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COMPUTER IN USE

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ОБРАЗОВАНИЮ

САНКТ-ПЕТЕРБУРГСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ, МЕХАНИКИ И ОПТИКИ

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COMPUTER IN USE

Учебное пособие для студентов, обучающихся по специальностям «Вычислительная техника» и «Информационные технологии»

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Учебное пособие "Computer In Use" состоит из четырех глав, каждая из которых подразделена на три части, содержащие оригинальные тексты различной сложности.

Целью учебного пособия является обогащение терминологического словарного запаса студентов, развитие их логического мышления и проявление творческого потенциала при выполнении предтекстовых и послетекстовых заданий, расширение навыков разговорной речи. Грамматические задания, построенные на повторении наиболее частотных в технических текстах грамматических структур с неличными формами глаголов, условными предложениями различных типов, способствуют закреплению полученных ранее знаний по грамматике английского языка.

Первые три главы знакомят читателей с историей создания компьютера, Интернета и WWW-системы.

Расшифровка приведенных в текстах аббревиатур, частотных в технической литературе, способствует лучшему пониманию студентами литературы по специальности при самостоятельной работе.

Четвертая глава содержит рекомендации по составлению аннотаций и рефератов по прочитанной оригинальной литературе, а также подборку текстов, при работе с которыми студенты приобретают навыки лексико-семантического анализа текста, компрессии, конспектирования прочитанного материала, составления тезисов.

К учебному пособию прилагается электронная версия с дальнейшим использованием компьютера.

"Страницы для заметок" позволяют выписать наиболее сложные грамматические структуры для дальнейшей углубленной проработки.

Учебное пособие "Computer In Use" предназначено для студентов I-II курсов технических факультетов неязыковых вузов, а также для широкого круга лиц, изучающих английский язык самостоятельно и интересующихся данной тематикой.

В 2009 году Университет стал победителем многоэтапного конкурса, в результате которого определены 12 ведущих университетов России, которым присвоена категория «Национальный исследовательский университет». Министерством образования и науки Российской Федерации была утверждена Программа развития государственного образовательного учреждения высшего профессионального образования «Санкт-Петербургский государственный университет информационных технологий, механики и оптики» на 2009–2018 годы.

Contents

Chapter I

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*

Nouns

mathematics, gear, technology, calculate, data, circuit, variety

Verbs

create, manufacture, achieve, credit, punch

Adjectives

commercial, scientific, successful, mechanical, tedious, computational, worldwide, crude

Exercise 2. *Read the given collocations and find the Russian equivalents:*

a) error-prone task, large-scale model, crude technology of the day, electrical circuit, credit the invention, data processing unit, general-purpose computer

b) несовершенная технология того времени, компьютер общего назначения, задание с ошибками, электрическая цепь, широкомасштабная модель, приписывать изобретение, устройство для обработки данных.

Exercise 3. *Match the synonyms.*

Verbs

1	2
1. produce	a) discover
2. invent	b) shorten
3. include	c) manufacture
4. reduce	d) prescribe
5. credit	e) assemble
	f) involve

Nouns

1	2
1. engine	a) base
2. foundation	b) mechanism
3. counter	c) industry
4. use	d) co-worker
5. colleague	e) application
	f) calculator
	g) patent

TEXT 1

Part I

Comprehensive reading

While translating the text pay special attention to the italicised sentences.

BRIEF HISTORY OF THE COMPUTER INDUSTRY

In 1822 Charles Babbage, professor of mathematics at Cambridge University in England, created the "Analytical engine", a mechanical calculator that could automatically produce mathematical tables, a tedious and error-prone manual task in those days. Babbage conceived of a large-scale, steam-driven (!) model, that could perform a wide range of computational tasks. The model has never been completed as revolving shafts and gears could not be manufactured with the crude industrial technology of the day.

By the 1880s manufacturing technology had improved to the point that practical mechanical calculators, including versions of Babbage's Analytical engine, could be produced. The new technology achieved worldwide fame in tabulating the US Census of 1890. The Census Bureau turned to a new tabulating machine invented by Herman Hollerith, which reduced personal data to holes punched in paper cards. Tiny mechanical fingers "felt" the holes and closed an electrical circuit that in turn advanced the mechanical counter. Hollerith's invention eventually became the foundation on which the International Business Machines Corporation (IBM) was built.

Analog and digital calculators with electromechanical components appeared in a variety of military and intelligence applications in 1930s. Many people credit the invention of the first electronic computer to John Vincent Atanasoff. He produced working models of computer memory and data processing units at the University of Iowa in 1939 although had never assembled a complete working computer.

World War II prompted the development of the first working all-electronic digital computer, Colossus, which the British secret service designed to crack Nazi codes. Similarly, the need to calculate detailed mathematical tables to help aim cannons and missiles led to the creation of the first, general-purpose computer, the electronic numerical integrator and calculator ENIAC at the University of Pennsylvania in 1946.

After leaving their university (arguing over the patent rights) developers of ENIAC, J. Prosper Eckert and John Mauchly, turned to business pursuits. They also had an ugly scandal with an academic colleague, John von Neumann, whom they accused of having unfairly left their names off the scientific paper that first described the computer and allowed von Neumann to claim that he had invented it. Eckert and Mauchly went on to create UNIVAC for the Remington Rand Corporation, an early

leader in the computer industry. UNIVAC was the first successful commercial computer, and the first model was sold to the US Census Bureau in 1951.

Notes
to achieve a fame - достичь славы
to close a circuit - замкнуть цепь
to crack codes - взламывать коды

COMPREHENSION CHECK

Exercise 1. *Choose the correct word to complete the sentences according the information in the text.*
1. The … has never been completed.
   a) model
   b) experiment
   c) frame
2. The new technology … worldwide fame in tabulating the US Census of 1890.
   a) reached
   b) achieved
   c) took
3. Many people credit the … of the first electronic computer to John Vincent Atanasoft.
   a) fame
   b) task
   c) invention
4. Eckert and Mauchly went on … UNIVAC.
   a) carry out
   b) to create
   c) to sell

Exercise 2. *Join suitable parts.*

1. In 1822 Charles Babbage, professor of mathematics at Cambridge University…

2. The Census Bureau turned …

3. Analog and digital calculators with electromechanical components …

4. World War II prompted the development…

a. appeared in a variety of military and intelligence applications in 1930s.
b. created the "Analytical engine".
c. after leaving the University.
d. to a new tabulating machine invented by Herman Hollerith.
e. of the first working all-electronic digital computer Colossus.
f. the need to calculate detailed mechanical tables.

Part II

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*

Nouns
> equipment, project, research, expertise, competition, user, successor

Verbs
> finance, clack, capitalize, threaten, switch, add

Adjectives
> digital, current, heavy, peripheral, entire, previous, compatible

Exercise 2. *Read and translate the collocations:*

current name, fourth-rank computer producer, punch-card technology, key-punch machine, software and hardware, high-performance supercomputer market, fast-selling model, room-sized mainframe computer

Exercise 3. *Match the antonyms.*

Verbs:

1	2
1. start	a) take away
2. deliver	b) support
3. dominate	c) fail
4. threaten	d) finish
5. introduce	e) exclude
	f) utilize
	g) produce

Adjectives:

1	2
1. current	a) peripheral
2. heavy	b) cheap
3. expensive	c) obsolete
4. enormous	d) small
5. international	e) easy
	f) domestic
	g) immense

Before reading the passage "The Rise of IBM" read the italicised sentences of the previous text, highlighting the main stages of computer development.
What facts are of interest to you?

THE RISE OF IBM

IBM started in the late nineteenth century as manufacturer of electromechanical office tabulating equipment: the company took its current name in 1924. It financed one of the first digital computers, a clacking electromechanical monster known as Mark I, in 1943. IBM's first president Thomas Watson, Sr., commissioned the project, possibly as an expensive publicity stunt - research, advertising, and publicity-all came out of the same budget in those days. IBM did not immediately enter the computer business after the war and did not deliver its first computer until 1953. In 1954 IBM was only the fourth-ranked computer producer, well behind computer industry pioneer - Radio Corporation of America (RCA). That year IBM introduced the Model 650, the first computer to utilize punch-card technology.

