for lighting.

IX. Give the main points of the text in 4-5 sentences.

C. Text Study

- I. *Translate the text into Russian.*

Text C

NON-TRADITIONAL RENEWABLE SOURCES OF ENERGY

It is known that much is being done in the world today for the development of non-traditional sources of energy. Without them the Earth cannot support its present population of 5 billion people and probably 8 billion people in the 21st century.

Now we are using traditional power sources, that is oil, natural gas, coal and water power with the consumption of more than 50 billion barrels per year. It is evident that these sources are not unlimited.

That is why it is so important to use such renewable sources of energy as the sun, wind, geothermal energy and others. Research is being carried out in these fields.

One of the most promising (перспективный) research is the development of power stations with direct transformation of solar energy into electricity on the basis of photoeffect. It was Russia that was the first in the world to develop and test a photoelectric battery of 32,000 volts and effective area of only 0.5 sq.m., which made it possible to concentrate solar radiation. This idea is now being intensively developed in many countries.

However, the efficiency of a solar power station is considerably reduced because of the limited time of its work during the year. But it is possible to improve the efficiency of solar power station by developing different combinations of solar power stations and traditional ones—thermal, atomic and hydraulic. Today some engineers are working at the problem of developing electric power stations with the use of a thermal-chemical cycle. It will operate on products of the transformation of solar energy, whereas the “solar” chemical reactor uses CO₂ and water steam of the thermal power station. The result is that we have a closed cycle.

All these advances in developing new sources of energy and improving the old ones help to solve the energy problem as a whole and they do not have negative effects on the environment.

Grammar Study

Функции глаголов 'should' и 'would'

Should 1	Would 2
1. Вспомогательный глагол, употребляемый в косвенной речи во временной форме Future – in – the Past (будущее в прошедшем).	
<i>I said that I <u>should</u> come in time. Я сказал, что <u>приеду</u> вовремя.</i>	<i>He said that he <u>would</u> come in time. Он сказал, что <u>приедет</u> вовремя.</i>
2. Вспомогательный глагол, употребляемый в сослагательном наклонении.	
а) в условных предложениях	
<i>We <u>should</u> introduce this method if it were efficient. Мы бы внедрили этот метод, если бы он был эффективным.</i>	<i>They <u>would</u> introduce this method if it were efficient. Они бы внедрили этот метод, если бы он был эффективным.</i>
б) в придаточных предложениях	
<p>После оборотов <i>it's important (важно), necessary (необходимо), required (требуется), desirable (желательно) и др. that ...</i> <i>It is necessary that you <u>should</u> finish your work on time. Вам необходимо заканчивать работу вовремя.</i> После глаголов <i>suggest (предлагать), insist (настаивать), demand (требовать), recommend (рекомендовать) и др. that ...</i> <i>He insists that you <u>should</u> do it at once. Он настаивает на том, чтобы вы это сделали немедленно.</i> В обстоятельственных предложениях цели <i>We took a taxi so that we <u>should</u> not miss the train. Мы взяли такси, чтобы не опоздать на поезд.</i> </p>	<p>После глагола 'to wish' <i>I wish she <u>would</u> come soon. (impossible wish for a future change) Я хотела, чтобы она пришла поскорее. (Жаль, что она придет нескоро) (нереальное желание, относящееся к будущему).</i> </p>
в) в простых предложениях	
<i>To go there <u>would</u> be useless. Идти туда было бы бесполезно.</i>	

1	2
3. Модальные глаголы	
<p>а) моральное обязательство, долг You <u>should</u> be always polite. You <u>should</u> not tell lies. Следует всегда быть вежливым. Не следует врать;</p> <p>б) неодобрение прошлых действий (с перфектным инфинитивом) You <u>shouldn't</u> have done it. Тебе не следовало это делать;</p> <p>в) совет You <u>should</u> see a doctor. Ты должен сходить к врачу (Тебе следовало бы сходить к врачу)</p> <p>г) естественное, ожидаемое действие. He <u>should</u> be at home now. Он, должно быть, сейчас дома.</p>	<p>а) волевой акт, хотение (по отношению к прошлому) She was going away and <u>would</u> not tell us where she was going. Она уезжала и не желала сказать, куда едет;</p> <p>б) упорство, настойчивость I asked him not to bang the door, but he <u>would</u> do it. Я просила его не хлопать дверью, но он все равно продолжал,</p>
	<p>а также для повторяющихся действий и заведённого порядка (в прошлом) Grandma <u>would</u> always make me porridge for breakfast. Бабушка обычно варила мне кашу на завтрак (также: used to) (бывало) и в вежливых просьбах Would you / Would you mind...? <u>Would</u> you open the door, please? Не могли бы вы...? Не возражаете ли вы...? Не могли бы вы открыть дверь?</p>

