



**Федеральное Государственное образовательное  
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высшего профессионального  
образования  
«Поволжский  
государственный университет  
телекоммуникаций и  
информатики»**

Кафедра иностранных языков

## ***ENGLISH FOR IT STUDENTS***

Учебное пособие по английскому языку  
для студентов 1 курса дневного отделения специальностей  
«Информационная безопасность телекоммуникационных  
систем», «Информатика и вычислительная техника»,  
«Информационные системы и технологии» и  
«Программная инженерия»

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Учебное пособие по английскому языку «English for IT students» предназначено для студентов 1 курса дневного отделения специальностей «Информационная безопасность телекоммуникационных систем», «Информатика и вычислительная техника», «Информационные системы и технологии» и «Программная инженерия»

Учебное пособие содержит основные и дополнительные тексты, сопровождаемые лексико-грамматическими упражнениями разной степени сложности.

Пособие рассчитано на студентов, продолжающих изучать английский язык, и может быть использовано широким кругом обучающихся.

**ББК 4И (Англ)**

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## Предисловие

Данное учебное пособие предназначено для студентов 1 курса дневного отделения специальностей «Информационная безопасность телекоммуникационных систем», «Информатика и вычислительная техника», «Информационные системы и технологии» и «Программная инженерия». Цель пособия — подготовить студентов к чтению специальной научно-технической литературы для извлечения информации, а также привить им навыки устной речи по специальной и общей тематике.

Представленный материал позволяет не только углубить знания английского языка, но и овладеть основами компьютерной грамотности. Пособие содержит тексты из оригинальной литературы, по теме «Компьютеры и информационные системы»; учебные задания, способствующие усвоению и запоминанию специальных терминов компьютерных технологий.

При организации учебного материала ставилась задача повторения и обобщения основных грамматических тем и лексики средней школы, а также углубленное изучение тех грамматических и лексических явлений, которые необходимы студентам для профессионального общения на английском языке.

Пособие содержит шесть уроков, состоящих из 3 текстов, цикла лексико-грамматических упражнений, заданий, способствующих развитию разговорных навыков и грамматического справочника.

Данное пособие включает два разных когнитивных аспекта познания, технический и гуманитарный и будет способствовать как углубленному изучению английского языка, так и повышению грамотности учащихся в области информационных технологий.

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## UNIT 1

1. Устный коррективный курс по фонетике английского языка.
2. Text 1 A. My future profession
3. Text 1 B. The future of the engineering profession
4. Text 1 C. Our University
5. Имя существительное Образование множественного числа Притяжательный падеж (стр.)  
Имя прилагательное. Степени сравнения прилагательных (стр.)

### *Ex.1. Practice reading.*

#### ► *c*

- process, facility, recent, cement, necessary, civil, discipline, specify, velocity, advance, announcement, incident, cylinder, cellular, descend, license, electricity, science, exceed;
- clay, helicopter, concourse, academy, concrete, crosstie, decay, component, company, calculate, carry, click, comfortable, faculty, communication, compact, conductor, decrease;
- concern, concept, capacity, cybernetics, cycle, circular, ceramic, circuit, practice, cancel, commerce, competence, council, bicycle, incandescent, specific, convince;
- access, accelerate, accept, accident, succeed, successful, accommodation, according, accumulator, accompany;
- efficient, commercial, politician, financial, artificial, official, special, specialist, speciality, specialization, especially, sufficient, association, sociable, provincial, appreciate, academician, ancient.

#### ► *g*

- damage, flange, originate, register, engine, emergency, region, huge, technology, digital, oxygen, urgent, agency, barge, generation, ecology, generate, longitude, bridge, German, suggest, dangerous, change, passenger, margin, gyps;

- gravel, megabyte, agree, gang, regular, gasoline, gateway, graduate, ignite, cargo, goal, aggregate, degree, gasoline, gradient, angular, guide, guess;
  - gauge, engage, garage, baggage, luggage;
- BUT: gear, target, get, give, begin, bogie.*

**Ex.2. Mind the prepositions and make your own sentences with these phrases**

1) a lecture <b>in (on)</b> a subject	7) to wait <b>for</b>
2) to prepare <b>for</b> an exam	8) to listen <b>to</b>
3) to take an exam <b>in</b> a subject	9) to take part <b>in</b>
4) to pass an exam <b>in</b> a subject	10) to be late <b>for</b>
5) to be strong (weak) <b>in</b> a subject	11) to depend <b>on</b>
6) to study <b>at</b> the University	12) to consist <b>of</b>

**Ex.3. Match the words in the left column with their equivalents on the right.**

1) applicant	a) абитуриент
2) to attend lessons	b) аспирантура
3) competitive exam	c) бесплатный
4) course of studies	d) вступительный экзамен
5) to enter the Institute	e) вуз
6) entrance exam	f) выпускник
7) extra-mural department	g) дипломный проект
8) to fail (in) an exam	h) заканчивать институт
9) first-year student (freshman)	i) заочное отделение
10) free of charge	j) конкурсный экзамен
11) to graduate from the	k) курс обучения

Institute	
12) graduate	<i>l) первокурсник</i>
13) graduation project	<i>m) посещать занятия</i>
14) higher educational institution	<i>n) поступать в институт</i>
15) to miss classes	<i>o) провалиться на экзамене</i>
16) post-graduate course	<i>p) пропускать занятия</i>
17) secondary (higher) education	<i>q) техникум</i>
18) senior student	<i>r) среднее (высшее) образование</i>
19) technical school	<i>s) старшекурсник</i>

**Task 1. Memorize the following words and word-combinations:**

***to comprise*** — включать в себя; ***to generate*** — генерировать, производить; ***to transmit*** — передавать; ***to store*** — хранить; ***scale*** — масштаб; ***unprecedented in history*** — не имеющий прецедентов в истории; ***indication*** — указание, свидетельство; ***explosive*** — взрывной; ***to deal with*** — иметь дело с, заниматься чем-либо; ***circuit*** — электрическая схема, цепь; ***device*** — устройство; ***processing*** — обработка; ***to rely*** — полагаться; ***linear systems theory*** — теория линейных систем; ***differential equations*** — дифференциальные уравнения; ***probability theory*** — теория вероятности; ***extensively*** — широко; ***replacement*** — замещение; ***fibre optics*** — оптоволоконные технологии; ***copper*** — медь; ***digital*** — цифровой; ***immunity*** — защищенность, невосприимчивость; ***carrying capacity*** — пропускная способность; ***rapidly growing*** — быстро растущий; ***artificial intelligence*** — искусственный



разум; *sophisticated* — сложный; *superconducting* — сверхпроводимость

### **Text 1 A: Read and translate the text.**

#### **MY FUTURE PROFESSION**

I'll become a specialist in computer technologies — a computer engineer.

Computer industry is developing so fast, that it *comprises* almost all spheres of professional life. No business now is possible without computers. This is especially true about automated manufacturing of products and robotics. Computer control of automated production opens new horizons for the cheap and quality production of goods. Information is now *generated, transmitted*, received, and *stored* electronically through computer networks on a *scale unprecedented in history*, and there is every *indication* that the *explosive* rate of growth in this field will continue.

Computer engineering is a general field. It *deals with* both electric and electronic industries.

Electronic engineering deals with the research, design, integration, and application of *circuits* and *devices* used in the *transmission* and *processing* of information.

Engineers in the field of electric and electronic engineering are concerned with all aspects of electrical communications, from fundamental questions such as «What is information»? to the highly practical, such as the design of telephone systems. In designing communication systems, engineers rely on various branches of advanced mathematics, such as Fourier analysis, linear systems theory, linear algebra, differential equations, and probability theory.

Engineers work on control systems which are used *extensively* in automated manufacturing and in robotics.

Major developments in the field of communications and control have been the **replacement** of analogue systems with digital systems; **fibre optics** are used now instead of copper cables. Digital systems offer far greater **immunity** to electrical noise. Fibre optics are likewise immune to interference; they also have great **carrying capacity**, and are extremely light and inexpensive to manufacture.

Computer engineering is now the most **rapidly growing** field. The electronics of computers is the design and manufacture of memory systems, of central processing units, and of peripheral devices. The most prospective industry now is the Very Large Scale Integration (VLSI) and new computer architectures. The field of computer science is closely related to computer engineering; however, the task of making computers more «intelligent» (**artificial intelligence**), through creation of sophisticated programs or development of higher level machine languages or other means, is generally regarded as the dream of computer science.

One current trend in computer engineering is microminiaturization. Engineers continue to work to fit greater and greater numbers of circuit elements onto smaller and smaller chips.

Another trend is towards increasing the speed of computer operations through the use of parallel processors and **superconducting** materials.

So, as you see, there are a lot of employment opportunities in this field.. The most important thing now is to study well and to graduate from the University.

**Task 1. Translate into English:**

1. Никакой современный бизнес не возможен без компьютерной техники.
2. Компьютерная индустрия — наиболее быстроразвивающееся производство.

3. Компьютерное управление автоматизированными производственными линиями открывает новые горизонты дешевого и качественного производства товаров.
4. Крупным достижением в сфере коммуникации является замена аналоговых систем на цифровые.
5. В настоящее время оптоволоконные цифровые технологии обеспечивают более качественную и доступную связь, чем аналоговые системы.

**Task 2. How do you see your future profession? Please answer the following questions:**

**1) What kind of work are you interested in?**

- a) well paid; b) interesting; c) in a large and famous company;
- d) quiet; e) in an industry which has a future; f) prestigious; g) not to sit the whole day in the office; h) to travel a lot

**2) What position would you like to have?**

- a) to manage people — manager
- b) to work for someone else — an employee
- c) to be your own boss — self-employed, businessman
- d) to be responsible for everything — top manager, director
- e) to work for the state — state employee

**Text 1 B: Read the text, get its central idea and note the important details**

**THE FUTURE OF THE ENGINEERING PROFESSION**

Among various recent trends in the engineering profession computerization is the most widespread. The trend in modern engineering offices is also towards computerization. Computers are increasingly used for solving complex problems as well as for handling, storing, and generating the enormous volume of data modern engineers must work with.

Scientific methods of engineering are applied in several fields not connected directly to manufacture and construction. Modern engineering is characterized by the broad application of what is known as systems engineering principles.

Engineers in industry work not only with machines but also with people, to determine, for example, how machines can be operated most efficiently by workers. A small change in the location of the controls of a machine or of its position with relation to other machines or equipment, or a change in the muscular movements of the operator, often results in greatly increased production. This type of engineering work is called time-study engineering.

A related field of engineering, human-factors engineering, also known as ergonomics, received wide attention in the late 1970s and 1980s when the safety of nuclear reactors was questioned following serious accidents that were caused by operator errors, design failures, and malfunctioning equipment.

Human-factors engineering seeks to establish criteria for the efficient, human-centred design of, among other things, the large, complicated control panels that monitor and govern nuclear reactor operations.

***Task 1. Answer the following questions:***

1. What is the most widespread trend in the engineering profession?
2. What are computers used for in modern engineering for?
3. What approaches are used in modern engineering?
4. What is «ergonomics»?
5. What does human-factors engineering deal with?

**Text 1 C. Read , translate and retell the text**

## OUR UNIVERSITY

Having finished secondary school I entered the Povolzsky State University of Telecommunications and Informatics. Now I am a first year student.

Our University was founded in 1956 as one faculty institution. It was the faculty of Radio Communications and Radio Broadcasting with a number of students 208. In 1961 the faculty of telephone and telegraph communication was set up, which later was reconstructed in the faculty of Automatic and Multi-channel communication.

Now there are the following faculties at University: Radio engineering and Telecommunications faculty, the faculty of Information Systems and Technology, the faculty of basic telecommunications education and extramural one.

The University has more than 20 chairs, computer center, library, rest camp. Besides, there are several subsidiaries of the University chairs in research institutions and enterprises. Our University is famous for its professors staff.

The graduates of the University become bachelors and masters of telecommunications as well as engineers of telecommunication in various fields.

I study at the faculty of basic telecommunications education. My specialty is .... Being just beginners we study general education subjects necessary for future engineers such as mathematics, physics, engineering drawing. Besides, we study humanitarian subjects which will broaden our outlook.

The Academic year in our University runs from September the 1<sup>st</sup> to the end of June. The tests at the end of each term are obligatory. In January we take exams in 4 or 5 subjects.

The course for bachelors (engineers) lasts for 4 (5) years. In senior grades we shall study the subjects on our specialty. In the 4 (5<sup>th</sup>) year we are to submit a diploma project.

**Task 1.** What do you think about your future profession? What was the reason to choose it? What is the most important thing for you in your future profession and what is the most important thing for you now?

### **GRAMMAR REVIEW**

**1. В следующих предложениях употребите существительные во множественном числе. Сделайте необходимые преобразования.**

1. An exercise is difficult. 2. A photo is just beautiful.  
3. A young man is tall. 4. A story is dull. 5. An armchair is comfortable.

**2. Употребите выделенные существительные во множественном числе. Сделайте другие замены**

1. I have a good **picture**. 2. These scientists have a new **idea**. 3. You have a good **plan**. 4. I have a real **friend**.

**3. Выберите исчисляемые существительные и напишите их с артиклем a или an.**

Bucket, cup, sand, tea, toothpaste, credit card, money, hat, salt, soap, toothbrush, umbrella.

**4. Замените словосочетания с предлогом of сочетаниями с существительным в притяжательном падеже.**

1. The lecture of the scientist. 2. The famous novel of the writer. 3. The luggage of the tourist. 4. The visit of the guests. 5. The gloves of my wife. 6. The work of the teacher. 7. The words of the interpreter. 8. The eyes of the child. 9. The eyes of the children. 10. The voice of the woman. 11. The voices of the women. 12. The little wooden house of my uncle. 13. The plans of the engineers.

**5. Замените существительное в притяжательном падеже существительным с предлогом. Не забывайте об определенном артикле.**

1. I like to work in my father's room. 2. Tell me Peter's address. 3. What is this man's profession. 4. My dog's name is Toby. 5. Ivanov is our family's friend. 6. Animals' food differs from people's food. 7. Export and import are important factors in the country's economy. 8. Many young people want to choose the teacher's profession. 9. In the morning we see the sun's disk above the Earth.

**6. Переведите следующие сочетания слов, обращая внимание на существительные в функции определения:**

The surface temperature, the ocean surface, the light speed, energy supply, heat energy, a ball diameter, mercury pressure, gravitation force, the Moon's surface, the Earth's magnetism, solid properties.

**7. Переведите сочетания слов:**

Neutron reaction - neutron chain reaction; nucleus fission - uranium nucleus fission; research program - atom research program; power installation - power generating installation; nuclear process - energy generating nuclear process.

**8. Переведите сочетания слов, обращая внимание на перевод определений.**

Radio and radar equipment; city water supply system; high-speed production process; ground-space communication station; high-voltage transmission lines; radio-wave length stabilization.

**9. Определите, какими частями речи являются выделенные слова. Предложения переведите.**

1. Computers process data in a matter of minutes. This process will prevent the formation of impurities. 2. The capacities of mobile stations range from 600 to 700 kilowatts. The operating range of this device is extremely broad. 3. So far we know only a few functions of lasers. The new computing equipment functions normally.

**10. Переведите предложения, обращая внимание на различный перевод прилагательных в сравнительной степени в зависимости от их места в предложении:**

1. It is colder today than it was yesterday. 2. There are deeper and longer rivers than the Volga. 3. In summer days are longer than in winter. 4. Friendship is stronger than steel. 5. Read the shorter story. 6. The Neva is wider than the Moskva river. 7. A city has wider streets than a village.

**11. Переведите предложения, обращая внимание на форму прилагательных:**

1. This classroom is larger and lighter than other classrooms. It is the largest and the lightest room here. 2. The red line on this drawing is shorter than other lines. It is the shortest line. 3. Mathematics is more important for technical students than many other subjects. It is one of the most important subjects at any technical Institute. 4. The results of his last experiments were worse than before. He got the worst results that time.

**12. Замените положительную степень прилагательного на превосходную (most, least). Не забывайте об артикле. Переведите на русский язык.**

1. It is an evident fact. 2. It is a fundamental problem. 3. It is a frequent mistake. 4. It was a doubtful step. 5. It will be a helpful program. 6. It was a progressive thought. 7. It is a



primitive plan. 8. It was an optimistic idea. 9. It was a hopeless situation.

### 13. Переведите предложения.

1. Bad is never good until worse happens. 2. A good example is the best sermon (поучение). 3. This will become clearer later. 4. He lives farther from the Institute than I do. 5. Better late than never. 6. Your accent is worse than mine.

### 14. Переведите предложения на русский язык, обращая внимание на значение союза as...as:

1. Venus is nearly as big as the Earth. 2. He answered all the questions as well as his friends did. 3. No planet is as hot as the Sun. 4. The speed at which the Earth revolves round the Sun is nearly that of Venus. 5. When Mars is at its greatest distance from the Earth it is nearly as bright as the Polar Star.

### 15. Переведите предложения, обращая внимание на выделенные сочетания:

1. **The nearer** the Earth, **the denser** the atmosphere. 2. **The more** experiments scientists make, **the greater** is their knowledge of the structure of matter. 3. **The bigger** the mass, **the bigger** the weight of the body. 4. **The nearer** the centre of the Sun, **the higher** the temperature. 5. **The more** the scientist studied the problem, **the better** he understood its importance for man. 6. **The stronger** the magnet, **the greater** the distance through which it acts.