Over the next decade, IBM made heavy investments in research and development under Thomas Watson, Jr., who took over from his father as IBM president in the mid-1950s. IBM capitalized on its manufacturing expertise to produce a full line of peripheral equipment: printers terminals, keypunch machines and card sorters that brought enormous profits for IBM and unbeatable competition for other computer manufacturers.

By the mid-1950s, IBM threatened to dominate the entire computer industry with its fast-selling Model 650. IBM also offered its computers for sale for the first time instead of renting them as it previously had insisted. This allowed leasing companies to buy computer equipment from IBM and then rent it to computer users at prices lower than IBM itself could charge.

These changes opened up competition in the computer services and equipment leasing markets.

In April 1964 IBM introduced the Model 360, the first computer that came in a variety of sizes and that was compatible with many different applications. Software and peripheral devices that worked on any one of the versions also worked on the others and were also "backward compatible" with earlier IBM models. Before, users had to start over with entirely new software, printers, terminals and so on, whenever they switched to a larger computer or added a new application. The Model 360 and its successor, the Model 370, led the company to dominance of both U.S. and international markets.

IBM's enormous success with room-sized mainframe computers eventually proved its undoing. It made unsuccessful entries into many of the specialized computer markets that later emerged. IBM abandoned the high-performance supercomputer market in the 1960s, and it entirely missed the minicomputer trend, pioneered in the early 1960s by Digital Equipment Corporation.

By the time IBM came out with its own models, minicomputers were about to be made obsolete by another new product that IBM ultimately failed to capitalize on the desktop-sized personal computer.

Notes
unbeatable competition - непреодолимая конкуренция

to charge a price - назначать цену
backward compatible - обратно совместимый
to be about to … - (зд.) начинать
to make entry – вступать

COMPREHENSION CHECK

Exercise 1. *True or false? Find sentences in the text that support your point of view.*
1. IBM started in the late twentieth century as manufacturer of electromechanical office tabulating equipment.
2. IBM took its current name in 1924.
3. IBM immediately entered the computer business after the war.
4. IBM always was the first-ranked computer producer.
5. By the mid 1950s, IBM threatened to dominate the entire computer industry with its fast-selling Model 650.

Exercise 2. *Complete the sentences according to the information in the text.*
1. IBM capitalized on its manufacturing expertise …
a) to sell a full line of peripheral equipment.
b) to produce a full line of peripheral equipment.
c) to rent peripheral equipment.

2. IBM also offered its computer …
a) for sale for the first time.
b) for improvement for the first time.
c) for expert for the first time.

3. The models 360 and 370 led the company …
a) to bankruptcy.
b) to dominance of both US and international markets.
c) to establishment of a new joint venture with Japanese companies.

4. By the time IBM came out with its own models, mini computers …
a) became very popular everywhere.
b) were sold especially abroad.
c) were about to be made obsolete by another new product.

Part III

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*
Nouns
  issue, language, success, inclusion, equipment, phenomenon, wealth,

multimedia, sound, capability, guidance

Verbs

announce, cause, assemble, match, allow, worry

Adjectives

possible, colorful, immediate, convenient, remarkable, exclusive, proprietary

Exercise 2. *Make nouns from the following verbs according to the model and translate them.*

Verb+ing

advertise, process, tabulate, found, hold, reason

Verb+er/or

use, develop, design, manufacture, assemble, program, invent, perform

Exercise 3. *Find the equivalents.*

1	2
1. amenity	a) объявить
2. announce	b) данные
3. issue	c) массив
4. developer	d) удобства
5. data	e) способность
6. equipment	f) привлекательный
7. array	g) звук
8. attractive	h) изображение
9. capability	i) модернизировать
10. update	j) оборудование
	k) разработчик
	l) способствовать
	m) создавать

Exercise 4. *Remember the meaning of the terms that you will find in the text.*

1. Spread sheet package - a kind of computer programs that you calculate data on sale, taxis, profits and so on.
2. Floppy disk - a disk made of plastic material upon which data are stored on magnetic tracks.
3. Compatible - it is usually said about two computers when their programs can be run on both of them.
4. Peripheral devices, or peripherals are units connected to the central processing units (CPU); they are input devices, output devices and storage devices.
5. Input is the process of transferring data or program instruction into the computer.
6. Output is the result produced by a computer.
7. Storage is the process of keeping information in a special device in computer.
8. Software may be denoted as a set of programs or instructions executed by the computer.
9. Hardware is a computer machinery and equipment.
10. Digital computer is a type of computer that uses a binary system.

11. <u>Chip</u> is a tiny piece of silicon containing a complex electronic circuits.

Before reading the passage " The Rise of the Personal Computer" find in the text "The Rise of IBM" the chronological information on the models of computers produced by this company.
Was the policy of IBM successful in the 1960s?

THE RISE OF THE PERSONAL COMPUTER

The first personal computer, the Altair, was announced in *Popular Electronics* in its January 1975 issue. The Altair was also the first example of new computer hardware. It caused a sensation in the computer industry: those who wanted could have their own computers to play with at home, and a mighty computer industry soon began to grow.

A young computer hacker from Seattle by the name of William Gates, then a freshman at Harvard, sold the Altair developers a computer language that would run on their machine and that made it possible to program many advanced functions. Emboldened by their success with Altair, Gates and his friend founded Microsoft Corporation, which has become the world's largest personal computer software company.

In 1976 Steve Jobs and Stephen Wozniak began assembling their own microcomputer - the Apple. The second iteration of their design, the Apple II, included such amenities as a keyboard*, a built-in power supply**, and a color monitor (all lacking in the first version) and was an immediate success following its introduction in 1977.

With the inclusion of a floppy disk drive that stored computer-readable data on a flexible plastic disc, the Apple II added a convenient way to read computer programs. This development truly gave birth to the phenomenon of personal computing.

In 1979 a remarkable program called VisiCalc appeared and made it possible for the personal computer to manipulate complex arrays of data. VisiCalc not only racked up impressive sales as a computer software package but also spurred adoption of the Apple II itself.

IBM made its entry in l981 with its Personal Computer (PC) which was tremendously successful, soon outstripping sales of Apple and other early personal computers. However, revenues from IBM's traditional computer business soon began a long-term decline. IBM was unable to dominate personal computers as it had the mainframe market, since IBM had exclusive rights neither to the central processing chip that was the "brains" of the personal computer nor to the disk operating system (DOS) software that made the hardware perform its basic functions.

The Intel Corporation, which made the chips, and Microsoft, which made the software, were free to sell their products to all comers. Microsoft developed a full line of software, such as word-processing and spreadsheet packages***, that rivalled IBM's own. Thus, it took only a matter of months to create "clones" of the IBM PC

with technical specifications that matched the IBM machines and that would run all of the same software, at a much lower cost.

Meanwhile, Apple Computer began the transition to a multibillion-dollar corporation by maintaining control of its own destiny with a proprietary operating system and with a wealth of attractive and "user friendly" software applications, allowing it to charge premium places for its computers. Continuing the apple motif, it called its next successful computer the Mackintosh.

Apple also specialized in the development of multimedia computers with advanced sound and moving image display capabilities. Because Apple produced only personal computers, it could focus its attention on that market, while IBM had to worry about protecting its mainframe business.

Microsoft emerged as a major force in the personal computer industry as the profits shifted from the hardware to the software end of the industry. Under the continuing guidance of William Gates, Microsoft had become a multibillion-dollar corporation by the early 1990s. Its Windows operating system outclassed IBM's own efforts to update DOS and had an easy-to-use interface not unlike Apple's own. Microsoft produced a full range of software packages that were among the leaders in virtually all of the most popular produced categories.

*a row of keys on a computer that you press to make it work

**a system that is used to supply computer with electricity

***a kind of computer programs that can calculate data on sale, taxes, profit, etc.

Notes
arrays of data – совокупность данных
matter of months - вопрос месяцев
virtually - фактически
to rack up impressive sales – достичь высокого уровня продажи

COMPREHENSION CHECK

Exercise 1. *Answer the questions.*
1. Which computer-market trend was entirely lost for IBM? Why did IBM fail its entry into the PC market?
2. What features made IBM a pioneer in computer industry development?
3. What became the basis of the Microsoft production?
4. What did you learn about Apple Corporation?
5. How was the computer market divided between IBM, Microsoft and Apple Corporation finally?