Многофункциональные слова

	Предлог 1	Союз 2	Наречие 3
Since	<p>(+существительное, местоимение, герундий) не употребляется в начале предложения We haven't seen him <u>since</u> the end of the week. Мы не видели его с (конца) прошлой недели.</p>	<p>- в придаточных предложениях времени We haven't seen him <u>since</u> he moved to Moscow. Мы не видели его с тех пор, как он переехал в Москву</p> <p>- в придаточных предложениях причины <u>Since</u> the lunchroom was full, she sat at our table. Так как в столовой было много людей, она села за наш столик.</p>	<p>в конце предложений We haven't seen him <u>since</u>. С тех пор мы его не видели.</p>

	1	2	3
For	<p>Выражает:</p> <p>1) время <i>I shall stay there <u>for</u> some days.</i> Я остановлюсь там на несколько дней</p> <p>2) цель <i>This story is written <u>for</u> children.</i> Этот рассказ написан для детей</p> <p>3) цены <i><u>for</u> 20 dollars</i> за 20\$</p> <p>4) причину <i><u>for</u> many reasons</i> по многим причинам.</p>	<p>в придаточных предложениях причины <i>We can't start the engine <u>for</u> there is no fuel in the tank.</i> Мы не можем завести двигатель, т.к. в баке нет бензина.</p>	-
As		<p>1) в придаточных предложениях времени <i><u>As</u> the train was approaching the station, we went to the platform.</i> Когда поезд подходил к станции, мы пошли на платформу.</p> <p>2) в придаточных предложениях причины <i><u>As</u> it was getting dark, I took the tram.</i> Я поехал на трамвае, т.к. стало темнеть.</p> <p>3) в придаточных предложениях образа действия <i>She did exactly <u>as</u> I told her.</i> Она поступила именно так, как я ей сказал.</p> <p>4) в придаточных предложениях сравнения <i>We were going up the road <u>as</u> fast as we could.</i> Мы шли по дороге так быстро, как только могли.</p>	<p><i>He works <u>as</u> an engineer.</i> Он работает инженером.</p>
Because		<p>В придаточных предложениях причины <i>They couldn't start the experiment earlier <u>because</u> all the necessary equipment hadn't been installed.</i> Они не могли начать эксперимент раньше в связи с тем, что было установлено не все необходимое оборудование.</p>	

	1	2	3
Because of		We have chosen this woolen sweater <u>because of</u> its good quality. Мы выбрали этот шерстяной свитер из-за его хорошего качества.	
As well as			He came <u>as well as</u> John. Он пришел, так же как и Джон. (Пришел он, а также Джон)
As to	They inquired <u>as to</u> the actual reason of his late arrival. Они осведомились о (настоящей) причине его опоздания.		
Due to	This is <u>due to</u> the raise of temperature. Это происходит из-за (благодаря) повышения температуры.		

to be due to (predicative – именная часть сказуемого)

Flight BA 502 from Miami is due to arrive in a few minutes.

Ожидается, что самолет рейсом BA-502 из Майами приземлится через несколько минут.

Следующие союзы употребляются в начале придаточных предложений: а) причины: *since, for, as, because*; б) времени: *since, as*; в) образа действия: *as*.

Both...and..., either...or..., neither...nor... .

Данные союзы связывают части сложносочиненного предложения либо однородные члены в простом предложении.

I am fond of music, both ancient and modern.

My sister and I both helped him.

Either I or he will go.

Neither he nor I went.