## UNIT II

1. Устный коррективный курс по фонетике английского языка.
2. Text 2 A. The first calculating devices
3. Text 2 B. What is a computer?
4. Text 3 C. Charles Babbage

5. Grammar Review: Местоимения (§ 3). Имя числительное (§ 4). Глаголы *to be, to have* (§ 5).оборот *there + be* (§ 6)

***Practice reading.***

► ***-ture, -sure***

- *lecture, future, departure, mixture, expenditure, structure, puncture, fracture, manufacture, creature, fixture, curvature, feature, conjuncture, adventure, moisture;*
- *measure, pleasure, leisure, closure, disclosure, embrasure, treasure, treasury;*
- *BUT: sure, ensure, insurance.*

► ***ea***

- *increase, conceal, mean, defeat, eager, treaty, feasible, heater, lead, reasonable, heaver, release, dean, dealer, leave, easy, beacon, lease, meaning, reach, treatment, weak.*
- *BUT: overhead, headway, tread, ready, steady, spread, instead, treadle, measure, pleasure, weather, meant, heavy; break; really, create, realize.*

► ***pay attention to the letters which are not pronounced:***

*half, walk, talk, should, could, would, hour, high, height, straight, frighten, slightly, sight, alight, fight, might, midnight, freight, retighten, ought, weight, design, benign; sign, alignment, consignment, assign, what, wheel, wharf, whistle, wrong, wrist, write, wrench, shipwreck, deck, click, rack, reckon, stock, cockpit, know, knot, knock, knuckle, climb, comb*

**Task 1. Memorize the following words and word-combinations:**

*Calculating device* - вычислительное устройство;  
*abacus* – счеты; *slide rule* - логарифмическая линейка;

*logarithm table* - логарифмическая таблица; *calculus* - исчисление; *general-purpose* - общего назначения, универсальный; *to cut out* - вытеснить, исключить; *altogether* - всецело, совсем; *to manipulate* - обрабатывать, преобразовывать; *data processing* - обработка информации; *to tabulate the census* - занести данные по переписи (населения) в таблицу; *means of coding* - средства кодирования (шифровки); *to punch the holes* - пробивать отверстия; *punched card* - перфокарта; *merge* - слияние; *to perform* - выполнять; *unit of data* - единица информации; *keyboard terminals* — терминал (вывод) с клавиатурой; *proliferation* - распространение.

## Text 2 A. Read and translate the text.

### THE FIRST CALCULATING DEVICES

The very first *calculating device* used was the ten fingers of a man's hands. Therefore today we still count in tens and multiples of tens.

Then the *abacus* was invented. People went on using some form of abacus well into the 16<sup>th</sup> century, and it is still being used in some parts of the world because it can be understood without knowing how to read.

During the 17<sup>th</sup> and 18<sup>th</sup> centuries many people tried to find easy ways of calculating. J. Napier, a Scotsman, invented a mechanical way of multiplying and dividing, which is now the modern *slide rule* works. Henry Briggs used Napier's ideas to produce *logarithm tables* which all mathematicians use today.

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

In 1830 Charles Babbage, a gifted English mathematician, proposed to build a **general-purpose** problem-solving machine that he called "the analytical engine". This machine, which Babbage showed at the Paris Exhibition in 1855, was an attempt to *cut out* the human being *altogether*, except for providing the machine with the necessary facts about the problem to be solved. He never finished this work, but many of his ideas were the basis for building today's computers.

By the early part of the twentieth century electromechanical machines had been developed and were used for business data processing. Dr. Herman Hollerith, a young statistician from the US Census Bureau successfully *tabulated* the 1890 *census*. Hollerith invented a *means of coding* the data by **punching holes** into cards. He built one machine to punch the holes and others - to tabulate the collected data. Later Hollerith left the Census Bureau and established his own tabulating machine company.

Through a series of **merges** the company eventually became the IBM Corporation.

Until the middle of the twentieth century machines designed to **manipulate punched card** data were widely used for business **data processing**. These early electromechanical data processors were called unit record machines because each punched card contained a *unit of data*.

In the mid—1940s electronic computers were developed to **perform** calculations for military and scientific purposes. By the end of the 1960s commercial models of these computers were widely used for both scientific computation and business data processing. Initially these computers accepted their input data from punched cards. By the late 1970s punched cards had been almost universally replaced by **keyboard terminals**. Since that time advances in science have led to the **proliferation** of computers throughout our society.

**Task 1. Answer the following questions:**

1. What was the very first calculating device? 2. What is the abacus? 3. What is the modern slide rule? 4. Who gave the ideas for producing logarithm tables? 5. How did Newton and Leibnitz contribute to the problem of calculation? 6. When did the first calculating machine appear? 7. What was the main idea of Ch. Babbage's machine? 8. How did electromechanical machines appear and what were they used for? 9. What means of coding the data did Hollerith invent? 10. What was the name of this electromechanical machine and why? 11. What kind of computers appeared later?

**Task 2. Find the English equivalents to Russian words and word combinations:**

Вычислительное устройство; легкий способ вычисления; поэтому (вот почему); кратное десяти; изобрести механический способ умножения и деления; логарифмическая линейка; составить таблицы логарифмов; математический анализ; изобрести независимо (друг от друга); в результате; полностью исключить человека; кроме (за исключением); обработка деловой информации; средство кодирования информации; перфокарты; пробивать отверстия; оформить собранные данные в таблицу; работать с данными на перфокарте; устройство, записывающее информацию блоками; единица информации; выполнять вычисления; для научных целей; клавишный терминал

**Task 3 Form derivatives from verbs:**

**Example: to calculate - calculating, calculator, calculation.**

To compute, to invent, to know, to multiply, to divide, to depend, to solve, to provide, to process, to code, to punch, to collect, to design, to store, to contribute, to use, to manipulate, to assemble, to connect, to consume, to rely, to

divide, to multiply, to inform, to instruct, to discover, to operate.

## Text 2 B

**Task 1. Memorize the following words and word-combinations:**

*Intricate* - сложный, запутанный; *electronic circuit* - электронная цепь, схема; *to operate switches* — приводить в действие переключатели; *to store* - запоминать, сохранять; *to manipulate* - управлять, манипулировать; *to input / to feed in* — вводить (информацию); *to turn on = to switch on* - включать; *to turn off = to switch off* - выключать; *to supply* - подавать, снабжать, обеспечивать; *addition* - сложение; *subtraction* - вычитание; *division* - деление; *multiplication* - умножение; *exponentiation* - возведение в степень; *input device* - устройство ввода; *disk drive* - дисковод; *tape drive* - накопитель на магнитной ленте; *cathode-ray tube* - электроннолучевая трубка; *to make decisions* - принимать решения; *instantaneously* - мгновенно.

**Task 2. Read the text, get its central idea and note the important details**

### WHAT IS A COMPUTER?

A computer is a machine with an *intricate* network of *electronic circuits* that *operate switches* or magnetize tiny metal cores. The switches, like the cores, are capable of being in one or two possible states, that is, on or off; magnetized or demagnetized. The machine is capable of *storing* and *manipulating* numbers, letters, and characters (symbols).

The basic idea of a computer is that we can make the machine do what we want by inputting signals that *turn* certain

switches *on* and *turn* others *off*, or magnetize or do not magnetize the cores.

The basic job of computers is to process the information. For this reason computers can be defined as devices which accept information in the form of instructions, called a program, and characters, called data, perform mathematical and / or logical operations on the information, and then supply results of these operations. The program, or part of it, which tells the computers what to do and the data, which provide the information needed to solve the problem are kept inside the computer in a place called memory.

It is considered that computers have many remarkable powers. However most computers have three basic capabilities. First, computers have circuits for performing arithmetic operations, such as: *addition, subtraction, division, multiplication and exponentiation.*

Second, computers have a means of communicating with the user. After all, if we couldn't *feed* information *in* and get results back, these machines wouldn't be of much use. Some of the most common methods of inputting information are to use terminals, diskettes, disks and magnetic tapes. The computer's *input device (a disk drive or tape drive)* reads the information into the computer. For outputting information two common devices used are: a printer, printing the new information on paper, and a *cathode-ray-tube* display, which shows the results on a TV-like screen.

Third, computers have circuits which can *make decisions*. The kinds of decisions which computer circuits can make are not of the type: «Who would win the war between two countries?» or «Who is the richest person in the world?» Unfortunately, the computer can only decide three things, namely: Is one number less than another? Are two numbers equal? Is one number greater than another?

A computer can solve a series of problems and make thousands of logical decisions without becoming tired. It can find the solution to a problem in a fraction of the time it takes a human being to do the job.

A computer can replace people in dull, routine tasks, but it works according to the instructions given to it. There are times when a computer seems to operate like a mechanical 'brain', but its achievements are limited by the minds of human beings. A computer cannot do anything unless a person tells it what to do and gives it the necessary information; but because electric pulses can move at the speed of light, a computer can carry out great numbers of arithmetic-logical operations almost *instantaneously*.

**Task 1. Answer the following questions:**

1. What is a computer? 2. What are the two possible states of the switches? 3. What are the main functions of a computer? 4. In what way can we make the computer do what we want? 5. What is the basic task of a computer? 6. In what form does a computer accept information? 7. What is a program? 8. What are data? 9. What is memory? 10. What three basic capabilities have computers? 11. What are the ways of inputting information into the computer? 12. What is the function of an input device? 13. What devices are used for outputting information? 14. What decisions can the computer make? 15. What are the computer's achievements limited by?

**Task 2. Find the English equivalents to Russian words and word combinations:**

Сложная сеть электронных цепей; управлять (приводить в действие) переключателями; возможные состояния; хранить (запоминать) числа; обрабатывать символы; посредством ввода сигналов; включать; выключать; размагничивать сердечники; обработка



информации; информация в виде команд; символы, называемые данными; выполнять математические операции; выдавать результаты; обеспечивать необходимую информацию; иметь замечательные возможности; основные свойства; сложение, вычитание, деление, умножение; возведение в степень; средства для общения с пользователем; устройство ввода; дисковод; считывать информацию; вывод информации; катодно-лучевая трубка; принимать решения; выполнять тысячи логических операций; без усталости; находить решение задачи; нудная рутинная работа; в соответствии с введенной программой; вырабатывать свои суждения; возможности ограничены программой, заложенной в него человеком; дать требуемую информацию; со скоростью света; мгновенно производить огромное количество математических операций.

**Task 3. Make couples or groups of synonyms from the list given below.**

*Example:* A. to perform, to exercise, to carry out; B. a man, a person, a human being;

Verbs: to turn on, to provide, to type, to accept, to help, to learn, to observe, to call, to tell, to keep, to feed, to solve, to relate, to switch off, to communicate, to receive, to supply, to switch on, to assist, to print, to study, to input, to turn off, to decide, to store, to say, to name, to watch.

Nouns: work, machine, fundamentals, display, application, capabilities, job, storage, screen, state, basics, use, concept, specialist, journal, character, memory, idea, expert, magazine, position, symbol, command, data, solution, device, instruction, powers, information, decision.

Adjectives: basic, tiny, common, small, main, significant, routine, general, remarkable, uninterested, intricate, important, wonderful, complex, little.

Adverbs: rapidly, probably, instantaneously, in a moment, quickly, perhaps.

**Task 4. Retell the text 2 B in 13-15 sentences**

**Text 2 C. Read the text without the dictionary**

**CHARLES BABBAGE**

The first suggestion that a machine for mathematical computation could be built was made more than a hundred years ago by the mathematician Charles Babbage. We now realize that he understood clearly all the fundamental principles of modern computers.

Babbage was born in Devonshire, England, 1792. He did not receive a good education, but he taught himself mathematics so well that when he went in Cambridge, he found that he knew more algebra than his tutor.

At that time mathematics in Cambridge was still under the influence of Newton and was quite unaffected by the contemporary developments on the continent.

Charles Babbage was outstanding among his contemporaries because he insisted on practical application of science and mathematics. For example, he wrote widely on the economic advantages of mass productions and on the development of machine tools.

In 1812 he was sitting in his room looking at a table of logarithms which he knew to be full of mistakes, when an idea occurred to him of computing all tabular functions by machinery. Babbage constructed a small working model which he demonstrated in 1822.

The Royal Society supported the project and Babbage was promised a subsidy.

In 1833 he began to think of building a machine which was in fact the first universal digital computer, as the expression is understood today.

Babbage devoted the rest of his life to an attempt to develop it. He had to finance all of the work himself and he was only able to finish part of the machine though he prepared thousands of detailed drawings from which it could be made.

Babbage wrote more than 80 books and papers, but he was misunderstood by his contemporaries and died a disappointed man in 1871.

He tried to solve by himself and with his own resources a series of problems which in the end required the united efforts of two generations of engineers.

After his death his son continued his work and built part of an arithmetic's unit, which printed out its results directly on paper.

### ***Task 1. Translate the words from Russian into English***

Математические вычисления, основные принципы, хорошее образование, практическое применение науки и математики, экономические преимущества производства, логарифм, подсчет функций при помощи машины, конструировать, рабочая модель, цифровой компьютер, арифметический центр, распечатать результаты, основные принципы современных компьютеров, математик, финансировать.

### ***Task 2. Complete the sentences.***

1) Babbage was born.... 2) Charles Babbage was outstanding because ... 3) Babbage constructed .... 4) In 1833 he began ... 5) When he went to Cambridge ... 6) Babbage devoted .... 7) Babbage wrote ... 8) He was misunderstood ... 9) Babbage was promised ... 10) His son built ... 11) Babbage did not receive ... 12) He understood clearly ...

### **Task 3. Translate the sentences.**

1) Первый компьютер был разработан Чарльзом Беббиджем более 100 лет назад. 2) В 1822 г. Беббидж сконструировал небольшую рабочую модель. 3) Ч.Беббидж написал более 80-и книг. 4) В 1833 г. он начал разрабатывать первый универсальный цифровой компьютер. 5) После его смерти сын продолжил его работу.

### **Task 4. Retell the text in 10-12 sentences**

## **GRAMMAR REVIE**

### **1. Заполните пропуски личными или возвратными местоимениями.**

1 . He is quite right, I agree with ... completely. 2. I looked at ... in the mirror and left the house in a very good mood. 3. “Who is it?” — “It’s ... may I come in?” 4. Mr. Lloyds is very fat ... weighs over a hundred kilos? 5. ... introduced his wife to the quests. 6. Where shall ... meet, Bob? 7. James took the book and opened .... 8. We don’t dress ... for dinner here. 9. I taught ... to play the quitar. 10. Selfish people only care about ...

### **2. Поставьте “some”, “any” или “no”.**

1. He does his homework without ... difficulty. 2. This year all the apples are red, we are going out this morning to pick ... 3. I’d like ... water, please. 4. There weren’t ... tomatoes left. 5. I won’t go with you. I have ... free time. 6. There aren’t ... students at the moment. 7. Sorry, I have ... matches. 8. Do you have ... money? 9. The box was empty. There was ... apple in it. 10. Pour me ... milk, please.

### **3. Переведите предложения на английский язык.**

1. Она ничего не сказала. 2. Он посмотрел на нее с удивлением. 3. Она не захотела пойти с ним. 4. Я попросил его налить немного молока. 5. Когда ему было 3 года, он мог сам одеваться. 6. Простите, но у меня нет времени. 7. Какая красивая картина! Она твоя? 8. Возьми свою чашку. Эта чашка — моя. 9. Его мнение отличается от моего. 10. Сегодня вечером придет кто-нибудь?

**4. Закончите предложения, используя притяжательные местоимения (my, your, his, her, our, their).**

1. I left ... car in the garage. 2. Mary hung ... coat on the peg. 3. Jack had ... hair cut. 4. Neil and David ate ... supper. 5. I hope you enjoy ... holiday. 6. We'll invite you round to ... house sometime and complete these by adding a possessive with own. 7. You must make up ... own mind. 8. The children had to cook ... own supper. 9. Bill borrowed Jenny's car ... own car was being repaired. 10. I'll bring ... own sheets and towels. 11. Every dog had ... own special basket to sleep in. 12. You should do ... own washing up.

**5. Вставьте вместо точек нужное по смыслу местоимение.**

1. I have lost ... pen, may I take ... ? 2. If you've left ... dictionary at home, you may take ... . 3. These pencils are ... , take ... if you want. 4. Help ... , please. 5. ... often meet ... here. 6. He always makes dinner ... . 7. We have very many relatives in ... native town. 8. They can do it ... . 9. ... of you knows his address? 10. There is ... butter on the table, but there isn't ... milk.

**6. Напишите по-английски.**

1. 245; 533; 816. 2. 3,562; 7,324. 3. Сто книг; сотня страниц; сотни людей. 4. Тысяча машин; тысячи людей; миллион книг. 5.  $2+3=5$ ;  $7-4=3$ ;  $3 \times 5=15$ ;  $10:2=5$ . 6. 1

Января; 8 Марта. 7. Глава 5; автобус 6. 8. 3.45; 8.09. 9. 2/3; 4/5.

**7. Прочтите по-английски:**

1. Количественные числительные:

3, 5, 11, 12, 13, 24, 69, 325, 1005, 530425, 1.745.033.

2. Порядковые числительные:

1, 2, 15, 23, 84, 149, 150, 208, 1000, 2.000.000.

**8. Употребите нужное возвратное местоимение:**

1. I shall ask him ... . 2. They want to do it .... 3. She washed .... 4. You will answer the letter ... . 5. I looked at... in the mirror. 6. We shall tell her ... . 7. They have done the task ... . 8. She doesn't like to speak about ... . 9. The story ... is very good, but not the translation. 10. Children, do it ... .

**9. Поставьте следующие предложения в Past и Future Simple, употребляя соответствующие обстоятельства времени.**

a) 1. It is warm today. 2. I am glad to meet them. 3. The days are rainy in October. 4. I am 17 years old. 5. We are busy now. 6. My father is at work. 7. You are late today.

b) 1. There is much snow in winter. 2. There are many books in our library. 3. There is one theatre and five cinemas in this town. 4. There is no lift in our house. 5. There is little milk in the bottle. 6. There are few shops in this district. 7. There are three rooms in our flat.

c) 1. We have many apple trees in our garden. 2. My sister has a nice cat. 3. You have little time left. 4. We have breakfast at 8 in the morning. 5. She has a good rest every summer. 6. They have no vacant rooms in the hotel.

**10. Преобразуйте предложения, употребляя оборот *there is / are*.**

*Образец:* **This room has two windows.**

**There are two windows in this room.**

a) 1. This city has many monuments. 2. Our town has no theatres. 3. This family has two children. 4. Our group has many good pupils. 5. Every week has seven days and every year has twelve months. 6. She has a lot of English books in her library.

b) 1. The dog is in the room. 2. The children are in the yard. 3. The students are in the laboratory. 4. The car is near the house. 5. The bench was under the tree. 6. A lot of people will be at the stadium tomorrow.

3. Поставьте предложения в вопросительную или отрицательную форму.

a) 1. They are free on Sunday. 2. My friend was ill last week. 3. She will be busy tomorrow. 4. It is cold today. 5. The lessons are over at 2 o'clock in the afternoon. 6. We are fond of sports.

b) 1. There are many faculties at the University. 2. There were three pupils absent at the English lesson. 3. There will be a bus stop near our house. 4. There is a beautiful picture on the wall. 5. There are fifteen pupils in our English group. 6. There are eight boys and seven girls among them.

c) 1. I have breakfast at 8. 2. My friend usually has lunch at school. 3. We have dinner at home. 4. He has fish for supper. 5. She has coffee in the morning but in the evening she has tea. 6. I had a good time last week-end. 7. They had a good rest at the seaside last year. 8. As a rule we have meals three times a day. 9. We have dictations very often.

d) 1. My brother has a new car. 2. We have two lectures every day. 3. I have got many friends at the Institute. 4. My sister had a lot of toys in her childhood. 5. Our family will have a new flat soon.