Exercise 2. *Look at the two similar sentences. Which one is true? What makes the second sentence false?*

1. It was desktop-sized personal computers that replaced the minicomputer trend.	1. It was room-sized mainframe computers that replaced the minicomputer trend.
2. One of these computers was called Apple and it was announced in 1975.	2. One of these computers was called Altair and it was announced in 1975.
3. Those who wanted could have now their own computer for business purposes at home.	3. Those who wanted could have now their own computer to play at home.
4. A computer industry so mighty before began to fail.	4. A computer industry began to grow.
5. The Altair developers bought from William Gates a computer language that could run on their machine.	5. The Altair developers bought from Microsoft Corporation a computer language that could run on their machine.

Exercise 3. *Arrange the sentences in their logical sequence.*
1. But its current name the company took only in 1924.
2. It used a punch-card technology and electrical circuit to advance the mechanical counter.
3. These successful investments brought enormous profits for IBM.
4. The next machine to be introduced into the market was Model 650 initializing punch-card technology.
5. This invention became the foundation on which IBM was built.
6. The digital electromechanical computer Mark I was one of the first to be financed by IBM in 1943.
7. A new tabulating machine invented by Herman Hollerith was used for the US Census of 1890.
8. Later on, IBM made heavy investments in producing peripheral equipment, printers, terminals, key-punch machines and card sorters.

Exercise 4. *Say what you have learnt about the development of the computer industry. Begin your story with the phrases listed below.*
After that…;
Now it is widely known that…;
The new computer caused the sensation because…;
In order to perform the new computer…

LANGUAGE ACTIVITY

Exercise 1. *Fill in the gaps with prepositions* to, with, into, on, from, off, over, at, of, for *if necessary.*
1. The developers conceived … a new model … machine.
2. The investors insisted … development … a new trend … computers.
3. The customers bought … the company new computers.
4. The company left their minicomputers … sale.

5. The computer helped perform a set … operations.
6. Software and peripherals are compatible … almost all modern computers.
7. Several applicants argue … the right to head the company.
8. The IBM Corporation capitalized … producing peripheral equipment.
9. We didn't forget the names … the scientists who have contributed … R&D.
10. Several devices aim … increasing the calculating speed.
11. We bought our computer … one of the shops of our city.
12. The firm used the money to buy … the cable television company.

Exercise 2.
a) Study using "make" or "do".
"Make" or "do"? In some contexts these two words have a similar meaning. However, there is a rule which says that "make" usually carries the idea of creation, construction.
Example: - Marry made this dress herself.
        - This device was made by two students in one of the laboratories of the University.
        - Second-year students will make experiments next year.

As for "do", it is usually associated with work, particular activity.
Example: - Second-year students will do laboratory work.
        - Have you done your homework?
        - We don't do aerobics this year.
        - He plans to do business.

However, there are many exceptions to these rules and specific uses of these verbs:
- to make a decision
- to make a mistake
- to make investments
- to make entry
- to make money

but:
- to do shopping
- to do subjects
- to do a favour
- to do without

b) Now cross out incorrect verbs:
1. My mother doesn't do/make housework.
2. Did he do/make many mistakes?
3. Every child must do/make his room.
4. Will you do/make a cup of coffee?
5. I will do/make all my best to help you.
6. I'd like to do/make you an offer.
7. Will you do/make me a favour and pass the bread.
8. My mother is going to do/make a cake for your birthday.

9. Now I can't do/make without my computer.

Exercise 3. *In the previous texts you have found sentences with the Possessive Case. We'd like you to recollect what you know about this rule and to transform the following sentences.*
Example: This is a symbol of the concern of the government for the protection of the rights of its citizens.
Rewritten: This is a symbol of the government's concern for the protection of the citizens' rights.
Now try this exercise.
1. The Prime Minister of England quickly said she would announce the names of the agitators.
2. After the speeches of the candidates, a vote was called for.
3. It is the aim of Indian planners to lift Calcutta to a place as one of the great metropolises of the world.

TEXT 2

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*
Verbs
     solve, store, require, distribute, access, deal with, stream
Adjectives
     substantial, financial, solid, conventional
Adverbs
     collectively, originally, directly, economically, automatically

Exercise 2. Read and translate the collocations:
to allow plug-and-play, data-intensive tasks, fluid-flow simulation, finite-element analysis, to handle one-at-a-time.

Exercise 3. *Match the synonyms.*
Nouns:

1	2
1. component	a) operation
2. purpose	b) aim
3. device	c) preference
4. advantage	d) data
5. capacity	e) part
6. aid	f) help
	g) power
	h) apparatus

Verbs:

1	2
1. combine	a) allow
2. require	b) involve
3. support	c) print
4. solve	d) recognize
5. include	e) decide
6. type	f) link
	g) demand
	h) encourage

Scan-reading

A computer system

A computer system is a collection of components that work together to process data. The purpose of a computer system is to make it as easy as possible for you to use computer to solve problems. A functioning computer system combines hardware elements with software elements. The hardware elements are the mechanical devices, the system, the machinery and the electronics. The software elements are the programs written for the system. Collectively these components provide a complete computer system.

Usually, a computer system requires three basic hardware items: the central processor unit, which performs all data processing, a terminal device, which helps users to communicate with their computer system and a memory storing programs and data. These three devices are the required hardware components of any computer system. Computer system includes many other devices: a printer, a scanner and a modem. These computer devices are called hardware.

A set of instructions telling a computer what to do is a program. Programs are usually written in a Programming languages like Pascal, C++, etc. Applications are programs for specific tasks. Applications include: database software, spreadsheets calculations, word-processing on a word processor. To function hardware and software, a computer needs an operation system program. Some operation systems require users to type in commands to tell the computer what to do. Many computers use a graphical interface or point-and-click interface such as Windows.
Some interfaces allow plug-and-play, the possibility of connecting new hardware of the computer without having to adjust or configure the system to take the new hardware into account: the interface program recognizes the hardware automatically.

Read the text and supply it with the suitable title.

Mainframes take their beginning from the original computer and are used today in applications requiring substantial data processing and large memory capacity These processors typically require room-size facilities. Mainframes support many peripheral devices and can drive several at a time, including printers, terminals, card

readers, card punchers, tape drives, and disk drives. Memory is especially important since mainframes are used in data-intensive tasks such as financial operations. Originally, the only way to communicate with a computer was through punched cards, and thus mainframes still support reading and punching cards. As a result, mainframes are often used to provide processing power after a problem has been set up with the aid of a micro- or minicomputer. Moreover, mainframes are used to link together distributed smaller processors through-out an enterprise. And minicomputers can be tied directly into mainframes so users can access their large database.

Supercomputers take advantage of the most recent advances in electronic circuits, processing techniques, and memory organization to reach computing speeds many times that of mainframes. Complex problems in CAD/CAM that were not even considered several years ago can now be solved economically. Applications of supercomputers include modelling and simulation tasks such as solid modelling, kinematics, analysis, and fluid-flow simulations. Another major application is a finite-element analysis. Here, a supercomputer will perform the task three to ten times faster than a mainframe. Supercomputers work so much faster because of data pipelining, high-speed circuits, and large internal memories. In pipelining, data elements are streamed through the processor in blocks instead of being handled one-at-a-time as in conventional computers.

COMPREHENSION CHECK

Exercise 1. *Choose the right answer.*
1. What is a program?
    a) A set of instructions
    b) A collection of components
    c) A hardware component
2. What are applications?
    a) Operation systems
    b) Programs for specific tasks
    c) Collections of components
3. When are mainframes used today?
    a) When it is necessary to use only printers
    b) In applications requiring substantial data processing and large memory capacity.
    c) When it is necessary to support a peripheral device.
4. Why can we conform that memory in mainframe is especially important?
    a) It is because minicomputers can be tied directly into mainframes.
    b) It is because it supports reading and punching cards.
    c) It is because mainframes are used in data-intensive tasks such as financial operations.