Я увлекаюсь музыкой, как старинной, так и современной.

Как моя сестра, так и я помогли ему.
Уйдет либо он, либо я.
Ни он и ни я не пошли.

Сослагательное наклонение

Глаголы в сослагательном наклонении выражают желаемое, предполагаемое или нереальное действие. В современном английском языке синтетические формы сослагательного наклонения, совпадающие с инфинитивом, употребляются редко. Чаще употребляются аналитические формы, состоящие из модальных глаголов 'should, would, may, might' и инфинитива. Для того, чтобы выразить нереальное действие, используется 'смещение времени' – глаголы в прошедшем времени выражают нереальное действие в настоящем, а формы Past Perfect – в прошлом.

Сослагательное наклонение обычно употребляется в придаточных предложениях после оборотов "it is necessary, it is required" и др.; в дополнительных придаточных предложениях после глаголов 'order, command, suggest, insist', а также глагола 'wish'; в обстоятельственных придаточных предложениях цели и нереального условия.

*It is required that pupils should come in time.
I suggest that you should read it yourself.
I wish I had that book.
We wished they would tell us everything.
Write down all these words lest you should forget them.
If you were more attentive, you'd study better.*

*Требуется, чтобы учащиеся приходили вовремя.
Я полагаю, тебе следует прочесть это самому.
Жаль, что у меня нет этой книги
Жаль, что они не рассказали нам обо всем.
Запиши все эти слова, чтобы не забыть их.
Если бы ты был более внимательным, ты бы учился лучше.*

Условные предложения

Типы условных предложений	Ситуация / условие	Союзы / союзные слова	
1. Изъявительное наклонение	<u>реальное</u> условие, относящиеся к настоящему, прошедшему или будущему времени;	<i>If</i> <i>unless</i> <i>even if</i> <i>but for</i> <i>in case etc</i>	если если не даже если если бы
2. Сослагательное наклонение	<u>нереальное</u> условие 1) невероятное действие, относящееся к настоящему или будущему времени 2) маловероятное, но возможное действие; а также употребляется в предложениях, выражающих совет;	...	не в случае при условии, что и т.д.
3. Сослагательное наклонение	<u>нереальное</u> условие, относящееся к действию, не имевшему места в прошлом, хотя и возможному, а также используется для выражения сожаления, критики, неодобрения.		

Придаточное предложение условия, предшествующее главному предложению, отделяется запятой. Существуют также смешанные типы условных предложений. Вероятны любые комбинации временных форм глаголов, в зависимости от контекста. Например: *If she had finished it yesterday, she wouldn't be doing it now.*

Если бы она закончила это вчера, то не делала бы это сейчас.

Во всех трех типах условных предложений союзы / союзные слова: *if*, *provided* и др. могут быть опущены. В придаточном предложении встречаются такие глаголы, как *had*, *were*, *could*, *might*, *should*. В таком случае имеет место обратный порядок слов.

Например: Если он придет, то пусть подождет меня. - *Should he come, let him wait for me.*

Если бы она была специалистом в данной области, мы бы показали ей новую установку. – *Were she a specialist in this field, we should show her the new installation.*

Возможность, вероятность, предположение,
граничащее с уверенностью

Предположение, близкое к уверенности

<p>Логическая неизбежность</p>	<p>'must' + неперфектный инфинитив общего вида (ситуация в настоящем или будущем) 'must' + перфектный инфинитив (ситуация в прошлом)</p>	<p><i>You must be hungry after such a long walk. Вы, должно быть, проголодались после долгой прогулки.</i></p> <p><i>She must have been very worried when she heard about the accident. Она, должно быть, очень разволновалась, услышав о несчастном случае.</i></p>
<p>Уверенность, что логически это невозможно</p>	<p>'can't / couldn't' + неперфектный инфинитив общего вида (в настоящем и будущем) 'can't / couldn't' + перфектный инфинитив (в прошлом)</p> <p>'can't' выражает действие, противоположное тому, что выражено глаголом 'must'</p>	<p><i>Surely she can't be fifty. She looks much younger. Не может быть, чтобы ей было 50. Она выглядит гораздо моложе.</i></p> <p><i>You can't have locked the door. It was open when I came home Не может быть, чтобы ты закрыл дверь на замок. Она была открыта, когда я пришел домой. It can't be true. It must be a lie. Это не может быть правдой. Должно быть, это ложь.</i></p>