### 11. Употребите глагол *to have* или *to be* в нужной форме.

1. It ... difficult to find a job now, ... it? 2. I want ... an engineer, that is why I ... a student of the Technological Institute. 3. There is no school in this village and the children go to the school which ... two miles away. 4. How old ... you? – I ... 17. 5. ... you English lessons twice a week? – Yes, we ... . 6. I ... no time to help you yesterday. I ... very sorry about it. 7. We ... a conference tomorrow. So I ... busy with my report today. 8. There ... only two faculties at the Kemerovo Technological Institute in 1972, now there ... six faculties there. 9. My sister ... a second-year student of the Law Faculty. She ... a lawyer. 10. What ... you fond of? My hobby ... drawing.

## UNIT III

1. Устный коррективный курс по фонетике английского языка.
2. Text 3 A. Types of computers
3. Text 3 B. Computer Applications
4. Text 3 C.
5. Grammar Review: Времена группы *Indefinite (Simple) Active* (§7). : Времена группы *Indefinite (Simple) Passive* (§8).

### *Practice reading.*

#### ► *tion, sion*

▪ *preparation, election, protection, inspection, injection, destination, computerization, condition, reduction, demagnetization, contamination, introduction, contribution, attention, stationary, acceleration, dictionary, detection,*



*application*, *gravitation*, *deviation*, *ignition*, *competition*, *mention*, *motion*, *civilization*, *conventional*, *constructional*;

▪ *session*, *conversion*, *compression*, *permission*, *confession*, *dimension*, *suspension*, *depression*, *expansion*, *transmission*, *extension*, *professional*, *collision*, *precision*, *decision*, *confusion*, *fusion*, *corrosion*, *division*, *explosion*, *adhesion*, *abrasion*, *occasional*.

► *ar, er, or, ur, ir*

▪ *discard*, *cargo*, *artery*, *compartment*, *depart*, *charter*, *debark*, *barge*, *enlarge*, *apart*, *arc*, *charge*, *hardly*, *parking*, *starter*, *article*, *alarm*, *parcel*;

▪ *BUT*: *warm*, *warn*, *award*, *warrant*;

▪ *internal*, *terminal*, *transfer*, *alert*, *berth*, *concern*, *serve*, *service*, *emerge*, *personal*, *commercial*, *convert*, *permanent*, *defer*, *advertisement*, *converge*, *per*, *alternative*, *certain*, *refer*, *mercury*, *reserve*;

▪ *perform*, *formula*, *reinforce*, *ordinary*, *extraordinary*, *ore*, *accord*, *enormous*, *retort*, *cordon*, *absorb*, *border*, *corporation*, *disorder*, *forward*, *incorporate*, *record*, *normally*, *transform*, *support*;

▪ *BUT*: *worth*, *word*, *worm*, *world*;

▪ *urgent*, *surface*, *turbine*, *furnace*, *occur*, *disturb*, *surname*, *interurban*, *suburban*, *curve*, *turn*, *return*, *further*, *purpose*, *survey*, *furbish*, *burst*, *spur*, *absurd*, *burden*, *cursor*, *curb*;

▪ *firm*, *circuit*, *birth*, *circular*, *swirl*, *confirm*, *first*, *third*, *birch*, *shirk*, *smirk*, *affirm*.

**Task 1. Memorize the following words and word-combinations:**

*Digital* – цифровой; *physical quantities* – физические величины; *device* – прибор, устройство, механизм; *to measure* – измерять; *numerical value* – численное значение; *incredible* – невероятный, немыслимый; *ability* –

способность; *to add* – прибавлять, складывать; *to subtract* – вычитать; *to multiply* – умножать; *to divide* – делить; *human brain* – человеческий мозг; *solution* – решение; *in order to* – для того, чтобы; *circuit* – электронная схема, микросхема; *to clock* – заводить, запускать

## **Task 2. Read and translate the text 3 A**

### **TYPES OF COMPUTERS**

The two basic types of computers are analog and *digital*.

Machines that combine both analog and digital capabilities are called hybrid computers. Many business, scientific, and industrial computer applications rely on the combination of analog and digital devices.

Basically, today's analogue computer is a *device* for measuring such *physical quantities* as lengths and voltages and, through a mechanical linkage, exhibiting the measurement as a *numerical value*. However, the analogue computer is limited to special classes of problems and when most people say “computer” today, they mean the digital computer which is a *marvel of precision and accuracy*<sup>1</sup>, for it works with specific units rather than approximations.

The modern electronic digital computer counts with *incredible* speed using only two numbers — the one and zero what mathematicians call the binary system. The counting ability of the computer is used to feed it information. But first the information is translated into a code.

The information is then stored in a memory bank made of magnets. The direction in which electrical signals run through the magnets means one or zero, yes or no, off or on. Each magnet contains one piece of information called a bit. A

large computer system can store hundreds of millions of such information bits.

But information by itself is useless. The computer must be told what to do with it — *to add, subtract, multiply, or divide* the coded pulses stored in its memory. Parts of that memory contain instructions, prepared by *a human brain*, that provide the computer with the road to follow *in order to* solve a problem. These instructions are called the program.

What makes the computer different from an adding machine is that the computer can modify its instructions. If a problem cannot be solved by following one route, the computer can search its memory for another set of instructions until a solution is found. And it does all this at superhuman speeds. The on-off switching of the computer's logic *circuits* has been *clocked* at a billionth of a second. That is to one second what one second is to thirty years.

But the computer cannot actually think. *It performs all of its functions by route*<sup>2</sup>. Once an answer is achieved, another program within the memory tells the computer how to display the solution, to type it out on paper, display it as pictures or words on a television screen, or perhaps even to speak the answer in words a man can hear.

### **Notes!**

<sup>1</sup>*A marvel of precision and accuracy* – чудо четкости и точности.

<sup>2</sup>*It performs all of its functions by route.* – Он выполняет все свои функции по программе.

### **Task 3. Give the Russian equivalents.**

Analog computer is a device for measuring physical quantities; to count with incredible speed; the counting ability; a piece of information called a bit; information by itself is useless; superhuman speeds; the computer cannot actually think.

**Task 4. Give the English equivalents.**

Физические величины, численное значение, чудо четкости и точности, двоичная система, сотни миллионов бит информации; складывать, вычитать, умножать или делить; инструкции, подготовленные человеческим мозгом; включение и выключение компьютерных схем, аналого-цифровые компьютеры

**Task 5. Fill in the blanks.**

1. In fact the analogue computer (ограничен) to special classes of problems. 2. The counting ability of the computer (используется) to feed it information. 3. First the information (переводится) into a code. 4. The information (хранится) in a memory bank made of magnets. 5. The computer (нужно сказать) what to do with information. 6. These instructions (называются) the program. 7. If a problem (не может быть решена) by following one route, the computer can search its memory for another set of instructions. 8. Once an answer (получен), another program tells the computer how to display the solution.

**Task 6. Answer the following questions.**

1. What are the two types of computers? 2. What is today's analog computer? 3. What device do most people mean when they say "computer"? 4. How many numbers does the so-called binary system use? 5. Where is information stored inside a computer? 6. What do we call a magnet containing one piece of information? 7. How many information bits can a large computer system store? 8. What does the computer use its counting ability for? 9. Is information useful by itself? 10. Who prepares instructions for the computer? 11. What is program? What makes the computer different from the adding machine? 12. Explain the word combination "superhuman speed". 13.

What is the difference between the computer and the human brain?

**Task 7. Give a brief summary of the text.**

### **Text 3 B**

**Task 1. Memorize the following words and word-combinations:**

*Viewdata* - видеотекст, видеоданные; *to amend* – исправлять; *to conjure* – вызывать; *to fascinate* – приводить в восхищение; *rely on* – полагаться на; *assist* – помогать; *resemble* – иметь сходство, напоминать;

**Task 2. Read the text and do the exercises that follow it.**

## **COMPUTER APPLICATIONS**

Many people have or will have had some experience of ‘conversing’ with computers. They may have their own microcomputer, they may use a terminal from the main company at work or they may have a television set with a *viewdata* facility. Those who do not have this experience may observe the staff at, for example, an airline check-in or a local bank branch office sitting at their desks, pressing keys on a typewriter like a keyboard and reading information presented on a television type screen. In such situation the check-in clerk the computer is used to obtain information (e.g. to find out if a seat is booked) or to *amend* information (e.g. to change a customer’s name and address).

The word computer *conjures* up different images and thoughts in people’s mind depending upon their experiences. Some view computers as powerful, intelligent machines that can maintain a ‘big brother’ watch over everyone. Others are

*fascinated* by the marvels achieved by the space programs of the superpowers, where computers play an important part.

Numerous factories use computers to control machines that make products. A computer turns the machines on and off and adjusts their operations when necessary. Without computers, it would be impossible for engineers to perform the enormous number of calculations needed to solve many advanced technological problems. Computers help in the building of spacecraft, and they *assist* flight engineers in launching, controlling and tracking the vehicles. Computers also are used to develop equipment for exploring the moon and planets. They enable architectural and civil engineers to design complicated bridges and other structures with relative ease.

Computers have been of tremendous help to researchers in the biological, physical and social sciences. Chemists and physicists *rely on* computers to control and check sensitive laboratory instruments and to analyse experimental data. Astronomers use computers to guide telescopes and to process photographic images of planets and other objects in space.

Computers can be used to compose music, write poems and produce drawings and paintings. A work generated by a computer may *resemble* that of a certain artist in birth style and form, or it may appear abstract or random. Computers are also used in the study of the fine arts, particularly, literature. They have also been programmed to help scholars identify paintings and sculptures from ancient civilizations.

But computers do not have intelligence in the way humans do. They cannot think for themselves. What they are good at is carrying out arithmetical operations and making logical decisions at phenomenally fast speed. But they only do what humans program gives them to do.

Apart from the speed at which computers execute instruction, two developments in particular have contributed to the growth in the use of computers – efficient storage of large

amounts of data and diminishing cost. Today, computers can store huge amount of information on magnetic media and any item of this information can be obtained in a few milliseconds and displayed or printed for the user.

**Task 3. Translate these into Russian:**

1. some experience of conversing; 2. viewdata facility; 3. to obtain information; 4. powerful, intelligent machine; 5. to be fascinated; 6. to adjust operations; 7. enormous number of calculations; 8. advanced technological problem; 9. to guide telescopes; 10. ancient civilization; 11. arithmetical operations; 12. logical decisions; 13. to execute instructions; 14. efficient storage

**Task 4. Translate these into English:**

1. использовать терминал главной компании; 2. нажимать кнопки на клавиатуре; 3. получить информацию; 4. различные образы; 5. компьютер включает и выключает машины; 6. разработать оборудование для исследования Луны и других планет; 7. чувствительное оборудование; 8. анализировать экспериментальные данные; 9. могут быть использованы для сочинения музыки; 10. работа, управляемая компьютером; 11. помочь ученым определить; 12. не могут думать сами; 13. хорошо справляться с выполнением; 14. вносить вклад

**Task 5. Fill in the gaps necessary prepositions:**

1. People may use a terminal ..... the main company ..... work.  
2. A clerk can press keys ..... a typewriter. 3. The word computer conjures ..... a different images. 4. A computer turns the machine ..... and ..... . 5. Computers help ..... building of spacecraft. 6. They are used to develop equipment ..... exploring the moon and planets. 7. Chemists and physicists

rely ..... computers to control sensitive instruments. 8. Computers don't have intelligence ..... the way humans do. 9. Computers are good ..... arithmetical operations. 10. Computers can store huge amounts of information ..... magnetic media.

**Task 6. Write the plan of the text to retell it in English.**

**Task 7. Points for discussion: advantages and disadvantages of computers. Use these expressions and prove it, give your own examples.**

### Advantages

1. computers let you:
  - a) access a lot of information; b) communicate very quickly, be e-mail or using the Internet;
2. computers can:
  - a) do some jobs very quickly; b) send out large number of letters and bills; c) help you to do work for school and college;
3. computers make:
  - a) possible to work from home; b) easier to write letters and reports;
4. a) enjoy using computers and multimedia interactive software and virtual reality all make learning more exciting; b) many books are now available on CD-Rom; c) large amount of information can be stored on computers in a database.

### Disadvantages

1. don't like to use computers, would prefer to deal with a person instead; 2. can get viruses; 3. software often has bugs; 4. computers sometimes crash; 5. children spend too much time playing computer games; 6. people do not know how to fix the computer; 7. quickly become obsolete, so they need to be replaced; 8. criminals can easily use information or images; there are no laws to stop this yet; it is extremely difficult to police the Internet.



**Text 3 C. Read the text, entitle it and translate it without a dictionary. Write a short summary of it.**

The term “computer” is used to describe a device made up of a combination of electronic and electromechanical (i.e. electronic and mechanical) components. Computer has no intelligence by itself and is referred to as hardware.

A computer system is a combination of five elements:

Hardware (аппаратное обеспечение)

Software (программное обеспечение)

People

Procedures

Data/information

When one computer system is set up to communicate with another computer system, *connectivity*<sup>1</sup> becomes the sixth system element. In other words, the manner in which the various individual systems are connected - for example, by phone lines, microwave transmission, or satellite – is an element of the total computer system.

Software is the term used to describe the instructions that tell the hardware how to perform a task. Without software instructions, the hardware doesn't know what to do.

People, however, are the most important component of the computer system: they create the computer software instructions and respond to the procedures that those instructions present.

The basic job of the computer is the processing of information. Computers accept information in the form of instructions called a program and characters called data to perform mathematical and logical operations, and then give the results. The data is *raw material*<sup>2</sup> while information is organized, processed, refined and useful for decision making. Computer is used to convert data into information and to store information in the digital form.

**Notes!**

<sup>1</sup>*Connectivity* – связь, согласованность; <sup>2</sup>*raw material(s)* – сырье

## **GRAMMAR REVIE**

### **1. Раскройте скобки, употребляя глаголы в Present Simple или Future Simple (Все предложения относятся к будущему времени).**

1. If I (to stay) some more days in your town, I (to call) you and we (to have) a good talk. 2. He (to go) to the Public Library very often when he (to be) a student. 3. As soon as I (to return) from school, I (to ring) you up. 4. You (to pass) many towns and villages on your way before you (to arrive) in Moscow. 5. I (to stay) at home till she (to come). Then we (to go) to the theatre if she (to bring) tickets. 6. After I (to finish) school, I (to enter) the University. 7. When he (to return) to St. Petersburg, he (to call) on us. 8. If I (to see) him, I (to tell) him about their letter. 9. We (to gather) at our place when my brother (to come) back from Africa. 10. I (to sing) this song with you if you (to tell) me the words. 11. I hope you (to join) us when we (to gather) in our country house the next time. 12. What you (to do) when you (to come) home? 13. When they (to cross) the road, they (to see) the hotel. 14. What we (to do) if it (to rain) tonight?

### **2. Раскройте скобки, употребляя глаголы в Present или Past Simple.**

1. His sister (to study) English every day. 2. She (to study) English two years ago. 3. You (to come) home at six o'clock yesterday? - No, I ... . Yesterday I (to come) home from school at half past eight. I (to be) very tired. I (to have) dinner with my family. After dinner I (to be) very thirsty. I (to drink) two cups of tea. Then I (to rest). 4. I (to go) to bed at ten o'clock every day. 5. I (to go) to bed at ten o'clock yesterday. 6.

My brother (to wash) his face every morning. 7. Yesterday he (to wash) his face at a quarter past seven. 8. I (not to have) history lessons every day. 9. We (not to rest) yesterday. 10. My brother (not to drink) coffee yesterday.

### **3. Раскройте скобки, употребляя глаголы в Present Simple, Past Simple или Future Simple.**

1. My sister (not to like) coffee. 2. When you (to go) to bed every day? 3. What he (to read) yesterday? 4. What he (to read) every day? 5. What he (to read) tomorrow? 6. You (to give) me this book tomorrow? 7. Where she (to be) tomorrow? 8. Where she (to go) tomorrow? 9. She (to go) to the country with us tomorrow? 10. They (to stay) at home tomorrow. 11. What you (to do) last Sunday? 12. When you (to finish) your homework? It (to be) very late, it (to be) time to go to bed. 13. How you usually (to spend) evenings?

### **4. Поставить предложения в вопросительной и отрицательной форме.**

1. He saw this man 2 days ago. 2. We'll return these books to the library tomorrow. 3. The news will be of great interest. 4. He studies at our college. 5. We discussed this problem last week. 6. Students usually take exams in January. 7. I wrote a letter to my parents 2 days ago.

### **5. Выделите сказуемое, определите его время и переведите предложения.**

1. We were invited to take part in this expedition. 2. The seas and oceans are connected by canals. 3. All the questions were answered correctly. 4. This news will be reported in a day. 5. Yesterday I was told the exciting news. 6. Houses are built by architects and builders.

**6. Замените активную конструкцию пассивной по образцу. Время должно остаться тем же.**

*Образец:* All the students made the reports.      The reports were made by all the students.

1. The secretary gives the necessary information. 2. They will finish the construction of this house next month. 3. The experimentator raised the temperature of mixture to 50° C. 4. Man and animal need food and water. 5. We received this letter last week. 6. He changed water into ice by freezing it.

**7. Раскройте скобки, употребляя глаголы в *Present, Past* или *Future Simple Passive*.**

1. Bread (to eat) every day. 2. The letter (to receive) yesterday. 3. Nick (to send) to Moscow next week. 4. I (to ask) at the lesson yesterday. 5. I (to give) a very interesting book at the library last Friday. 6. Many houses (to build) in our town every year. 7. This work (to do) tomorrow. 8. This text (to translate) at the last lesson. 9. These trees (to plant) last autumn. 10. Many interesting games always (to play) at our PT lessons. 11. This bone (to give) to my dog tomorrow. 12. We (to invite) to a concert last Saturday. 13. My question (to answer) yesterday. 14. Hockey (to play) in winter.

**8. Раскройте скобки, выбирая требующуюся форму глагола.**

1. The porter will (bring, be brought) your luggage to your room. 2. Your luggage will (bring, be brought) up in the lift. 3. You may (leave, be left) your hat and coat in the cloak-room downstairs. 4. They can (leave, be left) the key with the clerk downstairs. 5. From the station they will (take, be taken) straight to the hotel. 6. Tomorrow he will (take, be taken) them to the Russian Museum. 7. At the station they will (meet, be met) by a man from the travel bureau. 8. She will (meet, be met) them in the hall upstairs.