Exercise 2. *Arrange the sentences from the text " New Agent, New Help" in their logical order.*

1. It's no secret that the amount of computer users has been expanding rapidly.
2. This flow of information has led to an interest in intelligent agents, software assistants that perform retrieving and developing information.
3. Currently, there are plenty of companies developing agent software.
4. These intelligent agents will be used in a range of applications including user interfaces, desktop applications, messaging commerce and network management.
5. Combined with the ability to look and listen, intelligent agents will make personal computers closer to behave in a human-like way.
6. It's not accidental that users often treat their personal computers as if they were humans.
7. By making computers more "social" engineers hope to make them more user-friendly.

LANGUAGE ACTIVITY

Exercise 1. *Summarize your knowledge on the Conditional Sentences.*
I.   Translate the sentences into Russian.
1. If the evolution of AI proceeds so rapidly, it will be able to solve almost any problem arisen.
2. If we asked the computer to estimate possible results of our activity, it would give us a reliable answer.
3. Surely, they would have done much more, if they had used the last model of computers.
4. If I had enough money, I would buy the newest model of computers.
5. Should I be late, begin the negotiations without waiting for me.

II.   Put the words in brackets into the correct form.
1. If a computer can answer some questions better and quicker than a man can do, it (to be) a man who formulates the questions.
2. If you asked what a software is, I (to note) it as "an applied thought".
3. It's obvious that if there (to be) no computers, the progress of civilization wouldn't be so rapid.
4. Producing of computer memory working model would have been possible in 1939, if many people (to credit) the invention.
5. If Herbert Simon and Alan Newell hadn't succeeded in creating logic Theorist, someone else (to do) it.
6. If there is no adequate software, no computer (can) be used.
7. Had you backed up my opinion, the outcome (to be) more successful.
8. Were it permitted to our group to carry out the investigation, we certainly (to finish) it on time.

Exercise 2. *Complete the sentences.*
1. If I were a genius, …
2. If my father were a tycoon of computer industry, …
3. If my girlfriend were a hacker, …

4. If I had $1000000 to spend in three days, …

TEXT 3

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*
Nouns
  sleuth, zeal, tycoon, concern, idea
Verbs
  argue, approach, transfer, guess
Adverbs
  untiringly, initially, joyfully
Adjectives
  unrelenting, reluctant, long-overdue

Exercise 2. *Read and translate the collocations:*
detective job, adjoining school, overdue books, to pick up the idea, to say a reluctant goodbye, to set apart, to get transferred.

Exercise 3. *Make adverbs from the following adjectives according to the model and translate them.*
Adjective+ly
immediate, actual, initial, untiring, joyful, rapid.

Exercise 4. *Fix your attention to negative prefixes. Translate the words.*
understand - misunderstand
place - misplace
read - misread
shelve - misshelve
reparable - irreparable
responsible - irresponsible
regular - irregular

Exercise 5. *Match the synonyms.*
Verbs

1	2
1. pick up	a) move to
2. announce	b) understand
3. transfer to	c) declare
4. argue	d) disagree
5. set apart	e) suppose
6. guess	f) make different
	g) find

	h) win

Nouns

1	2
1. job	a) wish
2. concern	b) enthusiasm
3. zeal	c) worry
4. determination	d) detective
5. sleuth	e) work
	f) number
	g) break

Scan-reading

BOY WITH THE BILLION-DOLLAR SECRET

One day in 1965, when I was a librarian at View Ridge School in Seattle, a primary school teacher approached me. She had a pupil who finished his work before all the others and needed a challenge. "Could he help in the library?" she asked. I said, "Send him along."

Soon a slight, sandy-haired boy in jeans and a T-shirt appeared. "Do you have a job for me?" he asked.

I told him about the Dewey decimal numbering system used for shelving books. He picked up the idea immediately. Then I showed him a stack of cards for long-overdue books that I was beginning to think had actually been returned but were misshelved with the wrong cards in them. He said, "Is it a kind of a detective job?" I answered "yes", and he became an unrelenting sleuth.

He had found three books with wrong cards by the time his teacher opened the door and announced, "Time for break!" He argued for finishing the job; she made the case for fresh air. She won.

The next morning, he arrived early. "I wanted to finish finding those books," he said. At the end of the day, when he asked to be a librarian on a regular basis, it was easy to say yes. He worked untiringly.

After a few weeks I found a note on my desk, inviting me to dinner at the boy's home. At the end of a pleasant evening, his mother said that the family would be moving to the adjoining school district. Her son's first concern, she said, was leaving the View Ridge library. "Who will find the lost books?" he asked.

When the time came, I said a reluctant goodbye. Though initially he had seemed an ordinary kid, his zeal had set him apart.

I missed him, but not for long. A few days later he popped through the door and joyfully announced, "The librarian over there doesn't let boys work in the library. My mother got me transferred back to View Ridge. My dad will drop me off on his way to work. And if he can't, I'll walk!"

I should have had an inkling that such focused determination would take that

young man wherever he wanted to go. What I could not have guessed, however, was that he would become a wizard of the Information Age: Bill Gates, tycoon of Microsoft and America's richest man.

Notes
Dewey decimal numbering system – специальный метод, которым пользуются в библиотеках для размещения книг на полках
focused determination – твердое намерение
overdue books – книги, не возвращенные в библиотеку вовремя
make the case for – привести доводы в пользу …
to need a challenge – нуждаться в дополнительной работе
unrelenting sleuth – неутомимый сыщик
zeal - энтузиазм

COMPEHENSION CHECK

Exercise 1. *Retell the story of Bill Gates as a student of View Ridge School.*

Exercise 2. *Complete the story of William Gates as a tycoon of Microsoft.*

LANGUAGE ACTIVITY

Exercise 1. *Summarize your knowledge on the System of Tenses.*
I. Translate the sentences into Russian paying attention to Tenses.
1. The American writer Isaak Asimov tells about wonderful computing machines and schools of distant future.
2. In 1822 Charles Babbage created the first mechanical calculator.
3. After school Gates went on studying at Harvard University.
4. The National Physical Laboratory is now conducting experiments aimed to recognize human speech.
5. Instructions will tell the hardware what to do and will tell the user what it has done.
6. By 1880 manufacturing technology had improved to the point that new machines could be produced.
7. In some years IBM publication department will be fulfilling 100% translation demands via machines.
8. For many years, universities and colleges have been looking for ways of offering courses to students living far from classes.
9. By the beginning of the network age Microsoft Corporation had been selling software for individual PCs.

II. Put the verbs in the brackets into the correct forms.
1. Programming already (to become) a very important branch of national economy. For example, experts (to work) now on a computer program for agriculture.

2. In the 1980s the production of microcomputers (to double), the production of microprocessors increased five times. This year we (to do) our best to meet requirements of the day.
3. Our immediate task (to be) to advance our technology and increase the manufacture of computers. We certainly (to solve) this problem.
4. The Elbrus 2 (to become) the next in the line of supercomputers. The engineers (to work) for three years before it was placed at the disposal of scientists.
5. The first computers (to fill) a large room with their electronics. Air-conditioning was poor at that time and computers (to get) so hot during their work that the operators (to have) to dress in T-shirts and tennis shoes.

Exercise 2. *Summarize your knowledge on the Sequence of Tenses and the Reported Speech, and put the verbs in brackets into correct forms.*
1. The librarian says that she (to work) at a primary school in Seattle.
2. The teacher said that her pupil (to be) a very smart boy.
3. We know that experts (to elaborate) new computing technologies now.
4. Only few people knew that Babbage (to work out) a brand new device.
5. The Corporation sells its computers on the terms it previously (to insist on).

Exercise 3. *Convert the sentences into the Reported Speech.*
1. - Are you ill? - mother asked.
   - No, I'm just tired, - I answered.
2. The teacher said: "The pupil will come tomorrow".
3. My friend said: "I'm working at the State Library now".
4. The boy said: "I did this work yesterday".
5. The freshman asked: "Can I work in your library?"
6. The young scientist said: "I've worked in this laboratory for two years".