<p>Мы надеемся, что действие произошло, но не уверены в этом</p>	<p>Ought to / should + перфектный инфинитив (ситуация в прошлом)</p>	<p>Has Jim come yet? He ought to / should have come an hour ago. Джим уже пришел? Он должен был прийти час назад.</p>
<p>Действие теоретически возможно</p>	<p>Can + неперфектный инфинитив</p>	<p>There can be a thunderstorm today. Baby tigers look cuddly, but in fact they can be very dangerous. Сегодня, возможно, будет гроза. Тигрята выглядят милыми, но на самом деле, они могут быть весьма опасными.</p>

Возможность

<p>Возможно, предположительно (сомнение, неуверенность)</p>	<p>“may (not) might (not) / could + неперфектный инфинитив общего или длительного вида (в настоящем или будущем)</p> <p>may (not) / might (not) / could + перфектный инфинитив (ситуация в прошлом)</p>	<p>Look on that shelf, your scarf may/might/could be there. Загляни на полку, возможно, твой шарф там. I won't phone now, they may/might/could be having lunch. Я не хочу звонить им сейчас, может быть, они обедают. She looks very unhappy. She may/might/could have lost her job. Она выглядит очень несчастной. Возможно, она потеряла работу.</p>
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<i>Вероятность (правдоподобие)</i>		
<i>Нечто является вероятным, предполагаемое / ожидаемое действие</i>	<i>Ought to / should + неперфектный инфинитив (ситуация в настоящем или будущем)</i>	<i>There ought to/should be much fruit this year. Видимо, в этом году будет много фруктов.</i>

Для выражения возможности выполнить действие в вопросительных предложениях не употребляется глагол 'may'.

Возможность выражается следующими способами:

Can she? Could he? Is she likely to? Is it likely that? Might he?

Например: Сможет ли он выиграть? – Is he likely to win?

I. Translate into Russian.

A

1. If you study hard, you will pass your exams successfully.
2. If I stay here, I shall take part in your work.
3. He will achieve better results provided he applies this method.
4. In case we fulfill this task, we shall write an article.
5. My report will be ready tomorrow, providing I have all the necessary materials.

B

1. If he were present at the lecture, he would not make so many mistakes in this paper.
2. He would finish his project unless he were ill.
3. We should do our best to show our skill provided we were given this work.
4. If they had time, they would complete the work sooner.
5. In case I saw him, I could speak to him.

C

1. He could have made that great discovery earlier if he had had better conditions for work.
2. I should not have agreed to take part in your research unless I had been sure of its significance.
3. In case I have understood the importance of the matter, I should have acted differently.
4. Unless they had studied programming, they would not have compiled the program.
5. If the mechanic had been there, he might have repaired the device.

II. Write these sentences putting the verbs in brackets into the correct tense.

1. If you drove more carefully, you (not have) so many accidents.
If you drove more carefully, you wouldn't have so many accidents.
2. If he (get up) earlier, he'd get to work on time.
If he got up earlier, he'd get to work on time.
3. If we (have) more time, I could tell you more about it.
4. If you (sell) more products, you'd earn more money.
5. I could help you if you (trust) me more.
6. His car would be a lot safer if he (buy) some new tyres.
7. I wouldn't mind having children if we (live) in the country.
8. If I (be) you, I wouldn't worry about going to university.
9. If I (have) any money, I'd give you some.
10. Your parents (be) a lot happier if you phoned them more often.
11. Where would you like to live if you (not live) in Paris?
12. What would you do if you suddenly (win) half a million pounds?
13. Would you mind it if I (not give) you the money I owe you today?
14. If I had to go to hospital, I (not go) to this one.