**9. Переведите на английский язык, употребляя глаголы в *Past Simple Active* или *Past Simple Passive*.**

1. Вчера я попросил учителя помочь мне. 2. Вчера меня попросили помочь однокласснику. 3. Прошлым летом я научил сестру плавать. 4. Прошлым летом меня научили плавать. 5. Я посоветовал моему другу поступить в спортивную секцию. 6. Мне посоветовали поступить в спортивную секцию. 7. Я показал доктору мои зубы. 8. Меня показали доктору.

**10. Переведите на английский язык, употребляя глаголы в *Future Simple Active* или *Future Simple Passive*.**

1. Завтра я принесу новый фильм. 2. Завтра принесут новый фильм. 3. Мой друг поможет мне с математикой. 4. Моему другу помогут с немецким. 5 Я куплю мороженого. 6. Новые коньки купят завтра. 7. Миша попросит меня помочь ему. 8. Мишу попросят рассказать о своем путешествии. 9. Телеграмма будет отправлена сейчас же.

**11. Передайте следующие предложения в *Passive Voice*, обращая внимание на место предлога.**

E.g. We often speak *about* her. — She is often spoken *about*.

1. We thought about our friend all the time. 2. The doctor will operate on him in a week. 3. The teacher sent for the pupil's parents. 4. They looked for the newspaper everywhere. 5. Nobody slept in the bed. 6. The neighbour asked for the telegram. 7. Everybody listened to the lecturer with great attention. 8. The senior students laughed at the freshman. 9. The group spoke to the headmistress yesterday. 10. The young mothers looked after their babies with great care. 11. Nobody lived in that old house. 12. They sent for Jim and told him to prepare a report on that subject.

## 12. Раскройте скобки, употребляя глаголы в *Passive Voice*.

1. I am sure I (to ask) at the lesson tomorrow. 2. They told me that the new student (to speak) much about. 3. The hostess said that one more guest (to expect). 4. The newspaper said that an interesting exhibition (to open) in the Hermitage the next week. 5. This new dictionary (to sell) everywhere now. 6. All the texts (to look) through yesterday and not a single mistake (to find). 7. Two reports on Hemingway's stories (to make) in our group last month. Both of them were very interesting. 8. He said that Grandmother's letter (to receive) the day before. 9. Two new engineers just (to introduce) to the head of the department. 10. Don't worry, everything will be all right: the children (to take) to the theatre by the teacher and they (to bring) back to school in the evening.

## UNIT IV

1. Устный коррективный курс по фонетике английского языка.

2. Text 4 A. The Central Processing Unit and Arithmetical Logical Unit.

3. Text 4 B. Functional Units of Digital Computers

4. Text 4 C. Computer Memory

5. Grammar Review: Времена группы *Continuous (Progressive) Active* (§9). Времена группы *Continuous (Progressive) Passive* (§10). Функции и перевод *it* (§ 11). Функции и перевод *one* (§ 12.). Функции и перевод *that* (§ 13).

### *Practice reading.*

► *ou, ow*

▪ *amount, council, dismount, announce, discount, fountain, soundproof, compound, layout, output,*

*found*, pronounce, *about*, *bounty*, *accountancy*, *shout*, *proud*,  
*boundary*, *aloud*, *arouse*,  
paramount, *power*, *crowd*, *downtown*, *gown*, *glower*, *powder*;  
▪ *owing*, *own*, *narrow*, *borrow*, *rainbow*, *arrow*, *shallow*, *blow*,  
*flow*, *follow*, *grow*, *below*;  
▪ *BUT*: *group*, *route*, *could*, *would*, *should*, *acoustic*; *double*,  
*couple*, *trouble*, *country*, *touch*,  
*courage*; *soul*.

► *au, aw*

▪ *automobile*, *because*, *autonomous*, *launch*, *audit*, *fault*,  
*precaution*, *pause*, *audience*, *exhaust*, *automation*, *applaud*,  
*auction*, *hydraulic*, *author*, *audio*, *haulage*, *auxiliary*,  
*inauguration*, *awful*, *law*, *drawbridge*, *shawl*; *dawn*, *raw*,  
*awning*;

*BUT*: *gauge*, *laugh*

► *ere, ure, are, ire (yre), ore*

▪ *merely*, *atmosphere*, *here*, *sincere*, *adhere*;  
▪ *cure*, *demure*, *premature*, *secure*, *endure*, *purely*, *mature*;  
▪ *declare*, *software*, *carefully*, *beware*, *barely*, *prepare*,  
*compare*, *square*, *share*, *fare*, *rarely*,  
*mare*, *aware*, *stare*, *dare*;  
▪ *desire*, *tire*, *tyre*, *entire*, *requirement*, *hire*, *firework*, *esquire*,  
*satire*, *wireless*, *retired*, *acquire*,  
*inquire*;  
▪ *core*, *explore*, *moreover*, *restore*, *store*, *therefore*, *score*,  
*bore*, *semaphore*, *shore*, *adore*.

**Task 1. Memorize the following words and word-combinations:**

*Interchangeably* – взаимозаменяемо; *circuit* –  
электрическая цепь, схема; *sequence* – последовательность;  
*counter* - счетчик; *carry out* – выполнять; *load* – загружать;  
*bistable devices* – устройство с двумя устойчивыми

состояниями; *adder* – сумматор; *electronic circuitry* – электронная схема

## **Task 2. Read and translate the text**

### **Text 4 A THE CENTRAL PROCESSING UNIT AND ARITHMETICAL LOGICAL UNIT. (CPU AND ALU)**

It is common practice in computer science for the words ‘computer’ and ‘processor’ to be used *interchangeably*. More precisely, ‘computer’ refers to the central processing unit (CPU) together with an internal memory. The internal memory, control and processing components make up the heart of the computer system. Manufacturers design the CPU to control and carry out basic instructions for their particular computer.

In digital computers the CPU can be divided into two functional units called the control unit (CU) and the arithmetical-logical unit (ALU). These two units are made up of electronic *circuits* with millions of switches that can be one of two states, either on or off.

The function of the control unit within the central processor is to transmit coordinating control signals and commands. The control unit is that portion of the computer that directs the *sequence* or step-by-step operation of the system, selects instructions and data from memory, interprets the program instructions, and controls the flow between main storage and the arithmetical-logical unit.

A control unit has the following components:

- a) a *counter* that selects the instructions, one at a time, from the memory;
- b) a register that temporarily holds the instruction read from memory while it is being executed;



c) a decoder that takes the called instruction and breaks it down into individual commands necessary to **carry it out**;

d) a clock, which while not a clock in the sense of a time-keeping device, does produce marks at regular intervals.

This timing marks are electronic and very rapid.

The arithmetical-logical unit (ALU) is that portion of the computer in which the arithmetical operations, namely, addition, subtraction, multiplication, division and exponentiation, called for in the instructions are performed.

Programs and the data on which the control unit and the ALU operate, must be in internal memory in order to be processed. Thus, if located on secondary memory devices such as disks or tapes, programs and data are first **loaded** into internal memory.

The primary components of the ALU are banks of **bistable devices**, which are called register. Their purpose is to hold the numbers involved in the calculation and hold the result temporarily until they can be transferred to memory.

At the core of the arithmetical-logical unit is a very high-speed binary **adder**, which is used to carry out at last the four basic arithmetical functions (addition, subtraction, multiplication and division).

Typical modern computers can perform as many as one hundred thousand additions of pairs of thirty-two binary numbers within a second.

The logical unit consists of **electronic circuitry**, which compares information and makes decisions based upon the result of the comparison. The decisions that can be made are whether a number is « greater than », « equal to », or « less than » another number.

### **Task 3. Find English equivalents in the text:**

1. более точно; 2. внутренняя память; 3. управлять и обрабатывать; 4. сердце компьютерной системы; 5. выполнять основные инструкции; 6. миллионы переключателей; 7. передавать контрольные сигналы; 8. часть компьютера; 9. счетчик, который выбирает инструкции; 10. временно удерживать; 11. переделывать (переводить) инструкции в индивидуальные команды; 12. устройство, которое показывает время; 13. возведение в степень; 14. загружать; 15. бистабильное устройство; 16. сравнение

**Task 4. Give Russian equivalents to the following words and expressions:**

1. common practice; 2. to be used; 3. manufactures design the CPU; 4. can be divided into two functional units; 5. are made up of electronic circuits; 6. to transmit coordinating control signals  
7. the sequence or step-by-step operation; 8. to interpret the program instructions; 9. the flow between main storage and the ALU; 10. one at a time; 11. is being executed; 12. rapid; 13. in order to be processed; 14. secondary memory device; 15. involved; 16. within a second

**Task 5. Find in the text synonyms to the following words:**

To define, to put in; to order; among; to be situated; to fulfill, main; couple; choice; part

**Task 6. Find in the text antonyms to the following words:**

External; to join; secondary; particular; unchangeable; to give; permanently; unnecessary; irregular; more original; to take

**Task 7. Answer the following questions:**

1. Where does the word 'computer' refer to? 2. How can the CPU in digital computers be divided? 3. What is the function of the control unit? 4. What components has a control unit? 5. What is the arithmetical-logical unit? 6. Where are programs and data first loaded? 7. What are the primary components of the ALU? 8. What can modern computers perform?

**Task 8. Retell the text in English.**

**Text 4 B.**

**Task 1. Memorize the following words and word-combinations:**

*To relate* - связывать; устанавливать отношения; *a broad view* - широкий взгляд, обзор; *to insert* - вставлять, вносить, включать; *storage memory* - память; запоминающее устройство; *available* - доступный; имеющийся в наличии; *at the appropriate time* - в нужное время; *to remove* - удалять; устранять, вынимать, исключать; *control unit* - блок управления; *cause* - заставлять, вынуждать, быть причиной; *to feed (fed, fed)* — подавать, питать, вводить (данные); *to issue commands* - выдавать команды; *pulse - no-pulse* - (есть) импульс — холостой импульс

**Task 2. Read the text and name the main units of the computer and their functions**

## **Text 4 B. FUNCTIONAL UNITS OF DIGITAL COMPUTERS**

As we know, all computer operations can be grouped into five functional categories. The method in which these five

functional categories are *related* to one another represents the functional organization of a digital computer. By studying the functional organization, a *broad view* of the computer is received.

The five major functional units of a digital computer are:

1. Input— *to insert* outside information into the machine;
2. *Storage or memory* — to store information and make it available *at the appropriate time*;
3. Arithmetic-logical unit — to perform the calculations;
4. Output — *to remove* data from the machine to the outside world and
5. *Control unit* — *to cause* all parts of a computer to act as a team.

Five functional units of the computer act together. A complete set of instructions and data are usually *fed* through the input equipment to the memory where they are stored. Each instruction is then fed to the control unit. The control unit interprets the instructions and *issues commands* to the other functional units to cause operations to be performed on the data. Arithmetic operations are performed in the arithmetic-logical unit, and the results are then fed back to the memory. Information may be fed from either the arithmetic unit or the memory through the output equipment to the outside world. The five units of the computer must communicate with each other. They can do this by means of a machine language which uses a code composed of combinations of electric pulses. These pulse combinations are usually represented by *zeros* and *ones*, where the *one* may be *a pulse* and the *zero* — *a no-pulse*. Numbers are communicated between one unit and another by means of these one-zero or pulse — no-pulse combinations. The input has the additional job of converting the information fed in by the operator into machine language. In other words, it translates from our language into the pulse —

no-pulse combinations understandable to the computer. The output's additional job is converting the pulse — no-pulse combinations into a form understandable to us, such as a printed report.

**Task 3. Find English equivalents in the text:**

Функциональная организация; действия компьютера; связывать друг с другом; вводить информацию извне; делать информацию доступной; выполнять вычисления; выводить информацию; блок управления; выдавать команды; заставлять выполнять команды; выходное устройство; внешний мир; связываться друг с другом; комбинация электрических импульсов; холостой импульс; импульсы, распознаваемые компьютером.

**Task 4. Answer the following questions:**

1. What represents the functional organization of a computer?
2. What can we get by studying the functional organization?
3. What is the function of the input device?
4. What does memory serve for?
5. What is the task of the arithmetic-logical unit?
6. What is the function of the output?
7. What is the main purpose of the control unit?
8. How do all units of the computer communicate with each other?
9. What is the additional job of the input?
10. What is the additional function of the output?

**Text 4 C**

**1. Memorize the following words and word-combinations:**

*Run* – запускать, прогонять (программу);  
*Application Software* – прикладное программное обеспечение; *auxiliary storage* – вспомогательное ЗУ, внешняя память; *main storage* – оперативная память; *RAM*

–ОЗУ; *Volatile memory* – энергозависимое ЗУ; *ROM* – ПЗУ (постоянное запоминающее устройство)

**Task 2. Read the text and do the exercises that follow it.**

## COMPUTER MEMORY

Software gives instructions that tell computers what to do. There are two kinds of software. The first is System Software and includes programs that *run* the computer system or that aid programmers in performing their work. The second kind of software is *Application Software*, which directs the computer to perform specific tasks that often involve the user.

Memory is the general term used to describe a computer system's storage facilities. Memory's job is to store the instruction or programs and data in the computer. Memory can be divided into two major categories: 1. main memory, 2 *auxiliary storage*. Main memory is also called *main storage*, internal storage or primary storage and is a part of the CPU. Main memory is usually on chips or a circuit board with the other two components of the CPU. RAM for Random Access Memory, is the storage area directly controlled by the computer's CPU. Main Memory assists the control unit and the ALU by serving as a repository for the program being executed and for data as it passes through. RAM or *Volatile memory* so called because its contents are replaced when new instructions and data are added, or when electrical power to the computer is shut off. *RAM* is read-write memory, in that it can receive or read data and instructions from other sources such as auxiliary storage.

Another type of memory is *ROM* or Read Only Memory. ROM holds instructions that can be read by the computer but no written over. ROM is sometimes called

firmware because it holds instructions from the firm or manufacturer.

Auxiliary storage, also called auxiliary memory or secondary storage, is memory that supplements main storage. This type of memory is long-term, Nonvolatile Memory. Nonvolatile means that computer is turned off or on.

**Task 3. Fill in the blanks necessary words:**

1. .... gives instructions that tell computers what to do. 2. .... directs the computer to perform specific tasks that often involve the user. 3. Memory's job is to store ..... . 4. .... can be divided into two main categories. 5. Main memory is usually on ..... . 6. .... is read-write memory. 7. .... holds instructions that can be read by the computer but no written over. 8. .... is memory that supplements main storage. 9. .... means that the computer is turned off or on.

**Task 4. Give the definition to the following terms:**

- |                     |                       |
|---------------------|-----------------------|
| 1. software         | 5. RAM                |
| 2. memory           | 6. ROM                |
| 3. main memory      | 7. volatile memory    |
| 4. auxiliary memory | 8. nonvolatile memory |

**GRAMMAR REVIE**

**1. Переведите предложения, определив время и залог**

1. New Metro lines are being built now in Moscow. 2. What is going on? A new film is being discussed. 3. What grammar was being explained when you came in? 4. What questions were being discussed at that time? 5. New methods of research are being used in our lab. 6. Much is being done to improve laboratory methods.

## **2. Выберите правильную форму глагола.**

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. 10. The students often (have, are having) interesting discussions after lectures. 11. When he comes they (will be taking, will take) a test. 12. They (will be taking, will take) a test next

## **3. Поставьте глагол в соответствующем времени в зависимости от обстоятельства.**

This student (study) physics (at present, every day, last semester, when the telephone rang, tomorrow at this time, next semester).

## **4. Найдите предложения с глаголом-сказуемым в Present Continuous, переведите.**

1. Water and air are becoming more and more polluted. 2. At present computers are more widely used in the sphere of education. 3. Where were you at six o'clock? We were studying in the reading-room. 4. There are government and public organizations that are analysing data on land, forest and air. 5. New courses of education such as management are being organized in many institutes. 6. What will you be doing in the laboratory tomorrow morning? We shall be watching the operation of a new device. 7. Measures are being taken to save Lake Baikal. 8. The situation at Lake Baikal is remaining very serious. 9. Much attention is being paid at present to the



development of international scientific contacts. 10. Science is becoming a leading factor in the progress of mankind.

**5. А. Найдите предложения с глаголом-сказуемым в Continuous Passive, переведите.**

1. Cambridge University was formed in the 12th century. 2. The solution of ecological problems may be achieved only by joint efforts of all countries. 3. Great changes in people's lives and work were brought about by the scientific and technological progress. 4. The theory of interaction of atmospheric and oceanic processes is being developed to determine the weather of the planet. 5. The teachers at Cambridge are called «dons» or «tutors». 6. Computers and lasers are being widely introduced at plants and factories. 7. The most important ecological problems must be considered at the government level. 8. The training at Cambridge and Oxford is carried out by tutorial system.

**В. Переделайте предложения из действительного в страдательный залог.**

1. He is writing a letter at the moment. 2. John was preparing report all day yesterday. 3. We are learning grammar now. 4. At present mankind is making considerable investments to eliminate air pollution. 5. Today the changes in the global climate and water balance are bringing about serious changes in the environment. 6. Many scientists are constantly carrying out experimental work to solve the problem of environment protection. 7. The company is making plans for the future.

## UNIT V

1. Устный коррективный курс по фонетике английского языка.
2. Text 5 A. Development of electronics
3. Text 5 B. Microelectronics and microminiaturization
4. Text 5 C.

5. Grammar Review: Времена группы *Perfect Active* (§14).  
Времена группы *Perfect Passive* (§15). Модальные глаголы  
(The Modal Verbs) (§ 16.)