Exercise 4. *Convert the Direct Speech of Text 2 into the Reported Speech.*

Exercise 5. *In the text about Bill Gates you have come across such adverbs as immediately, early, easy, etc. Let's remember what an adverb is.*
At first, these are words which inform us about:
1) how something is done (quickly, slowly, carefully, on foot, by bus, etc.). These are adverbs and adverbial phrases of manner;
2) where something is done (there, at home, in England, on Web, at work, etc.). These are adverbs and adverbial phrases of place;
3) when something is done (yesterday, today, next week, at 5 o'clock, etc.). These are adverbs and adverbial phrases of time.
Now, you should remember the order of these words in a sentence: it is "manner-place-time".
Example: Our students made this experiment successfully last week.
        However this order changes as soon as we meet "movement verbs". Then the order is: "place-manner-time".
Example: We went to the Computing laboratory quickly after classes.

Try this exercise.
1. I worked (at the office, hard, today).
2. I'm travelling (every summer, by bicycle, to my native village).
3. He studied (last year, a lot, at university).
4. I drive (every morning, to work).
5. The friend walked (through the park, home, this afternoon).
6. The orchestra performed (at the concert, magnificently, last night).
7. She translated the text (quickly, yesterday, at the lesson).
8. The engineers return (by plane, to France, every weekend).

TEXT 4

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below:*
survival, media, arena, wholesale, hover, blur, view, advertise, competitive, shrinkage.

Exercise 2. *Read and translate the collocations:*
the edge of a new era, confronted with a technological revolution, buy into cable television companies, to put more emphasis, go down the road, the television network, to be updated.

Exercise 3. *Match the antonyms.*
Verbs

1	2
1. increase	a) keep
2. push	b) sell
3. buy	c) go up
4. drop	d) decrease
	e) compete
	f) absorb

Nouns

1	2
1. wholesale	a) vendor
2. shrinkage	b) retail
3. customer	c) likeness
4. subscriber	d) growth
5. distinction	e) publisher
	f) circulation
	g) emphasis

Reading and translating

ELECTRONIC NEWSPAPERS: WILL THEY BE HERE SOON?

Economic realities are pushing the nation's dailies to the edge of a new era: delivery of written news to customers on their home screen. Confronted with a technological revolution that threatens their survival, American newspapers are joining the electronic age instead of fighting it.

Some are already experimenting with transmission of stories electronically into homes for reading on television screens. Many big newspapers are buying into cable television companies as a step toward electronic publishing. At the same time newspapers are putting more emphasis on the quality of their writing and reporting to gain new readers and keep those they already have.

Behind those developments are hard and increasingly important facts. During the 1970s total daily newspapers' circulation in the US hovered around the 60 million marks despite an 11 per cent rise in the nation's population and a 22 per cent increase in the number of households. The proportion of people who read a paper daily dropped from 69% to 57%. Afternoon newspapers would hardly compete with the television network evening program.

Growing number of publishers see electronic technology as a possible answer to these problems. They fear that if they don't go down that road the others will. The new technology is bringing all media into a common arena. The distinction that separated newspapers from magazines, that made television different from newspapers is now blurring.

Nobody knows for sure how rapidly electronic publishing will become a part of everyday journalism. Already some newspapers are leasing cable channels on which subscribers are able to read reports from various wire services, local news rewritten for viewing on a screen, weather and even advertising. Many people see a wholesale shift from print to electronics as still decades away.

They cite cost factors and also argue that reading words on a screen is a much less efficient way than print to absorb large amounts of information.

For these reasons, some analysts believe electronic publishing will develop slowly, with most papers limiting themselves to transmission of stock tables, motion pictures listings, sport results, headlines, classified ads and similar materials. All these are relatively easy to read on screen and can be continuously updated.

Even such limited transmission would lead to shrinkage in the size of the daily newspaper subscribers. Therefore publishers are taking steps to make dailies more competitive with television's attractions by improving content and making new use of print technology.

Notes
bring into a common arena - приводить на одну (общую) сцену
classified ads - рекламные объявления

gain readers - завоевать читателей
keep readers - удерживать читателей
limit oneself - ограничиваться
motion pictures listing- репертуар кинотеатров
shrinkage - сокращение
stock tables - таблицы курсов акций
wire service - телеграфное агентство

COMPREHENSION CHECK

Exercise 1. *Answer the questions.*
1. In spite of the 11% rise in population and 22% increase in household the proportion of the newspaper readers is dropping. Why?
2. Why did many publishers consider electronic technology to be a possible answer to the problem of newspaper survival? Give your reasons.
3. Reading words on a screen is less efficient than absorbing printed information. Do you agree?

Exercise 2. *Find in the text phrases:*
1. proving that American newspapers confronted the new economical and technological realities and were searching ways of survival;
2. explaining the reason for slow development of electronic publishing.

Exercise 3. *Write a brief summary of the text.*
1. Define the main problems dealt with in the text.
2. What phrases of the text centering round these problems may be used as a plan of the summary?
3. Give a summary of the text according to your plan using the following words and expressions: *it is widely known that; it is not by chance; just for that; nevertheless; therefore.*

LANGUAGE ACTIVITY

Exercise 1. *Translate the sentences paying special attention to Passive Constructions.*
1. "To be or not to be?" This question could be answered due to high mental ability of sophisticated computers.
2. In future super intelligent machines will be allowed to do only the work useful to mankind, but not dangerous for it.
3. Much attention is given nowadays to moral aspects of Artificial Intelligence.
4. When statistic data are fed into emotionless machine, the answer may be rather unexpected.
5. At the exhibition the new model of machine was admired by everybody.
6. Computer industry has been greatly influenced by universal social and economic processes.

7. Experts' arguments in favour of increasing production of high tech computer components were relied upon.
8. The negative consequences of technological progress ought not to be neglected.
9. When an order is given to a robot by a human being, the robot must only obey it.
10. Basically, computers are very stupid and, although they may seem clever, in fact they can only do exactly what they are told.

Exercise 2. *Translate the sentences into Russian. State the function of "would" in each sentence.*
1. Machine translation <u>would</u> be of enormous aid to science and technology.
2. It was clear that new branches <u>would</u> require novel ideas.
3. When the era of Web arrived, a smart inventor created a document which <u>would</u> give local and national weather forecasts with a click of a mouse on the map of the United States.
4. What <u>would</u> you rather do when you need to make a choice: ask a human expert or apply to a computer expert system?
5. If a system was completed with an audioanalyser, computer "ears" <u>would</u> hear the words spoken into its microphone.
6. While studying at the University we <u>would</u> often work in our computer laboratory.
7. <u>Would</u> you make a report on the outlook for the development of optical fiber?

TEXT 5

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*
Nouns
        mind, limit, biologist, philosopher, potential, heart.
Verbs
        realize, damage, involve, decrease.
Adjectives
        ancient, complicated, earlier.

Exercise2. *Check in the dictionary and remember the pronunciation of the following professions.*
Biologist, microbiologist, biotechnologist, biochemist, biophysicist.

Exercise 3. *Read and translate the following words and collocations:*
mental activity, the way we are taught, to be involved in the working, to keep power, to make the use of something.

Exercise 4. *Match the synonyms.*

Verbs

1	2
1. involve	a) harm
2. damage	b) understand
3. decrease	c) include
4. find out	d) slow down
5. realize	e) discover
	f) indicate
	g) limit

Reading and discussing

THE BRAIN[*] - THE MOST POWERFUL COMPUTER IN THE UNIVERSE!

Man has a lot to learn about the most powerful and complex part of the body - the brain.

In the ancient times people did not think that the brain was the centre of mental activity. Aristotle, the philosopher of ancient Greece, thought that the mind was based in the heart. It was not until the 18th century when people realized that the brain was involved in the working of the mind.

During the 19th century scientists found out that when certain parts of the brain were damaged men lost ability to do certain things. It indicated that each part of brain controlled a different activity. But modern research holds that it is not easy to say what each part of the brain does.

In the past 50 years chemists and biologists have found that the way the brain works is far more complicated than they had thought. E.g.**, over 100.000 chemical reactions take place in the brain every second. The more scientists know, the more questions they are unable to answer.

Earlier scientists thought that during lifetime the power of brain decreased. But present day researchers have another opinion. As long as the brain is given plenty of exercise it keeps its power.

Some people believe that we use only 1% of our brain full potential. But the only limit on the power of the brain is the limit of what we think is possible. This might happen due to the way we are taught. When we first start learning we are told, for instance, to remember certain facts. Still, we are not explained how our memory works and how to make the best use of it.