III. Define grammar functions of "should" and "would" in the following sentences:

Modal verbs:

Reported speech:

Subjective Mood (and Conditionals):

1. When Marta was younger she would work day and night to feed her family. Time and again I would see her coming very tired.
2. We should finish the work in time, provided they had necessary equipment.
3. We waited till evening, but the thunderstorm would not cease.
4. We assured our supervisor that we should be able to overcome all the difficulties in our research.
5. The measurements should have been made with greater accuracy.
6. Had you reached an agreement on the problem, the results would have been obtained by now.
7. "You should take more exercise," the doctor said.
8. Tom promised his father that he would clean the car the following day.
9. I don't have time, but if I had more time, I would go to the gym.
10. It is very important that you should take part in the discussion.
11. Everybody required that the new methods of management should be taken into consideration while making the program.
12. Would you mind typing this report for me?
13. He asked me when they would be through with that experiment.
14. I wish that this new method would be applied.
15. You should be hungry now.

IV. Define the functions of since, as, for, because, because of.

1. I have a small car because it's more economic to run.
2. But economics as an academic discipline is relatively new.
3. A basic understanding of economics is essential for citizens.
4. Since that time the subject has developed rapidly.
5. He's been running the company for ten years.
6. Because there are no others to consult, the owner has absolute control over the use of the company's resources.
7. It's a pity we haven't made any calculations since.
8. People accept money in exchange for goods and services.
9. At the same time money also acts as a unit of accounts.
10. Since time is money, make sure your system is comprehensible.
11. As our knowledge grows and we increase our skill, we can exploit more and more of opportunities that nature offers to us.
12. I've bought this house because of its external.
13. She is not so quiet now as she was in her childhood.

1. Prepositions
2. Conjunctions
3. Adverbs

Key

Unit I

I.

a) filament
current
cathode
diode
grid
oxide
plate

a) increase
invention
electron
substantial
apply
control
emit
supply

b) utilize
insulate
amplifier
rectifier
evacuate

II. 1-f; 2-c; 3-b; 4-a; 5-d; 6-e; 7-g; 8-h; 9-i; 10-j.

III. a) 1-b; 2-c; 3-a
b) 1-b
c) 1-b

V. *Substantial, active, static, utilizable, chargeable, circuitous, electronic, inventive.*

V.I *To amplify – to strengthen, enclosure – fencing, flow – current, to supply – to provide, tube – valve, power – energy, substantial – real, to act – to do, to apply – to use, to cause – to occasion, to coat – to cover, to control – to regulate, to emit – to radiate, to place – to put, to state – to confirm.*

VII. a-4; b-3; c-5; d-1; e-2; f-6; g-7; h-8; i-9; j-10.

Grammar Study

I.

a) *do you go*
d) *are you waiting*
a) *doesn't know*
b) *I'm having*
c) *do you leave*
d) *is happening*
e) *do you know*
f) *I'm having*
g) *doesn't work*
h) *are you doing*

II.

a) *does Sue live*
b) *you know Jim*
c) *are you doing at the moment*
d) *you sitting here*
d) *we change trains here*
e) *are you wearing two pullovers*
f) *David staying with Tom*
g) *does Kate come home*

III.

a) *Naomi Bill aren't watching television.*
b) *Peter doesn't like chocolate cake.*
c) *Carol doesn't drive a little red sports car.*
a) *I'm not using this pencil at the moment.*
b) *The children aren't having lunch in the kitchen.*

- c) *The sun doesn't set in the east.*
- d) *I don't get up early on Saturday.*
- e) *Kate isn't writing a novel.*
- f) *Sue doesn't live in London.*
- g) *We aren't waiting for you.*

- IV.
- a) 2
 - b) 1
 - c) 1
 - d) 2
 - e) 1
 - f) 2
 - g) 2
 - h) 1

- V.
- a) *I don't believe*
 - b) *has*
 - c) *I'm leaving*
 - d) *are you doing*
 - e) *You are being*
 - f) *I'm driving*
 - g) *are we eating*
 - h) *tastes*
 - i) *are you going*
 - J) *I don't understand*
 - d) *understand*

- VI.
- 1) *hate*
 - 2) *are you going with*
 - 3) *do you wear*
 - 4) *think*
 - 5) *doesn't usually sit*
 - 6) *are you looking at*
 - 7) *does this bus stop*
 - 8) *am not taking/is giving*
 - 9) *eats*
 - 10) *Do you know*
 - 11) *are you staring*
 - 12) *do you speak*
 - 13) *is staying*
 - 14) *are putting*
 - 15) *Are they speaking*

- VII. a) B:2; b) B:2; c) B:1; d) B:1; e) B:1 ; f) B:1.