### 1. Practice reading.

► *i* before ***nd, gh, gn, ld***

▪ ***mind, humankind, behind, find, highly, light, delight, highway, sight, might, tight, frighten, flight, alignment, design, sign, wild, mild.***

► *o* before ***n, v, m, th***

▪ ***front, among, money, won, ton, month, tongue, wonder, one, glove, above, cover, dove, lovely, some, company, accompany, other, another, nothing;***

▪ ***BUT: move, prove, improve, approve, involve***

► *a* before ***l+consonant***

▪ ***talk, already, also, call, alter, always, salt, almost, alternative, walk, although, bald.***

**Task 1. Memorize the following words and word-combinations:**

***Applied physics*** — прикладная физика; ***generation*** - создание, формирование, выработка; ***scientific research*** - научные исследования; ***due to*** — благодаря (чему-л.) ; ***manipulation*** - управление, обработка, преобразование; ***to replace vacuum tubes*** - заменять электронные лампы; ***a piece of semiconductor*** - полупроводниковый кристалл; ***reduce*** — уменьшать; ***power consumption*** - потребление, (расход) электроэнергии; ***to carry out*** — выполнять, осуществлять; ***solid body*** — твердое тело, кристалл; полупроводник ***to respond*** - отвечать; реагировать ***at a rate***

— со скоростью; *integrated circuit* (IC) – интегральная схема; *batch processing* - пакетная обработка; *to assemble* – собирать, монтировать; *to lower manufacturing* - снизить производительность; *to increase reliability* - увеличить надежность.

Electronics is a field of engineering and *applied physics* dealing with the design and application of electronic circuits. The operation of circuits depends on the flow of electrons for *generation*, transmission, reception and storage of information. Today it is difficult to imagine our life without electronics. It surrounds us everywhere. Electronic devices are widely used in *scientific research* and industrial designing; they control the work of plants and power stations, calculate the trajectories of space ships and help the people discover new phenomena of nature. Automatization of production processes and studies on living organisms became possible *due to* electronics.

The invention of vacuum tubes at the beginning of the 20<sup>th</sup> century was the starting point of the rapid growth of modern electronics. Vacuum tubes assisted in *manipulation* of signals. The development of a large variety of tubes designed for specialized functions made possible the progress in radio communication technology before the World War II and in the creation of early computers during and shortly after the war.

The transistor invented by American scientists W.Shockly, J.Bardeen and W.Brattain in 1948 completely *replaced the vacuum tube*. The transistor, a small *piece of a semiconductor* with three electrodes, had great advantages over the best vacuum tubes. It provided the same functions as the vacuum tube but at *reduced* weight, cost, *power consumption*, and with high reliability. With the invention of the transistor all essential circuit functions could *be carried out* inside *solid bodies*. The aim of creating electronic circuits with entirely solid-state components had finally been realized. Early

transistors could respond *at a rate* of a few million times a second. This was fast enough to serve in radio circuits, but far below the speed needed for high-speed computers or for microwave communication systems.

The progress in semiconductor technology led to the development of the integrated circuit (IC), which was discovered due to the efforts of John Kilby in 1958. There appeared a new field of science — integrated electronics. The essence of it is *batch processing*. Instead of making, testing and assembling discrete components on a chip one at a time, large groupings of these components together with their interconnections were made all at a time. IC greatly reduced the size of devices, lowered manufacturing costs and at the same time they provided high speed and *increased reliability*.

**Task 2. Answer the following questions.**

1. What is electronics? 2. Can you imagine modern life without electronics? 3. Where are electronic devices used? 4. What was the beginning of electronics development? 5. What made the progress in radio communication technology possible? 6. What is the transistor? 7. When was the transistor invented? 8. What aim was realized with the invention of the transistor? 9. When were integrated circuits discovered? 10. What advantages did the transistors have over the vacuum tubes?

**Task 3. Find English equivalents in the text.**

Прикладная физика; передача и прием информации; поток электронов; трудно представить; научные исследования; промышленное проектирование; вычислять траекторию космических кораблей; обнаруживать явления природы; благодаря электронике; отправная точка; способствовать управлению сигналами; быстрый рост; разнообразие ламп; создание первых компьютеров;

полностью заменил; полупроводниковый кристалл; уменьшить вес; сократить стоимость; потребление электроэнергии; высокая надежность; твердотельные компоненты; довольно быстро ... но гораздо ниже; высокоскоростной компьютер; микроволновые системы связи; полупроводниковая технология; область науки; интегральная схема; пакетная обработка; сборка дискретных компонентов на кристалле; снизить производственные затраты; обеспечить высокую скорость.

**Task 5. Think about meaning of following international words:**

Electronics; electrons; physics; information; microelectronics; industrial design; to calculate trajectories; phenomena of nature; automatization of production processes; organisms; vacuum tubes; specialized functions; progress in radio communication technology; transistor; electrode; components; to realize; communication system; technology; discrete components; chip.

**Task 6. Give the definitions using the vocabulary:**

Power consumption; power consumption change; signals manipulation; transistor invention; circuit functions; communication systems, data processing system; integrated circuits development; science field; process control; automatization processes control; circuit components; size reduction; electronics development; communication means; problem solution; space exploration; pattern recognition; customers accounts; air traffic control.

**Text 5 B**

**Task 1. Memorize the following words and word-combinations:**

**Performance** - рабочая характеристика, параметры; производительность, быстродействие; **to predict** – прогнозировать; **capability** – способность, возможность; **branch of science** - область науки; **to embrace** – охватывать; **circuit assembly** - сборка схемы; **film technique** - пленочная технология (метод, способ); **invisible to unaided eye** - невидимый невооруженному глазу; **to react** – реагировать; **speed of response** - скорость реакции (отклика); **to result from** - возникать, происходить в результате; **packing density** - плотность упаковки; **small-scale integrated circuit** - малая интегральная схема (МИС); **medium-scale IC** - средняя интегральная схема (СИС); **large-scale IC** - большая интегральная схема (БИС); **very-large-scale IC** - сверхбольшая интегральная схема (СБИС); **fineline** - прецизионный; с элементами уменьшенных размеров; **transmission line** - линия передачи; **waveguide** – волновод; **to emerge** - появляться, возникать; **to displace** - перемещать, смещать; **mode** - вид, метод, способ; режим работы; **pattern** - шаблон, образец; образ, изображение; **power** - мощность, энергия, питание; производительность, быстродействие; способность, возможность

**Task 2. Read and translate the text.**

## MICROELECTRONICS AND MICROMINIATURIZATION

The intensive effort of electronics to increase the reliability and **performance** of its products while reducing their size and cost led to the results that hardly anyone could **predict**. The evolution of electronic technology is sometimes called a revolution: a quantitative change in technology gave rise to qualitative change in human **capabilities**. There appeared a new **branch of science** — microelectronics.

Microelectronics *embraces* electronics connected with the realization of electronic circuits, systems and subsystems from very small electronic devices. Microelectronics is a name for extremely small electronic components and *circuit assemblies*, made by *film* or semiconductor *techniques*. A microelectronic technology reduced transistors and other circuit elements to dimensions almost *invisible to unaided eye*. The point of this extraordinary miniaturization is to make circuits long-lasting, low in cost, and capable of performing electronic functions at extremely high speed. It is known that the speed of *response* depends on the size of transistor: the smaller the transistor, the faster it is. The smaller the computer, the faster it can work.

One more advantage of microelectronics is that smaller devices consume less power. In space satellites and spaceships this is a very important factor. Another benefit *resulting from* microelectronics is the reduction of distances between circuit components. *Packing density* increased with the appearance of *small-scale integrated circuit, medium-scale IC, large-scale IC and very-large-scale IC*. The change in scale was measured by the number of transistors on a chip. There appeared a new type of integrated circuits, microwave integrated circuit. The evolution of microwave IC began with the development of planar *transmission lines*. Then new IC components in a *fineline* transmission line appeared. Other more exotic techniques, such as dielectric *waveguide* integrated circuits *emerged*.

Microelectronic technique is continuing to *displace* other *modes*. Circuit *patterns* are being formed with radiation having wavelength shorter than those of light. Electronics has extended man's intellectual power. Microelectronics extends that *power* still further.

**Task 3. Answer the questions about the text:**

1. What would you say about electronics? 2. Why is the development of electronics called a revolution? 3. What is microelectronics? 4. What techniques does microelectronics use? 5. What is the benefit of reducing the size of circuit elements? 6. What do you understand by the term of microminiaturization? 7. What does the speed of the signal response depend on? 8. What advantages of microelectronics do you know? 9. What scales of integration are known to you? 10. How are microelectronics techniques developing?

**Task 4. Find the equivalents in the text:**

Интенсивные усилия; увеличить надежность; увеличить параметры; уменьшить размер и стоимость; вряд ли кто-нибудь мог прогнозировать; количественные и качественные изменения; область науки; пленочная технология; полупроводниковый метод; сокращать элементы схемы; суть миниатюризации в том, что; создать схемы с долгим сроком службы; чрезвычайно высокая скорость реакции; чем меньше, тем быстрее; преимущество; расходовать энергию; польза; уменьшение расстояния между элементами схемы; большая интегральная схема; микроволновая интегральная схема; волновод; линия передач; смещать; изображение схем; расширять возможности человека.

**Task 5. Give the translation of the following words with negative prefixes.**

*dis-*: disadvantage; disconnect; disappear; disclose; discomfort; discontinue; discount; discredit; discriminate; disintegrate.

*in-*: invisible; inaccurate; inactive; incapable; incompact; insignificant; inhuman; informal; ineffective; indifferent; indecisive; inconsumable; incorrect.



**un-:** uncontrollable; unbelievable; unable; unchanged; uncomfortable; uncommunicative; undisciplined; unexpected; unfavourable; unforgettable; unkind.

**non-:** non-effective; non-aggressive; noncomparable; non-computable; nonconstant; noncontrollable; nondigital; nondimensional; nonprogrammable; nonusable.

**ir-:** irregular; irrelative; irresponsive; irrational; irreplaceable; irrecoznizable.

## **Text 5 C**

**Task 1. Read the text and entitle it. Translate the text in written form.**

Electronics as a science studies the properties of electrons, the laws of their motion, and the laws of transformation of various kinds of energy.

Electronics is a science, which deals with devices and instruments that are operated by the control of the movement of electric charges in a vacuum, in gasses, or in semiconductors; or with the processing of information or the control of energy by such devices. This definition covers the whole complex family of vacuum and gaseous electron tubes and their application. It also includes semiconductor and transistor technologies to process information or to convert energy. Without electronics we would not have cybernetics, cosmonautics and nuclear physics. It is no mistake to compare the birth of electronics to such great achievements of mankind as the discovery of fire, and penetration into the secrets of the atom. Shortly speaking, electronics is not so much a new subject; it is rather a new way of looking at electricity.

## **GRAMMAR REVIEW**

### **1. Объясните употребление времен группы Perfect, переведите.**

1. This is a very good book, I have just read it with pleasure. 2. He has been absent this week. He has been ill. 3. I haven't seen you for a long time. Where have you been all this time? 4. We haven't heard about her since 1989. 5. By the beginning of the lecture the laboratory assistant had brought all the necessary diagrams. 6. Before we came to the next lecture we had studied the material of the first one. 7. Have you already finished your diploma work? No, I shall have finished it by the end of June. 8. They will not have passed their exams by the time you return. 9. Many students have been enrolled into universities this year. 10. The translation has not been finished yet. It will have been finished by the end of the month. 11. Have you brought these journals with you? No, these journals had been brought by my sister before I returned from St. Petersburg. Don't you know that?

### **2. А. Выберите правильную форму сказуемого.**

1. He (has graduated, graduated) from MSTU named after Bauman this year. He (graduated, will have graduated) from MSTU named after Bauman in 6 years. 2. She (saw, has seen) us in the morning yesterday. She (saw, has seen) us this morning. 3. I (have met, met) him last year. I never (had met, have met) him before. 4. Our group (will do, will have done) a lab work tomorrow. 5. This problem (is discussed, has been discussed) much in the press lately. This problem (was discussed, had been discussed) yesterday.

### **В. Переделайте предложения из действительного в страдательный залог.**

1. The students have done their homework very well. 2. Bob has left his notebook at home. 3. I have told you about a

lecture. 4. The laboratory assistant had prepared the experiment by 2 o'clock. 5. She had finished her test when we came. 6. The teacher will have corrected our dictation by the end of the week. 7. They have not made any mistakes.

**3. Определите функции глагола *to have*, переведите.**

1. Electricity has many useful properties: it is clean and generates no by as well as in our houses. 3. The latest laser devices have found application in medicine. 4. Electricity has provided mankind with the most efficient source of energy. 5. No other source of energy has been so widely used as electricity. 6. We have many various electric devices in our houses. 7. Our lives have been completely transformed with the appearance of electricity. 8. The generator replaced batteries that had been used before. 9. The consumption of electricity has doubled every ten years.

**4. Найдите подлежащее и сказуемое в предложениях, переведите.**

1. That electricity is clean and easily-regulated is its great advantage. 2. The important fact is that electricity offers improved service at reduced cost. 3. That the two scientists Lodygyn and Yablochkov were the first in Russia to work in the field of electrical engineering is well-known. 4. One of the main advantages of electricity is that it does not pollute the environment. 5. The indicator of nation development is how much electricity is consumed per capita. 6. What has been and is being done in environment protection cannot be measured by yesterday's standards.

**5. Определите время и залог глагола-сказуемого, переведите предложения.**

A. 1. I have not cleaned the window yet. I am cleaning it now. I

have cleaned it. 2. But Bob has a different idea. 3. Last year she passed school leaving exams. 4. We will be studying for our exams at the end of the term. 5. While we were having supper, all the lights went out. 6. Will people speak the same language all over the world? 7. People will land on Mars in the 21st century. 8. I think cars will be powered by electric batteries in five years' time and they will not be powered by atomic power in 100 years' time. 9. The Earth is getting warmer because of the increase of carbon dioxide in the atmosphere.

**B.** 1. It is evident that electricity will be the energy of the future. 2. The transformer was invented and the first electric lines and networks were set up at the end of the 19th century. 3. New powerful electric stations must be built because it is electricity that offers improved standards of life and work. 4. A combination of electric lines and networks are being set up throughout the country. 5. Electric power has become universal. 6. Electricity is transmitted to distant parts of this country by a combination of electric networks. 7. Our power stations have been connected by high voltage transmission lines into several networks.

**6. Замените модальные глаголы соответствующими эквивалентами.**

1. Students must take exams in January. 2. She can speak French well. 3. You may take this book till tomorrow. 4. We must learn new words every week. 5. I live not far from my work. I can go by bus or I can walk. 6. You may come in. 7. We can take this book from the library. 8. She cannot do this work in time. 9. He must go to St. Petersburg for a few days. 10. We can see electrical devices everywhere.

**7. Поставьте предложения в вопросительной и отрицательной формах.**

1. We were able to read that article in the library. 2. Some students will be permitted to take exams in December. 3. You have to read this book. 4. We shall be able to skate in winter. 5. My friends are to take part in the conference. 6. The students of our group had to go to the plant last week. 7. They were allowed to continue their research.

**8. Переведите предложения, обращая внимание на перевод модальных глаголов.**

1. Everyone should know a foreign language. 2. To make supercomputers, we need highly developed electronics and new materials. 3. One should do one's work in time. 4. The students ought to know the history of their institute. 5. The development of new materials does not mean that old materials should lose their significance. 6. Marie Curie needed a laboratory and equipment for her research. 7. Every institute ought to be proud of their famous graduates. 8. One should know that «roentgen» is a unit (единица) of radiation.

**9. Переведите выделенные словосочетания.**

1. **It was found that** proton and neutron have almost the same weight. 2. **It was necessary** to lay cables across the Atlantic Ocean as there were no radio or satellites at that time. 3. **It is difficult** to imagine the world we live in without radio, telephone and television. 4. **It is possible** to have a direct telephone talk with Vladivostok with the help of satellite systems. 5. This material has properties which **make it useful** for various space projects. 6. **It should be said that** computers become increasingly important in our life and work. 7. My adviser **considers it necessary** for me to read as much literature as possible before starting my work. 8. **It is difficult** to name all the branches of science and technology which are based on electronics. 9. **It is well-known that** «watt» is a unit

named after James Watt, an inventor from Scotland. 10. **It is impossible** to solve many modern complex engineering problems without the help of computers.

## UNIT VI

1. Устный коррективный курс по фонетике английского языка.
2. Text 6 A. The Internet
3. Text 6 B. The WWW and The Internet
4. Text 6 C. The Pros and Cons of Using the Internet
5. Grammar Review: Revision of units 1-5

### *Practice reading.*

#### ► *ear*

- *appear, clear, near, hear, gear, tear, rear, fear, dear, nuclear;*
- *earn, learn, early, heard, rehearse, search, research, earthquake, pearl;*
- *BUT: beard; heart; wear, pear, bear.*

#### ► *age*

- *advantage, usage, tonnage, drainage, mileage, haulage, shortage, storage, cottage,*
- assemblage, carriage, average, courage, manage, passage,*
- percentage, voyage, voltage, envisage,*
- language, garbage, package, leakage.*

### **Task 1. Memorize the following words and word-combinations:**

*To embrace* - насчитывать, охватывать; *to survive* – выживать; *packet switching* - коммутация пакетов; *packet switching network* – сеть с коммутацией пакетов; *host computer* – главная, ведущая, основная машина; *FTP* – 1.file transfer program – программа передачи файлов

2. File Transfer Protocol – протокол передачи файлов; *to refine* – улучшать, совершенствовать; *to rework* – дорабатывать, исправлять; *computer-aided design* – автоматизированное проектирование; *router* – маршрутизатор, трассировщик; *to encode* – кодировать, шифровать; *to intercept* – перехватывать; *transactions* – сделки; *knock out* – вышибать; *destination* – пункт назначения, адресат информации; *the cost of running* – стоимость обслуживания

## Text 6 A. Read and translate the text

### THE INTERNET

The Internet, a global computer network which *embraces* millions of users all over the world, began in the United States in 1969 as a military experiment. It was designed to *survive* a nuclear war. Information sent over the Internet takes the shortest path available from one computer to another. Because of this, any two computers of the Internet will be able to stay in touch with each other as long as there is a single *route* between them. This technology is called *packet switching*. Owing to this technology, if some computers on the network are *knocked out* (by a nuclear explosion, for example), information will just route around them. One such *packet-switching network* already survived a war. It was the Iraqi computer network which was not knocked out during the Gulf War.

Most of the Internet *host computers* (more than 50 %) are in the United States, while the rest are located in more than 100 other countries. Although the number of host computers can be counted fairly accurately, nobody knows exactly how many people use the Internet, there are millions, and their number is growing by thousands each month worldwide.

The most popular Internet service is e-mail. Most of the people, who have access to the Internet, use the network only for sending and receiving e-mail messages. However, other popular services are available on the Internet: reading USENET News, using the World- Wide Web, telnet, **FTP**, and Gopher.