Currently, many discoveries have been made about the universe - the outside world. And we must also look into the universe which is inside us - the human brain.

*The word "brain" may be termed as the organ inside our head that controls how we think, feel and move. This is a medical explanation of the word. Being used in plural ("brains") it is used to denote the ability to think clearly and learn quickly. Then the word denotes intelligence. Sometimes they call a very intelligent person "brain-box".
** for example

COMPREHENSION CHECK

Exercise 1. *What is the pivotal idea of each passage?*

Exercise 2. *Speak on the topics. You may either agree or disagree, but you should prove your ideas.*
1. The concept of human brain changed greatly throughout the history of mankind.
2. The more scientists learn about human brain, the more puzzled they are.
3. Brain can never get old!
4. Teachers should explain even to elementary school pupils how human brain works.
5. Human brain versus AI…

Exercise 3. *What do you think?*
The more time a child spends playing computer games, the more cells responsible for imagination his/her brain loses. Hence, the functions of his/her brain become similar to those of a computer, but not of a human being.

LANGUAGE ACTIVITY

Exercise 1. *a) Summarize your knowledge on the Degrees of Comparison.*
        b) Translate the following.
1. In this book you'll read no less interesting story of the first inventors of computers.
2. Electronic circuits work a thousand times more rapidly than nerve cells in the human brain.
3. It is much cheaper and more reliable to have a computer to collect data than to pay a person to do the same work.
4. There are two kinds of computers: digital and analog; the latter are faster but less accurate.
5. Further developments in computing systems were connected with military needs.
6. The most important of the computer components is the central processing unit (CPU for short).
7. Today personal computers are much easier to program than earlier machines.
8. The most of computers had been designed and then used in the national economy.
9. The newest devices of today will become obsolete tomorrow.
10. To have the newest computer sometimes doesn't mean to have the machine that does the work best.
11. You have chosen the worst possible moment to visit this laboratory.

c) Translate the words in brackets using the given English adjectives and adverbs: most, less, more, many, the smallest, worse, fewer, the fastest, few, the worst.
1. This microcomputer weighs a little (больше) than a watch.
2. (Большинство) of companies are ready to buy this device.
3. The machine translation is so long (хуже) than the human translation.
4. Previous designs were (менее) successful than this one.
5. The attention of the visitors at the exhibition was attracted to the new model of (самого маленького) computer.
6. The Government Commission rejected (самые худшие) projects.
7. Due to machines the analysis of complex data takes no (меньше) than 3 minutes.
8. The Internet is (быстрее всего) growing social phenomenon on the planet.
9. (Многие) wanted to have their own computer to play with at home.
10. There are (немного) computers of high speed in the world.

Exercise 2. *a) Summarize your knowledge on "the … the" Construction.*
1. The more up-to-date computers a Research Institute uses, the more progressive it is believed to be.
2. The more we study human brain, the better we realize that no computer can be equal to it.
3. The younger a child is, the less time he/she should work with a computer.
4. The longer you study a subject, the more interested in it you become.
      b) Finish the sentences given below.
1. The harder you work, …
2. The more we have, …
3. The less you know about a problem, …
4. The longer we live, …

Exercise 3. *Summarize your knowledge on the meaning of "as". Translate the sentences paying special attention to different meanings of "as".*
1. As we know the first personal computer of new type appeared in 1972.
2. As the manufacturing technology had improved, mechanical calculators could be produced.
3. Software and peripherals were compatible with all versions and with earlier models as well.
4. At that time Babbage worked as a professor of mathematics at Cambridge.
5. Peripheral equipment is slow as compared with computers.
6. As for the first personal computer Altair, it appeared in 1975.
7. In 1976 Steve Jobs as well as Stephen Wozniak began assembling a microcomputer.

SUPPLEMENTARY READING

TEXT 6

Read the text and supply it with a suitable title.

Any U.S. school child knows that the first country to develop a computer was the U.S. But few people know that the second country was the Soviet Union in 1950. And still fewer people know that the first step was actually made in the Soviet Russia in 1918 (a year after the socialist revolution) when M. Bonch-Bruevich developed an electronic relay circuit with two stable states later known in the West as a trigger.

Academician Nikita Moiseyev visited western computer centres in the late 50s and found that the Soviets were at a similar level of development in both methods and computers themselves. Soviet advances slowed down, however, due to mistakes in approaches towards developing the computer industry and shortage of funds which were needed for the iron steel construction and transport industries. A vast housing program was in progress, and the Eastern regions were being developed on a large scale. Consequently, while the U.S.S.R. was well-equipped to deal with the world energy crises of the 1970s, computer technology lagged.

At the turn of the 80s, however, the U.S.S.R. scored new successes in this field. The Soviet electronics industry became one of the world's biggest producers of electronic components. 30000 kinds of .components were exported to more than 30 countries, electronic components marked "made in the U.S.S.R." were used in France, Britain, Italy and Spain. General Motors used to buy 150-180 million resistors.

Exercise 1. *Answer the question.*
How did the electronic industry develop in the post-Soviet period?
Look for extra information of your own.

TEXT 7

Reading and extracting information.

EVOLUTION IN SIZE

Computers come in all sizes. Large ones are called mainframes. The mainframes have been around the longest, and there are a lot of them, especially in larger organizations.

The most powerful computers, however, are called supercomputers. The supercomputers are so powerful that they are found in only a few of the larger business organizations. Supercomputers most often are used for scientific calculations.

The recent trend has not been to larger computers, but to smaller ones. In the 1970s, this trend got its start with minicomputers, or minis. These computers were smaller than the mainframes but, in many cases, outperformed the larger units.

The minis were received so well that computer manufacturers produced even smaller units - called microcomputers or micros. Most of the microcomputer's main circuitry is in the form of a small silicon chip, smaller than your fingernail. The chip is called a microprocessor.

You also hear terms like small business computer and personal computer. A small business computer is a mini or micro that is usually found in smaller firms, and provides the computational support.

Exercise 1. *Answer the questions.*
1. What were the four basic sizes of computers?
2. Where were they applied?
3. What do you know about mainframes?

Exercise 2. *Give definitions to the terms:*
mainframe, supercomputer, minicomputer, microcomputer, microprocessor, small business computer.
> *Almost all of them are now obsolete. Why does computer-related terminology get out-of-date so quickly?*

Exercise 3. *Topics for discussion.*
What do you think about necessity of using computers?
Can you do without your personal computer today?

TEXT 8

DISCUSSIONS AND ESSAYS
The English writer Arthur Clarke, being a pessimist, predicted the destruction of our world as a result of intelligent machines' activity independent of human will. He said: "The first invention of a superintelligent machine will be the last invention mankind will be allowed to make".
Comment on the quotation. What do you think? Do you hold that pessimistic view of technological progress? Give your reasons.

WRITTEN TRANSLATION
Fancy that!
Some facts from the history of the computer industry.

Starting Time of Translation _____

But for the cancellation of a research grant, the computer could have been invented in the early nineteenth century. Charles Babbage's "grantsmanship" was not equal to his mathematical genius, and his funding from the English government ran out in 1833. Despite the support of Lady Ada Byron, daughter of the famous poet, Babbage never completed his model.

No one was quite sure what the device created by Charles Babbage was good for. When asked to renew the funding, British Prime Minister Benjamin Disraeli observed that the only conceivable use for it was to add up all of the money that had been squandered on the project.

The story goes that Atanasoff drew the inspiration for his invention of the first electronic computer from the desire to have a bourbon and soda in a southern Illinois bar. Iowa was a "dry" state back then, and he had to drive almost 200 miles for his drink, which gave him plenty of time to think about inventing the computer.

It was only materials shortage that prevented ENIAC from being finished in time to make contribution to World War II. But ENIAC contributed to the cold war by helping to complete calculations for the first hydrogen bomb.

By the mid-1950s, IBM threatened to dominate the entire computer industry with its fast-selling Model 650. In 1956, to resolve an antitrust suit filed by the U.S. Justice Department, the company signed a consent decree that required it to keep computer manufacturing and computer services (the processing of computer applications for its customers) in separate subsidiaries. The 1956 consent decree barely slowed IBM down.