- VIII.
- 1) *is going / is going to join*
 - 2) *won't be*
 - 3) *will snow*
 - 4) *am going out*
 - 5) *are going to knock*
 - 6) *will probably ride*
 - 7) *is going to give / is giving*

- 8) am going
- 9) are going to hit
- 10) will probably win

Unit II

- I.
 - a) technical, system, process, program, sequence, logical, modern, govern
 - b) machine, industrial, control, importance, objective, employment, fulfill, require, technique
 - c) possibility, automatic, information, subdivision, computation, reliability
- II.
 - solve problems
 - pave the way
 - develop principles
 - work out the algorithms
 - perform operations
 - fulfill the program
 - utilize techniques
 - govern processes
 - transmit information
- IX.
 - 1) technical possibilities
 - 2) cybernetics
 - 3) engineering sciences
 - 4) technical cybernetics
 - 5) objectives
 - 6) control algorithms
 - 7) programs
 - 8) systems
 - 9) are applied

Text B

VIII. B E D A C

Unit III

- I.
 - a) problem, mobile, ticket, message, user, nowadays, Internet, cellular, ordinary, telephone, tendency, different, wireless.
 - b) mankind, technology, transmit, compare, conception, enormous, expose, device.
 - c) communication, apparatus, operation, application, exhibition, electronic, television.
- II.

1 h; 2 j; 3 f; 4 k; 5 b; 6 g; 7 e; 8 d; 9 a; 10 c; 11 i.
- III.

a) 1. c.	b) 1. a.	c) 1. a.	d) 1. b.
2. a.	2. c.	2. c.	2. a.
3. b.	3. c.	3. a.	3. b.
4. a.	4. b.	4. b.	4. a.
		5. a.	

V.

Technological, electronic, operational, speedy, spherical (spheric), voiceless, helpful (helpless), theatrical, sensible (senseless), breakable.

VI.

1/h; 2/d; 3/k; 4/a; 5/l; 6/b; 7/j; 8/e; 9/o; 10/f; 11/c; 12/i; 13/g; 14/m; 15/n.

VII.

a/7; b/6; c/1; d/9; e/2; f/8; g/4; h/10; i/3; j/5.

IX.

1. cellular; 2. "know-how"; 3. subscribers; 4. non-business; 5. data; 6. Mobile, communication; 7. Web; 8. Internet, video; 9. net; 10. electronic.

Text Study. Text B.

VIII.

2, 5, 1, 4, 3

Grammar Study

Времена группы Perfect

I.

- 1) Has your sister written
- 2) have had
- 3) has never seen
- 4) has stolen
- 5) have not slept
- 6) have just broken
- 7) hasn't won
- 8) Have you ever eaten

II.

- 1) always
- 2) ever
- 3) just
- 4) yet
- 5) for
- 6) never
- 7) so far
- 8) often
- 9) already

III.

- a) haven't been on a plane
- b) my pen has
- c) have left
- d) have just seen
- e) haven't finished (writing)
- f) you been to South America
- g) have left
- h) have not spoken
- i) Anna/she woken

IV.

- 1) went/found/had stolen
- 2) met/knew/had met
- 3) got off/was walking/realized/had left

V.

- a) had broken
- b) wanted
- c) had stolen
- d) thought
- e) had done
- f) needed
- g) did not know
- h) had flown
- i) had been
- j) took place

VI.

- a) 2/4, b) 1, c) 8, d) 3, e) 5, f) 2/4, g) 7.

Времена группы Perfect Continuous

I.

- 1) has just stolen
- 2) left
- 3) I lost
- 4) I've decided
- 5) It's started
- 6) have visited
- 7) I've been standing
- 8) has been
- 9) went

II.

- 1) Have you seen
- 2) have been studying/have not finished
- 3) have been phoning/has gone
- 4) Have you heard/has robbed
- 5) Have broken/has written

III.