In many developing countries the Internet may provide businessmen with a reliable alternative to the expensive and unreliable telecommunications systems of these countries. Commercial users can communicate over the Internet with the rest of the world and can do it very cheaply. When they send e-mail messages, they only have to pay for phone calls to their local service providers, not for calls across their countries or around the world. But who actually pays for sending e-mail messages over the Internet long distances, around the world? The answer is very simple: an user pays he/ her service provider a monthly or hourly fee. Part of this fee goes towards its costs to connect to a larger service provider. And part of the fee got by the larger provider goes to cover its **cost of running** a worldwide network of wires and wireless stations.

But saving money is only the first step. If people see that they can make money from the Internet, commercial use of this network will drastically increase. For example, some western architecture companies and **garment centers** already transmit their basic designs and concepts over the Internet into China, where they are reworked and **refined** by skilled- but inexpensive- Chinese **computer aided- design** specialists.

However, some problems remain. The most important is security. When you send an e-mail message to somebody, this message can travel through many different networks and computers. The data is constantly being directed towards its **destination** by special computers called **routers**. Because of this, it is possible to get into any of computers along the route, **intercept** and even change the data being sent over the



Internet. In spite of the fact that there are many strong **encoding** programs available, nearly all the information being sent over the Internet is transmitted without any form of encoding, i.e. “in the clear”. But when it becomes necessary to send important information over the network, these encoding programs may be useful. Some American banks and companies even conduct transactions over the Internet. However, there are still both commercial and technical problems which will take time to be resolved.

**Task 3. Answer the questions:**

1. What is Internet? 2. How did it start / appear? 3. How many Internet users are there in the world? 4. What is the path of the information sent over Internet? 5. What is the most popular Internet service? 6. Are Internet services expensive? 7. Why is it possible to intercept or even change the data, while they are travelling to the point of their destination? 8. Is the information sent over Internet coded? 9. What can be done with the help of Internet?

**Task 4. Match the phrases with their Russian equivalents:**

- |                      |                             |
|----------------------|-----------------------------|
| 1 global network     | A почасовая оплата          |
| 2 garment center     | B развивающаяся страна      |
| 3 developing country | C благодаря этому           |
| 4 shortest path      | D глобальная сеть           |
| available            |                             |
| 5 growing number     | E центр изготовления одежды |
| 6 hourly fee         | F кратчайший свободный путь |
| 7 owing to this      | G возрастающее число        |

**Task 5. Find English equivalents to the following phrases:**

1. экономить деньги; 2. Пережить атомную войну; 3. Направляться; 4. Общаться по...; 5. Получать сообщения; 6. Поддерживать контакты; 7. Катастрофически

возрастать; 8. Проводить сделки; 9. Решать проблемы; 10. Точно подсчитать 11. Включать миллионы пользователей; 12. перехватить сообщение

\*\*\*

(To resolve problems, to receive messages, to intercept a message, to survive a nuclear war, to be in touch, to embrace millions of users, to count accurately, to communicate over... , to increase drastically, to save money, to conduct transactions, to be directed (to)).

***Task 6. Translate the following sentences into English:***

1. Интернет – глобальная компьютерная сеть, которая насчитывает миллионы пользователей во внешнем мире. 2. Сеть выросла из военного эксперимента, который начался в США в 1969г. 3. Целью его было выживание в ходе ядерной войны. 4. Информация, посылаемая по Интернету, идет от одного компьютера к другому по кратчайшему возможному пути. 5. Никто не может точно подсчитать, сколько людей в мире пользуются Интернетом, ибо их миллионы и число это ежемесячно возрастает на несколько тысяч. 6. Большинство людей, которые имеют доступ к Интернету, используют Сеть только для передачи и получения сообщений. 7. Но есть и другие услуги, предоставляемые Интернетом. 8. Во многих развивающихся странах Интернет может обеспечить бизнесменов надёжной связью, в отличие от дорогих и ненадёжных систем телекоммуникации. 9. Кто же на самом деле оплачивает отправку сообщений по Интернету на дальние расстояния? Ответ прост: пользователь платит ежемесячную плату фирме- поставщику электронных услуг (провайдеру). 10. Все остальные вопросы решает провайдер. 11. Экономия денег- не единственное преимущество Интернета. 12. В настоящее время многое

можно осуществлять через Интернет, в том числе проведение сделок.

**Task 7. Express your opinion to the following statements:**

1. Commercial use of the Internet is drastically increasing.
2. It is rather insecure to send an important information through the Internet

## **Text 6 B**

**Task 1. Memorize the following words and word-combinations:**

*To retrieve*- извлекать; *recreation*- развлечение; *network*- сеть; *to share*- делить; *humanities*- гуманитарные науки; *business transactions*- коммерческие операции; *access*- доступ; *to browse* [*brauz*]- рассматривать, разглядывать; *browser* – браузер (программа поиска информации); *provider* - провайдер (компания, предоставляющая доступ к WWW через местные телефонные связи); *to compete* – соревноваться; *broadcast live* - транслировать в прямом эфире

**Task 2. Read and translate the text:**

### **THE WWW AND THE INTERNET**

Millions of people around the world use the Internet to search for and retrieve information on all sorts of topics in a wide variety of areas including the arts, business, government, humanities, news, politics and recreation. People communicate through electronic mail (e-mail), discussion groups, chat channels and other means of informational exchange. They *share* information and make commercial and *business transactions*. All this activity is possible because tens of

thousands of *networks* are connected to the Internet and exchange information in the same basic ways.

The **World Wide Web (WWW)** is a part of the Internet. But it's not a collection of networks. Rather, it is information that is connected or linked like a web. You access this information through one interface or tool called a **Web browser**. The number of resources and services that are part of the World Wide Web is growing extremely fast. In 1996 there were more than 20 million users of the WWW, and more than half the information that is transferred across the Internet is accessed through the WWW. By using a computer terminal (hardware) connected to a network that is a part of the Internet, and by using a program (software) to browse or retrieve information that is a part of the World Wide Web, the people connected to the Internet and World Wide Web through the local **providers** have access to a variety of information. Each browser provides a graphical interface. You move from place to place, from site to site on the Web by using a mouse to click on a portion of text, icon or region of a map. These items are called hyperlinks or links. Each link you select represents a document, an image, a video clip or an audio file somewhere on the Internet. The user doesn't need to know where it is, the browser follows the link.

All sorts of things are available on the WWW. One can use Internet for recreational purposes. Many TV and radio stations *broadcast live* on the WWW. Essentially, if something can be put into digital format and stored in a computer, then it's available on the WWW. You can even visit museums, gardens, cities throughout the world, learn foreign languages and meet new friends. And, of course, you can play computer games through WWW, *competing* with partners from other countries and continents.

Just a little bit of exploring the World Wide Web will show you what a lot of use and fun it is.

**Task 3. Answer the questions:**

1. What is Internet used for? 2. Why so many activities such as e-mail and business transactions are possible through the Internet? 3. What is World Wide Web? 4. What is Web browser? 5. What does a user need to have an access to the WWW? 6. What are hyperlinks? 7. What resources are available on the WWW? 8. What are the basic recreational applications of the WWW?

**Task 4. Which of the listed below statements are true/ false. Specify your answer using the text.**

1. There are still not so many users of the Internet.
2. There is information on all sorts of topics on the Internet, including education and weather forecasts.
3. People can communicate through e-mail and chat programs only.
4. Internet is tens of thousands of networks which exchange the information in the same basic way.
5. You can access information available on the World Wide Web through the Web browser.
6. You need a computer (hardware) and a special program (software) to be a WWW user.
7. You move from site to site by clicking on a portion of text only.
8. Every time the user wants to move somewhere on the web he/she needs to step by step enter links and addresses.
9. Films and pictures are not available on the Internet.
10. Radio and TV-broadcasting is a future of Internet. They are not available yet.

**Task 5. Find the equivalents in the text:**

1. Объём ресурсов и услуг, которые являются частью WWW, растёт чрезвычайно быстро. 2. Каждая ссылка,

выбранная вами представляет документ, графическое изображение, видеоклип или аудио файл где-то в Интернет. 3. Интернет может быть также использован для целей развлечения. 4. Вы получаете доступ к ресурсам Интернет через интерфейс или инструмент, который называется веб-браузер. 5. Вся эта деятельность возможна благодаря десяткам тысяч компьютерных сетей, подключённых к Интернет и обменивающихся информацией в одном режиме. 6. Пользователи общаются через электронную почту, дискуссионные группы, чэт-каналы (многоканальный разговор в реальном времени) и другие средства информационного обмена.

**Task 6. Match the following:**

1. You access the information through one interface or tool called a ... . 2. People connected to the WWW through the local ... have access to a variety of information. 3. The user doesn't need to know where the site is, the ... follows the ... . 4. In 1996 there were more than 20 million users of the ... . 5. Each ... provides a graphical interface. 6. Local ... charge money for their services to access ... resources.

**Words to match with:**

web browser, providers, link, WWW

## **Text 6 C THE PROS AND CONS OF USING THE INTERNET**

Advertisements for the Internet promise you a world of information, entertainment, on-line shopping and e-mail services. However, the real world of the Internet may not be as perfect as the advertisements suggest.

Using the Internet offers many advantages. For example, all of the latest information is available to you, in your home, at any hour of the day or night. It is much faster and easier to surf the net in search of information from all over the world than to travel to libraries in dozens of countries. Also, on-line shopping makes it possible to search through catalogues to find exactly what you want at the best price, saving both time and money. By joining a newsgroup or chat group, you can share your hobbies and special interests, and perhaps make friends all over the world. Finally, e-mail is popular because it is faster than sending a letter and cheaper than a telephone conversation.

On the other hand, the Internet has several disadvantages. Firstly, with so much information available, finding what you want can take you hours. Multimedia web pages with photographs, music and video are attractive, but they make downloading slow and boring. What is more, there is too much advertising instead of real information. As for Internet friendships, sitting at home in front of a computer making 'chat friends' is not the same as actually meeting people.

In conclusion, the Internet obviously has both good and bad points. Fortunately, the system is improving all the time, and any problems which still exist can be solved. Whether we like it or not, the Internet is here to stay, so we have to make the best possible use of it.

**Task 7. Read the list of points about the Internet advantages and mark them A (advantage) or D (disadvantage). Then act out short dialogues in pairs, as in the example.**

1. Web pages with photographs, music and video make downloading slow and boring.

2. The latest information is available to you at any time, quickly and easily.
3. On-line shopping can save you time and money.
4. With so much information, finding what you want can take hours.
5. You can share your hobbies and special interests with newsgroups and chat groups.
6. There is too much advertising instead of real information.
7. You can make new friends in chat groups.
8. Making ‘chat friends’ is not the same as actually meeting people.
9. You can send mail fast and cheaply.

**A.** One of the disadvantages of using the internet is that web pages with photographs, music and video make downloading slow and boring.

**B.** I agree, but on the other hand, the latest information is available to you at any time, quickly and easily.

### **The Internet: FAQs (Frequently Asked Questions)**

- 1.** *Read the information Leaflet about the Internet, and match the questions (a-f) to the numbered spaces (1-6).*

A What exactly is the Internet?	The main use of the Internet is to find information – for your schoolwork or job, or just to find more about your hobbies, sports or current events. You can also use the Internet to read newspapers and magazines, play games, plan your holiday or buy things from your favorite shop. E-mail makes it possible to send electronic messages
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	anywhere in the world in seconds, and you can use the Internet to ‘chat’ with people and make new friends.
B What do I need in order to use the Internet?	The Internet is a network (several networks, in fact) of millions of computers around the world, connected by phone lines, satellite or cable, so that all the computers on the net can exchange information with each other.
C How do I “surf the net”?	When you visit a web site looking for information, some words on the page may be underlined, showing that there is more information about the subject in another document. If you click on one of these words, the Web automatically connects your computer to a new document or web site, even if this is stored thousands of kilometers away. You’re surfing the net!
D That’s the same thing as the Web, isn’t it?	Not quite. The Internet links computers, and the World Wide Web is a system which links the information stored inside these computers.
E What can I use the Internet for?	If you don’t already use the Internet, all you need to get started is a computer, a modem and a phone line. Using the Internet is getting cheaper and easier all the time. Are you ready to surf the net? There’s a whole exciting Internet world out there waiting for you!
F What is a web site, and how do I visit one?	A company or organization stores its information in electronic documents on one of the Internet computers, somewhere in the world. This computer space – the company’s web site – has an address, in the same way that every telephone has a number. To visit a

	web site, a document is downloaded, and a page appears on your computer screen.
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*Can you do a better translation?*

**a) 10 PROGRAMMERS**

Ten young programmers began to work online,

One didn't pay for Internet, and then there were nine.

    Nine young programmers used copies that they made,

    But one was caught by FBI, and then there were eight.

Eight young programmers discussed about heaven,

One said: "It's Windows 95!", and then there were seven.

    Seven young programmers found bugs they want to fix,

    But one was fixed by the bug, and then there were six.

Six young programmers were testing the hard drive,

One got the string "Format complete", and then there were five.

    Five young programmers were running the Front Door,

    The BBS of one was hacked, and then there were four.

Four young programmers worked using only C,

One said some good about Pascal, and then there were three.

    Three young programmers didn't know what to do,

    One tried to call the on-line help, and then there were two.

Two young programmers were testing what they've done,

One got a virus in his brain, and then there was one.

    One young programmer was as mighty as a hero,

    But tried to speak with user, and then there was zero.

Boss cried: "Oh, where is the program we must have?!"

And fired one programmer, and then there were FF.

**10 ПРОГРАММИСТОВ**

Десять программистов продукт решили сделать.

Один спросил: «А деньги где?» и их осталось девять.

Девять программистов предстали перед боссом.  
Один из них не знал Fox Pro и их осталось восемь.  
Восемь программистов купили IBM.  
Один из них сказал: «Mac – класс!» и их осталось семь.  
Семь программистов решили Help прочесть.  
У одного накрылся винт и их осталось шесть.  
Шесть программистов пытались код понять.  
Один из них сошёл с ума и их осталось пять.  
Пять программистов купили CD-ROM.  
Один принёс китайский диск – остались вчетвером.  
Четыре программиста работали на «С».  
Один из них хвалил PASCAL и их осталось три.  
Три программиста играли в сетке в «DOOM».  
Один чуть-чуть замешкался и счёт стал равен двум.  
Два программиста набрали дружно «Win».  
Один устал загрузки ждать – остался лишь один.  
Один программист всё взял под свой контроль,  
Но встретился с заказчиком и их осталось ноль.  
Ноль программистов ругал сердитый шеф,  
Потом уволил одного и стало их FF.

### **GRAMMAR REVIE**

**1. Повторите времена группы Indefinite (Simple), Continuous, Perfect Active, Passive. Определите время глагола-сказуемого и переведите предложения.**

1. What course are you taking here? Business English? — No, I am not doing Business English yet. I am trying to improve my general English, especially conversation. 2. I liked the lecturer better after I had heard him the second time. 3. My friend will take the course in English next semester. 4. Who has finished the test? 5. We looked at him while he was dancing. 6. How many books of Shaw have you read? 7. Why have not you told them about it? 8. I shall still be studying English in two years' time. 9. The books were taken from the

library. 10. You can find the books taken from the library on the table. 11. The exams are held in June. 12. I have been in the laboratory since 8 o'clock. 13. There were many people coming back from their work. 14. Australia is one of the five continents, but it is much smaller than the other four. 15. The light in that room is poor. Please light the candles (свечи). 16. People speak the language of their country. 17. Every country needs good specialists for its further progress of science and technology. 18. By the year 2030 human labour in industry will have been replaced by robots. Families will have robots to do the housework.

**2. Переведите предложения в страдательном залоге, дайте варианты, где возможно.**

1. Mathematics, mechanics, elements of machines as well as engineering physics are studied at technological institutes. 2. The development of science is closely connected with the development of higher education. 3. Students are provided with hostels, well-equipped laboratories and libraries. 4. Any country must be provided with good specialists in all branches of science and technology for its further development. 5. Large sums of money are spent by the state to train highly-qualified engineers. 6. Much attention must be paid to improve the standards of higher education. 7. Students of technical universities are trained to analyse various facts and theories. 8. The scientific and technological progress of a country is determined by the qualification of specialists. 9. Some institutes of technology are reorganized into universities.

**3. Выберите соответствующие местоимения.**

A. 1. (We, us) all went with (their, them) to the dean's office. 2. My friend came to see (I, me) last night. 3. Victor gave Peter and (I, me) a book and we went to the reading-room with (he, him) and his friend. 4. He told Mary and (me, I) to go with (he,

him) and his sister. 5. They know all about my friend and (I, me). 6. I came to the Institute with Michael and (her, she). 7. An old man asked (we, us) to come and see (him, his). 8. Go with David and (her, she) to visit (they, them).

**B.** They invited me to (them, their) party. 2. He could not answer (his, her) teacher. 3. They were (your, you) former students. 4. You are (us, our) colleagues. 5. This is (my, me) brother. 6. Ann went to (his, her) room and put on (his, her) new dress because she was going to a dance given by (his, her) company. 7. Where is the dictionary? (He, it) is in (his, its) place on the table.

**C.** 1. Your dictionary is new, but (my, mine) is not. 2. She says that this dictionary is (her, hers). 3. You can do it without my help, but not without (theirs, their). 4. Will you help me to sort out the things? I cannot tell which are (your, yours) and which are (our, ours). 5. He is an old friend of (me, mine). 6. Do you know your lesson today? He does not know (him, his). 7. This is your notebook and this is his, but where is (her, hers)?

**4. Найдите предложения, где *it* является формальным подлежащим, личным местоимением или входит в состав усилительной конструкции; переведите.**

1. It is dark here. Please, turn on the light. 2. It was Gagarin who was the first man to orbit the Earth. 3. Our students study strength of materials. It is a very difficult subject. 4. Mathematics is studied at all technological institutes because every engineer must know it well. 5. It is the most interesting article on this subject. 6. It has become evident that ecological problems can be solved only on the global level. 7. Joint efforts of people throughout the world make it possible to achieve some progress in environment protection. 8. It is the

development of robots that will solve some very complex problems of industry. 9. It is evident that research is becoming more specialized now. 10. The use of the new equipment made it possible to minimize the number of workers. 11. It is industrialization that is making ecological problems very serious.