In the late 1970s the Justice Department launched another antitrust case, with the goal of breaking up IBM into several companies—each with a full line of hardware, software, and computer services. Ironically, the suit was concluded in 1982, the same year that a similar action against AT&T resulted in the dismemberment of the telecommunications giant. In the IBM case, however, it was decided to keep the company intact.

Now compare your translation with that done by a computer (Prompt '99).
Воображение это!
Некоторые факты от истории промышленности компьютеров

Но для отмены предоставления исследования, компьютер мог быть изобретен в раннем девятнадцатом столетии. "Grantsmanship" Чарльза Баббедж не был равен его математическому гению, и его финансирование(консолидирование) от Английского правительства закончилось в 1833. Несмотря на поддержку Леди Ады Байрона, дочь известного поэта, Babbage никогда не закончила его модель.

Никто не был весьма уверен, для чего устройство, созданное Чарльзом Баббедж было хорошо. Когда спрашивается, чтобы возобновить финансирование (консолидирование), Британский Премьер-министр Бенджамин Дисраели наблюдал(соблюдал), что единственное мыслимое использование для этого должно было сложить все деньги, которые тратили на проекте.

История идет, что Atanasoff тянул(рисовал) вдохновение для его изобретения первой электронно-вычислительной машины от желания иметь bourbon и соду в южном бруске(баре) Штата Иллинойс. Штат Айова был "сухое" государство (состояние) назад тогда, и он был должен вести(везти) почти 200 миль для его спиртного напитка, который дал ему множество времени, чтобы думать относительно изобретения компьютера.

Это было только нехватка материалов, которая предотвратила ENIAC от окончания вовремя, чтобы делать вклад во Вторую Мировую Войну. Но ENIAC вносил вклад в холодную войну, помогая, чтобы закончить вычисления для первой водородной бомбы.

К середине 1950-ых, IBM угрожал доминировать над полной промышленностью компьютеров с ее быстро продающей Моделью 650. В 1956, чтобы решить антимонопольный иск(костюм), регистрируемый Американским министерством юстиции, компания подписала согласие, устанавливают декретом, что требовал, чтобы это держало производство компьютера и услуги компьютера (обработка заявлений (применений) компьютера для его клиентов) в отдельных филиалах. 1956 декрет согласия только замедлил IBM.

В конце 1970-ых Министерство юстиции начало (запустило) другой антимонопольный случай, с целью прекращения IBM в несколько компаний — каждый с полной линией аппаратных средств ЭВМ, программного обеспечения, и услуг компьютера. Как ни странно, иск (костюм) был заключен в 1982, тот же самый год, что подобное действие против AT&T закончилось расчленением гиганта телесвязи. В IBM случае, однако, было решено держать компанию неповрежденное.
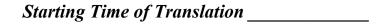
Finishing Time of Translation_____

Exercise 1. *Topic for discussion.*
Share your ideas on the human and machine translation.

Translate the texts from Russian into English using given words.

TEXT I

Starting Time of Translation _____

Блез Паскаль известен как талантливый французский писатель, философ и, особенно, как математик. Кроме того, он был гениальным экспериментатором **(1)** и изобретателем.

В 1639 году отец Паскаля был отправлен в один из регионов Франции реорганизовать сбор налогов **(2)**. Это была утомительная работа, которая требовала длинных расчетов. Блез решил помочь отцу и постарался создать механизм, который мог точнее и быстрее решить столь длинную вычислительную задачу.

Только после создания 50 неудачных моделей Паскаль добился успеха **(3)** и создал счетный механизм **(4)** известный как Машина Паскаля. Она представляла собой систему валов и шестеренок приводимых в движение вручную **(5)**. Из имеющихся в механизме цифр оператор сам набирал прибавляемое число **(6)**, затем с помощью специальной ручки **(7)** вращал основной вал. Поворачивая ручку вперед **(8),** он приводил в действие вычитание, вращение ручки назад **(9)**обеспечивало сложение **(10)**.

Результат считывался в отверстиях на цифровом циферблате **(11)**.

Механизм был крайне хрупким **(12)** и сложным. Но при аккуратном обращении он давал точные результаты. В то время Машина Паскаля считалась чудом техники **(13)**.

(1) experimentalist
(2) to collect taxes
(3) to succeed in
(4) computing engine
(5) started by hand
(6) to dial the number
(7) handle
(8) forwards
(9) backwards
(10)   addition
(11)   numbered holes
(12)   delicate
(13)   was considered to be a mechanical marvel

Finishing Time of Translation_____

TEXT II

Starting Time of Translation _____

Первые вычислительные устройства позволяли механизировать **(1)** расчеты, но делали это крайне медленно. Оператор вынужден был извлекать промежуточные результаты **(2)**, обрабатывать **(3)** их отдельно, а затем вновь вводить **(4)** результат в машину для дальнейшего вычисления.

Чарльз Баббедж был первым, кто попытался **(5)** решить эту проблему. Его Аналитическая машина давала почти неограниченные **(6)** возможности для механических вычислений с большим количеством чисел и цифр одновременно **(7)**. Машина включала **(8)** в себя блок памяти, арифметический блок, блок управления **(9)** (с помощью перфоленты **(10)**), а также устройство, показывающее **(11)** результат.

Однако, несмотря на **(12)** 30-ти летнюю работу над своей машиной, Баббедж так и не успел закончить ее.

Сегодня детали этой машины выставлены в Музее Кенсингтон **(13)** в Лондоне.

(1) mechanize
(2) to output intermediate results
(3) to process
(4) to enter
(5) to attempt

(6) unlimited
(7) simultaneously
(8) include
(9) control unit
(10)   tape perforate
(11)   to display
(12)   in spite of
(13)   South-Kensington Museum

Finishing Time of Translation_____

Chapter II

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*

Nouns

    incident, exploration, emphasis, vision, fuel

Verbs

    allocate, initiate, dial, launch

Adjectives

       private, interactive, available, relevant, beneficial

Adverbs

       visually, automatically, simultaneously

Exercise 2. *Read the collocations and translate them.*

Cold war paranoia, military inferiority, long term high risk/high payoff research, a number of, relevant information, as to the point of origin, via dial up telephones, so called packet-switching process.

Exercise 3. *Match the synonyms.*

Verbs

1	2
1. initiate	a) permit
2. implement	b) do
3. enable	c) need
4. require	d) reconcile
5. conceive	e) realize
6. perform	f) dial
7. accommodate	g) plan
	h) influence
	i) promote

Nouns

1	2
1. payoff	a) question
2. occurrence	b) enterprise
3. query	c) demand
4. prospect	d) safety
5. requirement	e) result
6. security	f) connection
	g) event
	h) outlook

Exercise 4. *Make nouns from the following verbs according to the model and translate them.*
Verb+-tion (-ation)
create, connect, communicate, promote, explore, prepare, destine, inform, realize, civilize, allocate.

Exercise 5. *Make acknowledge of the terms that you will find in the texts.*
1. <u>The Internet</u> that became the crucial event in development of civilization is a worldwide network of computer networks communicating through a common language.
2. <u>Network</u> is a system of computers which are connected together to share program, data, printers, etc. The Internet is effectively a worldwide network of networks.
3. <u>Processing</u> may be termed as doing calculations needed to deal with given information. The central unit of a computer, <u>processor,</u> is used for that.

TEXT 1

Comprehensive reading

Part I

While translating the text pay special attention to the italicised sentences in all parts of the text.

THE INTERNET & WWW HISTORY

There is an opinion that if one were to suggest one single occurrence which led to the creation of the Internet, it would be the Soviet Union's launch of Sputnik (Satellite) in 1957. This seminal incident in space exploration caused then American President Dwight David Eisenhower to appoint MIT President James Killian as his assistant for science and to create a new department within the Department of Defense named the Advanced Research Projects Agency (ARPA).

ARPA became the answer to the rising American Cold war paranoia about military inferiority, fueled not least by the Sputnik success. The agency was designed to perform long term high risk / high payoff research and development, and in this context put great emphasis on the development of the fledgling computer technology. It was noted by ARPA that too many resources had been allocated by public and private research in order to produce short-term advances in computer hardware and software. The Agency realized that machines needed greater capability to interact with each other to gather relevant information, solve problems, anticipate data requirements, communicate effectively across distances, present information visually and do all this automatically. Enormous work had to be done.