- 1) has gone
- 2) have been learning
- 3) haven't finished
- 4) just left
- 5) have written / have finished
- 6) haven't been
- 7) haven't eaten
- 8) forgotten
- 9) has changed

V.

- 1) They had been playing football.
- 2) Somebody had been smoking in the room.
- 3) She had been dreaming.
- 4) He had been watching TV.

VI.

- 1) I had been waiting for 20 minutes when I suddenly realized that I was in the wrong restaurant.
- 2) At the time the factory closed down, Sarah had been working there for five year.
- 3) The orchestra had been playing for about ten minutes when a man in the audience suddenly began shouting.
- 4) Example answer: I had been walking along the road for about ten minutes when a car suddenly stopped just behind me.

VII.

- 1) was walking
- 2) had been running
- 3) were eating
- 4) had been eating (had eaten is also possible)
- 5) was looking
- 6) was waiting ... had been waiting
- 7) had had
- 8) had been travelling

Unit IV

I.

- | | | |
|---|---|--|
| a) <i>media</i>
<i>rate</i>
<i>satellite</i>
<i>transport</i>
<i>wireless</i>
<i>access</i>
<i>bandwidth</i>
<i>core</i>
<i>linkup</i>
<i>handle</i>
<i>standard</i>
<i>button</i>
<i>range</i>
<i>analog</i>
<i>data</i>
<i>digital</i>
<i>launch</i>
<i>site</i> | b) <i>device</i>
<i>demand</i>
<i>consumer</i>
<i>transceiver</i>
<i>towards</i>
<i>increase</i>
<i>consider</i>
<i>relay</i>
<i>device</i> | c) <i>storage capacity</i>
<i>availability</i>
<i>trunk line</i>
<i>telecommunications</i>
<i>information</i>
<i>fiber-optic cable</i>
<i>application</i>
<i>decompression</i>
<i>bursts of light</i>
<i>telephone call</i>
<i>copper wire</i> |
|---|---|--|

V.

Accessible, medial, useful (useless), wireless, wonderful, digital, transportable, limitless, breakable, normal, formal.

Grammar Study

- I
2. *is watched*
 3. *will be finished*
 4. *has been elected*
 5. *is being rebuilt*
 6. *has been closed*
 7. *are written*
 8. *was stolen*
 9. *will be met*
 10. *was won*

II.

1. Many pet dogs are lost every year.
2. The ill man was taken to hospital.
3. A new bridge is being built across the river.
4. All the food at the party was eaten.
5. Nothing will be decided before next Saturday.
6. The meeting is holding every Friday.
7. This book was written by Sam's father.

III.

1. The casino has been closed.
2. The flat was broken into last week.
3. English is spoken all over the world.
4. The new swimming-pool has opened.
5. The purse was left in the classroom yesterday.
6. Traffic has been banned from the city center.
7. The match has been postponed.

IV.

- a) cut
- b. taken
- c. sent
- d. serviced
- e. broken
- f. offered
- g. were you born
- h. repaired

V.

1. Bob has his bike stolen.
2. This book was lent to me by John.
3. Yesterday I had one of my teeth taken out.
4. I was born in Cairo.
5. I was sold a rock concert ticket by a friend.
6. Tom had his house broken into last week.
7. When exactly were you born?
8. I was given this ring by my parents.

Unit V

I.

- a) natural, panel, solar, tunnel, motorway, power, during, battery, lighting, therefore, concentrate, area
- b) pollute, consider, advantage, expensive, consumption, accumulate, remain, unlimited, mechanical, hydraulic, enough, supply
- c) non-traditional, photoelectric, thermal chemical, civilization, population, photocopying, electrometallurgy, individual, sun-powered, geothermal, transformation

III.

Modal verbs: 1, 3, 5, 7, 12, 15

Reported speech: 4, 8, 13

Subjunctive Mood (+Conditionals): 2, 6, 9, 10, 11, 14

IV.

Prepositions: 3, 4, 5, 8, 12

Conjunctions: 1, 6, 10, 11, 13

Adverbs: 2, 7, 9

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