**5. Определите функции *one* и *that* переведите предложения.**

1. The problem that has become the most important one is the problem of pollution. 2. One can easily understand why the profession of an engineer requires a special college training 3. The new technologies that are being developed must be connected with traditional ones. 4. That air and water pollution by industrialization is reaching dangerous levels is realized by everyone. 5. It is the invention of an engine that started the first industrial revolution. 6. The main purpose of education is that graduates must be able to work with the technology of tomorrow. 7. The education in Oxford and Cambridge is different in many ways from that in other universities. 8. We discussed the first industrial revolution, the one that took place some centuries ago. 9. New robots will have several manipulators that will carry out many functions. 10. That computers and robots are important for industrial uses is well known to scientists and engineers. 11. One must realize that the increasing number of cars brings about considerable pollution of the air. 12. It is the growth of industrialization that is changing the climate of the planet. 13. The essential feature of higher education in this country is that it combines theory with practice. 14. The simplest materials are those which have only one kind of atoms. 15. That the Earth is round was unknown for a long time. 16. It is found that the labour of a man with secondary education is 108 per cent more efficient than that of a man without that education.

## **6. Переведите предложения с союзами сравнения.**

1. The bigger the cities are, the greater the pollution is. 2. The more computers and robots are used in industry, the quicker technological progress will be. 3. The more automobiles appear in the streets, the worse the air in the cities is. 4. The more effective is the technology, the quicker is the development of this country. 5. The quicker we joint our efforts in protecting the environment, the quicker the ecological problems are solved.

## **7. Переведите предложения, обращая внимание на перевод модальных глаголов.**

1. Information or data can be stored in the computer's memory or storage. 2. An analog computer is able to calculate by using physical analogs of numerical measurements. 3. The first automatic computers could operate at the low speed. 4. Your paper may be published at our Institute. 5. My friend was happy when at last he might work at the computing centre. 6. Our students are allowed to visit the computing centre to see the operation of the computer ES- 1045. 7. Every student must know that a digital computer performs reasonable operations. 8. Some operations for this computer have to be changed and new instructions have to be added. 9. The instructions are recorded in the order in which they are to be carried out. 10. You should know the difference between the digital and analog computers. 11. We ought to help him to solve this problem by a personal computer. 12. According to (согласно) the time-table you are to begin your classes at 8 o'clock. 13. Every student of our speciality has to know what a hybrid computer is. 14. We were permitted to attend the conference on cybernetics.

## **8. Определите время и залог глагола-сказуемого, переведите предложения**

1. These digits are easily multiplied. 2. I was asked many questions about my work. 3. They were explained how to solve this problem on a computer. 4. The sequence of reasonable operations has been performed by the computer. 5. The new department of mathematics has just been opened. 6. Many books on computers' organization and architecture had been translated from Russian into English by the end of last year. 7. The experiments on the new microcomputer were being carried out during the whole month. 8. All the digits are recorded on the paper tape when addition is performed. 9. The new key adding machine was transferred into the next room yesterday. 10. The sequence of reasonable operations is now being carried out by this microcomputer. 11. The conference was addressed by a well-known scientist. 12. The invention of computers was spoken of at the last lecture. 13. Modern personal computers are always looked at with interest. 14. Many new branches of industry have been developed in our country since World War II.

**9. Определите функции глагола *to have*, *to be* и переведите.**

1. This ordinary adding machine has ten keys for each column of digits. 2. The main task of this article was to show the results of research work. 3. This personal computer has been constructed at our lab. 4. The lecture was to begin at 9 o'clock. 5. Our aim is to study hard and master our speciality. 6. Our lab assistant has to construct this electronic device (прибор). 7. The general purpose of this unit (block) is to perform different arithmetic operations. 8. The participants of the scientific conference are to arrive tomorrow. 9. You have to remember the names of the scientists who have contributed to the development of your speciality. 10. The results of the experiment have carefully been checked up today.



## Грамматический справочник

### UNIT 1.

#### § 1 Имя существительное (THE NOUN)

Существительное - часть речи, которая обозначает лицо, предмет, явление или процесс.

Существительные бывают *простые* (simple) – **sky** (небо), **light** (свет); *составные* (compound) – **schoolgirl** (школьница), **rail-road** (железная дорога); *производные* (derived) – **building** (здание), **happiness** ( счастье ); *собственные* ( proper ) **Charlie** (Чарли) и – *нарицательные* (common) – **dog** (собака), **crowd** ( толпа), **love** (любовь); *исчисляемые* (countable) – **a boy** ( мальчик), **cats** (кошки); *неисчисляемые* (uncountable)- **tea** (чай), **ice** (лед), **salt** (соль).

Исчисляемые существительные в единственном числе, встречающиеся впервые в тексте, употребляются с неопределенным артиклем **a** (**an** – перед словами, начинающимися с гласной). Во множественном числе в подобном случае неопределенный артикль опускается.

Определенный артикль **the** употребляется перед существительными как в единственном, так и во множественном числе.

Неисчисляемые существительные не употребляются с неопределенным артиклем. Однако, когда они используются для обозначения предмета из данного вещества или материала, они переходят в разряд исчисляемых существительных, например: **glass** - стекло, **a glass** - стакан; **iron** – железо, **an iron** - утюг; **tin** – олово, **жесть**, **a tin** – консервная банка.

**Множественное число** существительных образуется путем прибавления окончания – **s** или **-es** к форме единственного числа

**a desk** ( парта ) – **desks** [ s ] парты

an angle ( угол ) - angles [ z ] углы  
a box ( ящик ) – boxes [ iz ] ящики

Существительные, заимствованные из греческого и латинского языков, сохранили форму множественного числа этих языков.

apparatus – аппарат	apparatus - аппараты
basis - база, основа	bases [beiziz] – основы
datum – данная величина	data - данные
phenomenon – явление	phenomena - явления
nucleus – ядро	nuclei - ядра
nebula – туманность	nebulae [nebjuli:] – туманности

Несколько существительных сохранили древнюю форму образования множественного числа. Наиболее часто встречаются следующие:

**Единственное число:**

a man – человек, мужчина

a woman [ˈwʊmən] – женщина  
женщины

a tooth - зуб

a foot – нога, фут(мера длины)

a child - ребенок

**Множественное число:**

men – люди, мужчины

women [wimin] –

teeth - зубы

feet – ноги, футы

children - дети

## КАТЕГОРИЯ ПАДЕЖА СУЩЕСТВИТЕЛЬНЫХ

**В английском языке два падежа: общий и притяжательный.**

Общий падеж не имеет специальных окончаний.

Существительное в общем падеже может переводиться на русский язык разными падежами в зависимости от его функции в предложении. Функция существительного определяется: 1) его местом в

предложении; 2) наличием перед ним предлогов **of, to, by, with, about**.

Па-деж	В русском языке	В английском языке	Собственное лексическое значение предлогов
И.п	(кто? что?) <b>друг</b>	Нет предлога. Место – перед сказуемым.	-
Р.п	(кого?чего?) <b>друга</b>	<b>Of</b> The book <b>of</b> my friend	<b>of</b> - из one <b>of</b> them – один <b>из</b> них is made <b>of</b> glass – сделан <b>из</b> стекла.
Д.п	(кому?чему?) <b>другу</b>	<b>To</b> I often write <b>to</b> my friend	<b>to</b> – указывает направление <b>to</b> the plant – <b>на</b> завод <b>to</b> Moscow – <b>в</b> Москву
В.п	(кого?что?) <b>друга</b>	Нет предлога. Место- после сказуемого.	
Т.п	(кем?чем?) <b>другом</b>	<b>By</b> - The work is done (сделана) <b>by</b> my friend. <b>With</b> - (с неодушевленными предметами) I write <b>with</b> a pen.	<b>by</b> – <b>у, к, посредством</b> <b>by</b> the window – <b>у</b> окна <b>by</b> summer – <b>к</b> лету <b>by</b> radio - <b>по (посредством)</b> радио

			<b>with – с</b> <b>with my friend –</b> <b>с моим другом</b>
П.п	(о ком? о чем?) друге	<b>About - о</b> <b>Of - о</b> I often think <b>about</b> ( <b>of</b> ) my friend.	<b>About – около,</b> <b>приблизительно</b> <b>About</b> 45 students are present at the lecture.

### Таблица сравнения падежных отношений в русском и английском языках.

Притяжательный падеж обозначает принадлежность предмета или лица и отвечает на вопрос **whose? чей?**

Существительное в притяжательном падеже имеет окончание: –’s (апостроф и буква s) в единственном числе **our teacher’s lectures** - лекции нашего преподавателя только апостроф ( ’ ) во множественном числе **the students’ drawings- чертежи студентов**

Существительное в притяжательном падеже переводится на русский язык либо соответствующим прилагательным, либо существительным в родительном падеже.

**The sun’s rays – солнечные лучи**

**The country’s economy – экономика страны**

Для английского языка характерно употребление в роли определения одного или нескольких существительных (в общем падеже). В такой цепочке последнее существительное является основным.

Существительное в функции определения переводится :

1.прилагательным: **room temperature – комнатная температура, limit pressure – предельное давление.**

2. существительным без предлога или с предлогом: **a physics teacher** – преподаватель физики, **the atomic conference** – конференция по проблемам атомной энергии.

## § 2. Имя прилагательное (The Adjective).

Прилагательное – часть речи, которая обозначает признак предмета и отвечает на вопрос “**what?**” “какой?”

Прилагательные бывают *простыми* (simple) – **nice** (хороший), **tall** (высокий), **small** (маленький); *производными* (derived) – **wonderful** (чудесный), **foolish** (глупый), **unhappy** (несчастный); *составными* (compound) – **long-legged** (длинноногий), **well-known** (хорошо известный), **good-looking** (красивый).

Прилагательные образуют две степени сравнения (Degrees of Comparison): **сравнительную** (The Comparative Degree) и **превосходную** (The Superlative Degree).

1. Односложные (т.е. состоящие из одного слога) прилагательные образуют сравнительную степень при помощи суффикса **-er**, превосходную степень – при помощи суффикса **-est**.

положительная степень	сравнительная степень	превосходная степень
<b>Deep</b> – глубокий	<b>Deeper</b> – глубже	<b>The deepest</b> – самый глубокий
<b>Hard</b> – тяжёлый	<b>Harder</b> – тяжелее	<b>The hardest</b> – самый тяжёлый
<b>Big</b> -- большой	<b>Bigger</b> -- больше	<b>The biggest</b> – самый большой

Некоторые двусложные прилагательные:

а) имеющие ударение на втором слоге и

б) оканчивающиеся на **-y, -er, -ow, -le**, образуют степени сравнения таким же образом.

положительная степень	сравнительная степень	превосходная степень
<b>polite</b> вежливый	– <b>politer</b> – вежливее	<b>(the) politest</b> – самый вежливый
<b>sunny</b> солнечный	– <b>sunnier</b> – более солнечный	<b>(the) sunniest</b> – самый солнечный
<b>shallow</b> мелкий	– <b>shallower</b> – более мелкий	<b>(the) shallowest</b> – самый мелкий
<b>simple</b> простой	– <b>simpler</b> -- проще	<b>(the) simplest</b> -- простейший

2. Большинство двусложных и многосложных прилагательных (т.е. состоящие из 3-х слогов и более) образуют сравнительную степень при помощи слов **more** – более и **less** – менее, а превосходную степень – при помощи слов **most** – наиболее, самый и **least** – наименее.

положительная степень	сравнительная степень	превосходная степень
<b>interesting</b> интересный	<b>more interesting</b> – более интересный	<b>(the) most interesting</b> – самый интересный
	<b>less interesting</b> – менее интересный	<b>(the) least interesting</b> – наименее интересный

3. Некоторые прилагательные образуют степени сравнения от других корней.

положительная	сравнительная степень	превосходная степень

степень		
<b>good</b> – хороший	<b>better</b> – лучше	<b>(the) best</b> – самый лучший
<b>bad</b> – плохой	<b>worse</b> – хуже	<b>(the) worst</b> – самый плохой
<b>much,</b> <b>many</b> – много	<b>more</b> – больше	<b>(the) most</b> – больше всего
<b>little</b> – маленький, мало	<b>less</b> – меньше	<b>(the) least</b> – меньше всего
<b>far</b> -- далёкий	<b>farther</b> – дальше <b>further</b> – дальше	<b>(the) farthest</b> – самый дальний <b>(the) furthest</b> -- дальнейший

После сравнительной степени употребляется союз **than**, который соответствует русскому **чем**:

**This instrument is more accurate than that one.** *Этот прибор более точный, чем тот (точнее того).*

Для усиления сравнительной степени употребляются наречия **much** и **far**, которые ставятся перед прилагательным в сравнительной степени и переводятся на русский язык словами **гораздо, значительно**.

**The distance from the Sun to the Earth is much longer than that from the Moon.** *Расстояние от Солнца до Земли гораздо больше, чем от Луны.*

При сравнении двух предметов, которым присуще одно и то же качество, употребляется союз “**as ... as**” - “**такой же ... как**”. Прилагательное употребляется в положительной степени.

**Water is as necessary as air.** *Вода так же необходима, как воздух.*

Если же степень качества различна, употребляется союз с отрицанием “ **not so ... as**”, “ **not as ...** “- “ **не такой ... как.**”

**Gold is not so light as aluminium.** *Золото не такое легкое, как алюминий.*

В конструкции **the (more) ... the (better)** артикли, стоящие перед прилагательными или наречиями в сравнительной степени, переводятся **чем ... тем** .

**The higher the temperature, the more rapid is the motion of the molecules.** *Чем выше температура, тем быстрее движение молекул.*

## UNIT 2

### § 3. ЧИСЛИТЕЛЬНОЕ (THE NUMERAL)

Числительные обозначают количество или порядок предметов и делятся на количественные и порядковые.

Количественные числительные обозначают количество и отвечают на вопрос **how many? сколько?**

**one** - один, **five** - пять и т.д.

Порядковые числительные обозначают порядок предметов и отвечают на вопрос **which? который?**

**the first** – первый, **the fifth** - пятый и т.д.

Обратите особое внимание на написание следующих числительных:

**thirteen, fifteen, twenty, thirty, forty, fifty.**

#### Чтение числительных свыше 100.

100 - a (one) hundred	1235 – one thousand two hundred and thirty-five
101 – a (one) hundred and one	2000 – two thousand
125 – one hundred and twenty-five	5345 – five thousand three hundred and forty-five
200 – two hundred	1,000,000 – a (one) million
300 – three hundred	1000 – a (one) thousand
1005 – one thousand and five	1,000,000,000 – a (one) milliard Англии), one billion (в Америке)



В отличие от русского языка, числительные **hundred, thousand, million** не принимают окончания множественного числа (-s), когда перед ними стоит количественное числительное, которое является их определением: **three hundred students, five thousand houses, ten million books.**

**Hundred, thousand** и **million** могут быть и существительными, когда после них употребляется существительное с предлогом **of**. В этом случае они принимают окончание **-s**:

hundreds *of* people – сотни людей

thousands *of* houses – тысячи домов

### Чтение дробных числительных

Простые

1/2— a (one) half

1/4 — a (one) quarter

2/3 - two thirds

1.5— one and a half

Десятичные

0.1 -0[ou] point one

2.45 - two point four five

35.25 - three five (или thirty-five) point two five

### Обозначения времени:

Если минутная стрелка находится в правой части циферблата — используется предлог **past**

It's ten **past** eleven.

10 минут двенадцатого.

It's a quarter **past** eleven.

Четверть двенадцатого

It's half **past** eleven.

Половина двенадцатого.

Если минутная стрелка находится в левой части циферблата, то используется предлог **to**

It's ten **to** twelve.

Без десяти двенадцать.



Объектный падеж личных местоимений соответствует винительному и дательному падежам в русском языке:

They (the unemployed) were picking up bits of orange peel, apple skin and eating *them* -- Они (безработные) подбирали корки апельсинов, кожуру яблок и ели их.

He told *me* that he had eaten nothing that day. -- Он сказал мне, что он еще ничего не ел сегодня.

2. **Притяжательные местоимения** отвечают на вопрос **whose? чей?** и обозначают принадлежность. Они имеют форму, соотносящуюся с личными местоимениями

	абсолютная форма
<b>my</b> – мой	<b>mine</b> – мой
<b>your</b> – твой, ваш	<b>his</b> – его
<b>his</b> – его	<b>hers</b> – её
<b>her</b> – её	<b>its</b> – его, её
<b>its</b> – его, её	<b>ours</b> – наш
<b>our</b> – наш	<b>yours</b> – твой, ваш
<b>their</b> -- их	<b>theirs</b> – их

Абсолютная форма притяжательных местоимений употребляется самостоятельно, т. е. без последующего существительного.

That's *her* own business, not *yours*.-- Это ее дело, не ваше.

Here is *your* hat, but where is *mine*? -- Вот ваша шляпа, а где моя?

В английском языке нет особого притяжательного местоимения, соответствующего русскому притяжательному местоимению *свой* и переводится на английский язык соответствующими притяжательными местоимениями в зависимости от лица, числа и рода местоимения, являющегося подлежащим предложения.

I brought *my* dictionary. -- Я привес свой словарь.

The student (he) brought *his* dictionary. -- Студент (он) принес свой словарь.

The student (she) brought *her* dictionary. -- Студентка (она) принесла свой словарь.

We brought *our* dictionaries. -- Мы принесли свои словари.

The students (they) brought *their* dictionaries. -- Студенты (они) принесли свои словари.

**3. Возвратные местоимения** – это личные местоимения с окончанием –“**self**” в единственном числе и –“**selves**” во множественном числе. Они переводятся либо возвратными глаголами, либо русским местоимением «**себя**».

**4. Указательные местоимения “this, that”** имеют форму единственного и множественного числа.

**This** – этот, эта, это

**These** – эти

**That** – тот, та, то

**Those** – те

В предложении они выполняют функцию подлежащего или определения.

К указательным местоимениям также относятся местоимения **it** – это, **such** – такой, **the same** – тот же самый, такой же.

**5. Вопросительные и относительные местоимения** в английском языке, в основном совпадают по форме **who** (**whom**) - кто (кому, кого), **whose** – чей, **which** – который, **what** – что, а перед существительным – **какой**.

Относительные местоимения служат для присоединения придаточного предложения к главному.

**6. К неопределенным местоимениям** относятся местоимения “**some, any, every**” (и их производные) и местоимение “**one**”.

**“Some”** употребляется в утвердительных предложениях и переводится как:

1. **несколько, некоторые** – перед исчисляемыми существительными во множественном числе;
2. **некоторое количество, немного** – перед неисчисляемыми существительными;
3. **какой-то** – перед исчисляемым существительным в единственном числе;
4. **приблизительно, около** – перед числительным.

В вопросительных и отрицательных предложениях **“some”** заменяется местоимением **“any”** – **“какой-нибудь”**.

7. **Отрицательное местоимение “no” – “никакой”, “нет”** употребляется перед существительным как в единственном, так и во множественном числе. После него артикль не употребляется и глагол стоит в утвердительной форме.

Местоимение **“one”** употребляется в качестве подлежащего для обозначения неопределенного лица. Как правило оно употребляется в сочетании с модальными глаголами **“must”, “should”, “can”**. Иногда само местоимение **“one”** переводится словами **“каждый, всякий”**.

Местоимения **“some, any, every, no”** употребляются в сочетании со словами: **“thing”** – для обозначения неодушевленных предметов, **“body”** и **“one”** для одушевленных.

#### **§ 4. ГЛАГОЛ (THE VERB) ИЗЪЯВИТЕЛЬНОЕ НАКЛОНЕНИЕ. ВРЕМЕНА ГЛАГОЛА В ДЕЙСТВИТЕЛЬНОМ И СТРАДАТЕЛЬНОМ ЗАЛОГАХ.**

Глаголом называется часть речи, которая обозначает действие или состояние лица или предмета.

По своему значению и функции в предложении глаголы делятся на смысловые, модальные, глаголы-связки и вспомогательные.

Глаголы в английском языке имеют категории наклонения, залога и времени.

Английский глагол имеет три основные формы: **The Infinitive, Past Simple, Participle II**

Наиболее распространенными глаголами английского языка являются **to be** *быть* и **to have** *иметь (have got)*. В отличие от других глаголов они спрягаются, то есть изменяются в зависимости от лица, числа и времени.

### Глагол “to be”

Глагол **to be** в **Present, Past** и **Future Simple** имеет следующие формы:

<b>Present</b>	<b>Past</b>	<b>Future</b>
I am	was	shall be
{she, he, it} is	was	will be
we are	were	shall be
{you, they} are	were	will be

В вопросительных предложениях глагол **to be** ставится перед подлежащим:

**Are** they students?

*Они студенты?*

Where **were** you yesterday?

*Где вы были вчера?*

В отрицательной форме после глагола **to be** ставится отрицание **not**:

They **are not** in the library. *Они не в библиотеке.*

### Глагол “to have”

Глагол **to have** в **Present, Past** и **Future Simple** имеет следующие формы:

<b>Present</b>	<b>Past</b>	<b>Future</b>
I have	had	shall have
{ she, he, it } has	had	will have
we have	had	shall have
{ you, they } have	had	will have

Вопросительные предложения с глаголом **to have** образуются двумя способами:

1) путем постановки глагола **to have** перед подлежащим:

***Have you a dictionary?*** *У вас есть словарь?*

2) с помощью вспомогательного глагола **to do** :

***Do you have a dictionary?*** *У вас есть словарь?*

Отрицательная форма также образуется двумя способами:

1) с помощью отрицательного местоимения **no** перед существительным:

***I have no dictionary.*** *У меня нет словаря.*

2) с помощью вспомогательного глагола **to do** и частицы **not**  
***I do not have a dictionary.*** *У меня нет словаря.*

### § 6. ОБОРОТ **THERE + BE**

Оборот **there + be** *быть, находится, существовать* употребляется для выражения наличия (или отсутствия) в определенном месте еще неизвестного собеседнику или читателю лица или предмета. Данный оборот стоит в начале предложения, за ним следует

подлежащее, выраженное существительным, т.е. имеет место обратный порядок слов (инверсия).

1. Если в предложении с оборотом **there + be** имеется обстоятельство, то перевод начинается с этого обстоятельства:

**There is a magazine on the desk.**

*На письменном столе есть (лежит) журнал.*

2. При отсутствии обстоятельства перевод предложения начинается с самого оборота:

**There are different kinds of energy.      Имеются**  
*(существуют) различные виды энергии.*

3. В обороте **there + be** вместо глагола **to be** могут употребляться глаголы:

*to stand, to exist, to hand, to live* и др.

**There exist many types of measuring instruments.**  
*Существует много типов измерительных приборов.*

### UNIT 3

#### § 7. Времена группы *Indefinite (Simple) Active*

Времена группы Simple употребляются, в отличие от времен других групп, **только для констатации факта** совершения действия в настоящем, прошедшем и будущем, без указания на его длительность, законченность и безотносительно к какому-либо другому действию или моменту.

#### Таблица времен группы *Indefinite Active*

Форма	Present Indefinite	Past Indefinite	Future Indefinite
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Утверд	My friends <b>study</b> French. He <b>speaks</b> English.	My friends <b>studied</b> French at school. He <b>spoke</b> English at the conference.	My friends <b>will study</b> French at the Institute. The teacher <b>will speak</b> about our English exam.
Вопрос	<b>Do</b> your friends <b>study</b> French? <b>Does</b> he <b>speak</b> English?	<b>Did</b> your friends <b>study</b> French at school? <b>Did</b> he <b>speak</b> English at the conference?	<b>Will</b> your friends <b>study</b> French at the Institute? <b>Will</b> the teacher <b>speak</b> about our English exam?
Отриц.	My friends <b>don't study</b> French. He <b>doesn't speak</b> English.	My friends <b>did not study</b> French. He <b>didn't speak</b> English at the conference.	My friends <b>won't study</b> French at the Institute. The teacher <b>won't speak</b> about our English exam.
<u>Period of time</u>	<i>usually, often, always, seldom, every day (week, month, year)</i>	<i>yesterday, last week (month, year), long ago</i>	<i>tomorrow, next week (month, year), in - через</i>

**Примечание:** В придаточных предложениях условия и времени с союзами *If* (если), *when* (когда), *after* (после), *before* (перед тем, как), *as soon as* (как только), *unless* (если не), *until* (до тех пор, пока не)

будущее время заменяется формой настоящего времени, но на русский язык переводится будущим, например:

*If you help me, I shall do this work.* — Если ты поможешь мне, я сделаю эту работу.

### § 8. Времена группы *Indefinite (Simple) Passive Voice*.

Глагол в действительном залоге (Active Voice) показывает, что действие совершает лицо или предмет, выраженный подлежащим.

**He often asks questions.** *Он часто задаёт вопросы.*

Глагол в страдательном залоге (Passive Voice) означает, что действие направлено на предмет или лицо, выраженное подлежащим.

**He is often asked questions.** *Ему часто задают вопросы.*

Формы страдательного залога образуются:

**to be + V 3**

	PRESENT		PAST		FUTURE	
<b>Simple</b>	I	am asked	I (he, she)	was asked	I (we) he (she, you, they)	will be asked
	he (she)	is asked				
	we (you, they)	are asked	we (you, they)	were asked		

1. **The newspapers are delivered every morning.** (Present Indefinite Passive) Газеты доставляются каждое утро.

2. **This book was bought a month ago.** (Past Indefinite Passive) Эта книга была куплена месяц назад.

3. **The letter will be mailed tomorrow.** (Future Indefinite Passive) Письмо будет оправлено завтра.

Следует обратить особое внимание на перевод глаголов с предлогом в страдательном залоге. Наиболее распространённые из этих глаголов:

**hear of** - слышать о; **laugh at** - смеяться над; **look after** - присматривать за (кем-либо); **look at** - смотреть на; **rely on** - полагаться на; **send for** - посылать за; **speak of (about)** - говорить о; **pay attention to** - обращать внимание на; **take care of** - заботиться о

**The book is much spoken about.** Об этой книге много говорят.

**He can't be relied on.** На него нельзя положиться.

В русском переводе не все глаголы сохраняют предлог:

**to listen to** - слушать что-либо, кого-либо; **to look for** - искать что-либо; **to provide for** - обеспечить кого-либо, чем-либо; **to explain to** - объяснять кому-либо

**He was listened to with great attention.** Его слушали с большим вниманием

### Примечания:

1) Подлежащее в английском предложении с глаголом в страдательном залоге переводится на русский язык в винительном или дательном падежах.

**He was asked to buy tickets.** Его попросили купить билеты.

**He was asked many questions.** Ему задали много вопросов.

2) За сказуемым в страдательном залоге в английском предложении может следовать предлог. При переводе на русский язык этот предлог ставится перед подлежащим.

**This accident is much spoken about.**

Об этом несчастном случае много говорят.

## UNIT 4

### § 9. Времена группы *Continuous Active*

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 или конкретным временем, например: *в 5 часов*, или указанием на другое однократное действие, например: *когда я позвонил...*, *когда он встретил меня...* и т.д.

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.

He **will be playing** chess from 6 till 8 o'clock tomorrow. Они будут играть в шахматы завтра с 6 до 8.

Глаголы, выражающие чувства: **to love** *любить*, **to like** *нравиться*, **to hate** *ненавидеть* и т. п.; восприятия: **to see** *видеть*, **to hear** *слушать*, **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. На русский язык времена группы Continuous переводятся глаголами несовершенного вида.

### Таблица времен группы Continuous Active (to be + V ing)

Форма	Present Continuous	Past Continuous	Future Continuous
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Утвердит.	I <b>am reading</b> a book He <b>is reading</b> a book They <b>are reading</b> a book	He <b>was reading</b> a book They <b>were reading</b> a book	He <b>will be</b> reading a book They <b>will be reading</b> a book
Вопр.	<b>Is</b> he still <b>writing</b> an exercise? <b>Are</b> they <b>having</b> an English class?	<b>Was</b> he <b>writing</b> an exercise from 6 till 8 o'clock? <b>Were</b> they <b>having</b> an English class when I came to see them?	<b>Will</b> they <b>be having</b> an English class tomorrow at 9 o'clock?
Отриц	He <b>isn't writing</b> an exercise. They <b>aren't having</b> an English class.	He <b>wasn't writing</b> an exercise the whole evening. They <b>weren't having</b> an English class when I came to see them.	He <b>won't be writing</b> an exercise from 6 till 8 o'clock tomorrow. They <b>will not be having</b> an English class tomorrow at 9 o'clock.
Period of time	now, at the moment	yesterday at 3p.m., yesterday from 6 till 7, when you came...	tomorrow at 3p.m., tomorrow from 6 till 7, when you come

**§ 10. Таблица времен группы Continuous Passive (to be + being + V 3)**

Форма	Present Continuous	Past Continuous	Future Continuous
Утвердит.	I <b>am being asked</b> now The article <b>is being translated</b> Books <b>are being read</b> by them now	This book <b>was being discussed</b> the whole day yesterday Books <b>were being read</b> at 3 o'clock yesterday	---
Вопр.	<b>Is</b> the article <b>being translated</b> now?  <b>Are</b> they <b>having</b> an English class?	<b>Was</b> this book <b>being discussed</b> the whole day yesterday?  <b>Were</b> books <b>being read</b> when I came to see them?	--
Отриц	The article <b>is not being translated</b> . Books <b>are not being read</b> by them	This book <b>was not being discussed</b> the whole day yesterday Books <b>were not being read</b> at 3 o'clock yesterday	---

## § 11. Функции и перевод it

В предложении **it** может употребляться:

1) как личное местоимение в функциях подлежащего (именительный падеж) и дополнения (объектный падеж); переводится словами он, она или его, ее:

Take this book. Возьми эту книгу.

**It** is interesting. **Она** интересная.

Read **it**. Прочти **ее**.

We shall speak about **it** next time. - Мы поговорим **о ней** в следующий раз

2) как указательное местоимение (переводится словом *это*):

What is **it**? **It** is our new laboratory. – Что **это**? **Это** наша новая лаборатория.

3) как формальное (вводящее) подлежащее в выражениях типа

It is cold.	Холодно.
It is getting dark.	Темнеет.
It is winter.	Зима
It is necessary to...	Необходимо...
It seems...	Кажется...
It is known that...	Известно, что...

В этих предложениях **it** не переводится.

4) в составе усилительной конструкции **it is ...that (it** не переводится):

**It is** this book **that I** want to read. - **Именно эту** книгу я хочу прочитать.

5) как формальное дополнение в выражениях типа **make it possible** *делать возможным*; **make it difficult** *затруднять*; **find it useful** *считать (находить) полезным* (здесь **it** также не переводится).

## § 12. Функции и перевод **one**

Слово **one** может быть:

1. Числительным. В этом случае **one** стоит перед существительным, является его определением и переводится словом один:

I have only **one** dictionary. - У меня есть только **один** словарь.

2. Неопределенным местоимением. Тогда **one** употребляется в качестве подлежащего в неопределенно-личных предложениях и на русский язык не переводится:

**One can read such a text without a dictionary.** -

**Можно** читать такой текст без словаря.

3. Заменителем существительного. В этом случае **one** употребляется вместо ранее упомянутого существительного, чтобы избежать его повторения. Перед словом-заменителем может стоять артикль и оно может употребляться в форме множественного числа (**ones**). Переводится **one** тем существительным, которое заменяет, или не переводится вообще, например:

You may take my dictionary (dictionaries). - Вы можете взять мой словарь (словари).

Thank you, I have **one (ones), the one** that Peter gave me yesterday. Спасибо, у меня есть **словарь (словари), тот,** который дал мне вчера Петя.

### § 13. Функции и перевод **that**

**That** может быть:

1. Указательным местоимением. В этом случае оно стоит перед существительным и является определением. Во множественном числе употребляется слово **those**. На русский язык **that (those)** переводится словами *тот, та, то (те)*; *этот, эта, это (эти)*:

**That** house was built in 1970. - **Тот** дом был построен в 1970 году.

2. Относительным местоимением. В этом случае **that** стоит после существительного, вводит определительное придаточное предложение и переводится словом *который*:  
The book **that** you gave me yesterday is interesting. - Книга, **которую** вы мне вчера дали, интересная.



3. Союзом дополнительного придаточного предложения. **В** этом случае **that** стоит после глагола и переводится на русский язык словом *что*:

We know **that** he studies at the Moscow University. - Мы знаем, **что** он учится в МГУ.

4. Союзом подлежащего придаточного предложения. **В** этом случае **that** стоит в начале предложения и переводится словами *то, что*:

**That** the profession of an engineer requires a special training is a well-known fact. - **То, что** профессия инженера требует специальной подготовки — хорошо известно.

5. Союзом сказуемого придаточного предложения. **В** этом случае **that** стоит после глагола **to be** и переводится словами *то, что*:

The feature of higher education in this country is **that** it is available to all. - Особенностью высшего образования в нашей стране является **то, что** оно доступно всем.

6. Заменителем существительного, чтобы избежать повторения существительного в единственном числе; чтобы не повторять существительное во множественном числе употребляются **those** и **these**. **В** этом случае обычно за этими словами следует дополнение с предлогом. **That, those and these** переводятся на русский язык тем существительным, которое они заменяют, или вовсе не переводятся:

The climate of this part of the country differs from **that** of our region. - Климат этой части страны отличается от **климата** нашего района.

7. Частью усиленной конструкции **it is (was) ... that**, где **that** не переводится:

It was you **that** said so. - Это вы так сказали.

It was the invention of the steam engine **that** revolutionized production processes. - **Именно** изобретение парового

двигателя коренным образом изменило все производственные процессы.

## UNIT 5

### § 14. Времена группы *Perfect*

Времена группы Perfect употребляются для выражения действия законченного, завершенного к какому-то моменту времени в настоящем, прошедшем и будущем.

**Таблица времен группы Perfect Active  
(to have + V 3)**

Форма	Present Perfect	Past Perfect	Future Perfect
Утверд	My friend <b>has</b> just <b>gone</b> . They <b>have</b> just <b>gone</b> .	I <b>had written</b> the article by 3 o'clock yesterday	I <b>will have written</b> the article by 3 o'clock tomorrow.
Вопрос	<b>Has</b> my friend just <b>gone</b> ? They <b>have</b> just <b>gone</b> .	<b>Had</b> I written the article by 3 o'clock yesterday	<b>Will</b> your friends <b>have written</b> the article by 3 o'clock I tomorrow?
Отриц.	My friend <b>has not</b> just <b>gone</b> . They <b>have not</b> just <b>gone</b> .	I <b>had not written</b> the article by 3 o'clock yesterday.	My friends <b>won't have written</b> the article by 3 o'clock tomorrow.

Period of time	ever, never, just, already, nor...yet, by 3p.m.	yesterday by 3p.m., before some time in the past...	tomorrow by 3p.m., by some time in the future
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**§ 15. The Perfect (Passive)  
(to have + been + V 3)**

Форма	Present Perfect	Past Perfect	Future Perfect
Утверд	The letter <b>has just been sent.</b> (Письмо только что отправили) They <b>have just been met.</b> (Их только что встретили)	The article <b>had been written</b> by 3 o'clock yesterday.	The article <b>will have been written</b> by 3 o'clock tomorrow
Вопрос	<b>Has</b> The letter <b>just been sent?</b>  <b>Have</b> they <b>been met?</b>	<b>Had</b> the article <b>been written</b> by 3 o'clock yesterday.	<b>Will</b> the article <b>have been written</b> by 3 o'clock tomorrow?
Отриц.	The letter <b>has not just been sent.</b> They <b>have not been met.</b>	The article <b>had not been written</b> by 3 o'clock yesterday	The article <b>won't have been written</b> by 3 o'clock tomorrow.

**§ 16. Модальные глаголы (The Modal Verbs)**

Present	Past	Future
<p><b>Must</b> - <i>должен</i> All drivers <i>must</i> follow the traffic rules. – Все водители <i>должны</i> соблюдать правила дорожного движения.</p>		
<p><b>Can</b> - <i>мочь, уметь</i> He <i>can</i> drive a car. – Он <i>умеет</i> водить машину.</p>	<p><b>Could</b> - <i>смог, мог, сумел</i> He <i>could</i> not start his car. –Он не <i>смог</i> завести машину.</p>	
<p><b>May</b> - <i>мочь, иметь разрешение</i> You may <i>use</i> my mobile telephone. – Ты <i>можешь</i> воспользоваться моим мобильным телефоном.</p>	<p><b>Might</b> - <i>смог, сумел, разрешили</i> I was told that I <i>might</i> come in. – Мне сказали, что я <i>могу</i> (мне <i>разрешили</i>) войти.</p>	
<p><b>Should</b> - <i>следует, должен, нужно</i> He <i>should</i> be more attentive. – Ему <i>следует</i> быть внимательнее.</p>		
<p><b>Need (not)</b> - <i>можете не, не нужно; нужно ли?</i> You <i>need not</i> come here tomorrow. – <i>Можете не</i> приходить сюда завтра.</p>		
<p><b>Ought to</b> - <i>следует, следовало бы</i> I <i>ought to</i> have a talk to</p>		

him about it - Мне следует поговорить с ним		
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**Эквиваленты модальных глаголов**

*must = to have to, to be to*

*can = to be able to*

*may = to be allowed to*

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