To begin with, ARPA founded Information Processing Techniques Offices (IPTO) and a psychologist Licklider was appointed as the first director. The

researches in IPTO became beneficial to different users because Licklider's main mission was not only to design military tools but rather to realize his personal vision of "Man-Computer Symbiosis". The next discoveries became stages of such a world wide enterprise as the Internet.

One of these stages was the project initiated by IPTO. It concerned the development of computer process known as time-sharing: MIT scientists advanced the idea to utilize the increasing power of few computers available to the research community and make possible for several people to use the same computer simultaneously. Time-sharing implementing furthered the interactive computing - Licklider's and his associates' dream. So was established the new trend in computer development that would later become the Internet.

As a further step towards improvement of the networking was the proposal to connect all computers in the research community via dial-up telephones. At the same time, a number of computing specialists were carrying out the possibility of using so-called packet-switching process in order to guarantee the security of military command and control systems against any possible danger. The principle of packet-switching relied on a computer network in which all the computers had equal status and data forwarding capabilities. If a user then wanted a set of data transmitted from one computer to another, regardless of the distance, the transmitting computer would break up the data in small packets measuring only a few bytes.

These packets contained information as to their point of origin, their destination on the network, as well as the information which would enable the computer on the receiving end to reassemble the data set as soon as all packets had arrived.

The fledgling network required a wide range of serious studies. But the most important work was the implementing of communications setting termed as protocol which was nothing but a code of rules for interconnecting various computers. It would enable the diverse number of computer hardware and operating systems to communicate. Protocols became a kind of lingua franca among the connected computers.

In 1969 the first network computers, or IMP (Interface Message Processor) were ready. As related by the networking pioneer and then graduate student Vincent Cerf, the hardware was an immediate success: when they turned the IMP on, it just started running. Thus ARPA succeeded in creating the first effective long-distance computer network which was named ARPANET.

Notes:
lingua franca – специальный язык общения для людей имеющих разные национальные языки

COMPREHENSION CHECK

Exercise 1. *Find the suitable endings of the following sentences according to information in the text.*
1. ARPA became the answer …   a) became beneficial to different uses.

2. The Agency realized that machines …	b) to the rising American cold war paranoia.
3. The researches in IPTO …	c) was an immediate success.
4. In 1969 the first network computers or JMP …	d) needed greater capability to interact with each other to gather relevant information, etc.
	e) was the project.
	f) were ready.

Exercise 2. *Choose the correct word to complete the sentence.*
1. The … was designed to perform long term high risk/pay off research.
a) agency
b) institute
c) office

2. …work had to be done.
a) Successful
b) Enormous
c) Useless

3. As a further step towards improvement of the networking … was the proposal to connect all computers in the research community via dial-up telephones.
a) telegraph
b) telephones
c) radio

4. The most important work was the … of communicational setting terms as protocol.
a) excluding
b) implementing
c) containing

5. Protocols became a kind of … among the connected computers.
a) tasks
b) results
c) lingua franca

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*
Nouns
    novelty, query, spirit, stability, possibility, participant, hierarchy, scheme, witness
Verbs
    involve, graduate, excite, succeed, ensure

Exercise 2. *Make nouns from the following verbs according to the model and translate them.*

Verb+ment

develop, improve, advertise, equip, require

Exercise 3. Match the antonyms.

Verbs

1	2
1. graduate	a) stop
2. involve	b) fail
3. perform	c) begin
4. succeed	d) break
5. highlight	e) contribute
6. connect	f) darken (obscure)
	g) prove
	h) exclude

Adjectives

1	2
1. beneficial	a) narrow
2. wide	b) false
3. personal	c) constant
4. true	d) military
5. essential	e) public
	f) unimportant
	g) unprofitable

Part II

THE NETWORK FALLS INTO PLACE

The ARPANET experiment was a complete novelty on the computer science scene. Most of the people involved in the day-to-day work with implementing hardware and software were graduate students, and the personal accounts provided by participants suggested a true spirit of invention, but also of confusion: "No one had clear answers, but the prospects seemed exciting. We found ourselves imagining all kinds of possibilities: interactive graphics, cooperating processes, automatic data base query, electronic mail, but no one knew where to begin". The most important task for the participants in this fledgling network was to ensure the stability of the communication protocol. During the following years the group's participants succeeded in creating a protocol scheme.

The idea was to have an underlying protocol taking care of establishing and maintaining communication between the computers on the network and a set of

protocols which performed a number of particular tasks. This scheme was successfully tested (only one of the 15 sites involved failed to establish a connection).

During the 1970s the ARPANET was constantly evolving in size and stability, and was a subject of a number of seminal developments, among which the most noteworthy was electronic mail and the establishment of a transatlantic connection. In addition, work was undertaken to improve the basic communication protocols and modernize them according to the constant growth of the ARPANET.

The military use of the Internet did not have any direct impact on the civilian use of the research network as such, but highlights the fact that the Internet of today was conceived as a military communications tool.

The following years witnessed the birth of the Usenet. Developed by university students Tom Truscott and Jim Ellis, the Usenet turned out to be the ultimate exponent for the physical anarchy of the ARPANET (no central command control, all connected computers being completely equal in their ability to transmit and receive packets). Truscott and Ellis created a hierarchy of computer users groups which were distributed between a growing number of academic institutions via modems and phone lines. This hierarchy soon turned out to accommodate a wide number of interests, from computer programming to car maintenance, and enabled the participants to read and post information and opinions in what became known as the Usenet Newsgroups. Newsgroups may be determined as discussion groups. Each of these groups is devoted to a particular topic.

At first the Usenet was a practically unofficial activity involving a number of graduate students, but soon it proved to be the network service which heavily contributed to the international growth of the internetworking principle. The Usenet connections were established between several European countries and Australia.

The creation of the ARPANET was followed by the creation of the NSFNET. This fact signalled that universities had begun to consider networking as an essential tool for researches. A high-speed network connection, referred to as the "backbone", was established between the five super-computing centers and they in turn made their facilities available to universities in their region, effectively making the network completely decentralized.

Notes:
fledgling - (здесь) недавно созданный
inferiority - более низкое положение, достоинство, качество, количество
make available to - предоставить (кому-либо)
to have an impact (up)on - иметь влияние на
ultimate exponent - типичный образец

COMPREHENSION CHECK

Exercise 1. *Answer the questions.*
1. Was the ARPANET experiment a complete novelty for computer science?
2. Did the scheme with the underlying protocol fail or was it successful?
3. What was the occupation of the Usenet founders?

Exercise 2. *Look at the two similar sentences. Which one is true? What makes the second sentence false?*

1. The Internet of today was conceived as a military communication tool.	1. The Internet of today was conceived as a civil communication tool.
2. In the early 1980s Usenet connections were established to several European countries as well as to Australia.	2. In the early 1980s Usenet connections were established to all European countries.
3. The first network computer was not successful.	3. The first network computer was an immediate success.

Exercise 3. *Find synonyms to the underlined words in the dictionary.*
1. Despite the risk high <u>payoff</u> of the project was obvious.
2. New work-groups <u>initiated</u> short-term advances in computer hardware and software.
3. In the mid 20th century cybernetics was a <u>recently formed</u> science.
4. The Internet developers <u>understood</u> that the machines needed greater capability to interact with each other.
5. Due to the Web, users could <u>look through</u> information from everywhere.
6. One could say that protocols became a kind of <u>language common</u> to the connected computers users.
7. We have made every possible effort <u>to reconcile</u> their opinions.
8. The scientific discoveries of the early 20th century <u>influenced</u> the development of our civilization.
9. It's not exciting to do a <u>routine</u> work.
10. The creation of NSFNET <u>made</u> scientific information <u>at the disposal</u> of the researchers from universities.
11. The developments of two university students <u>promoted</u> very much the formation of different discussion groups.

LANGUAGE ACTIVITY

Exercise 1. *Remember the meaning of the underlined terms.*
1. <u>A protocol</u> defines how computers communicate.
2. <u>Packet-switching</u> is the process of sending packets (the basic unit of Internet data) through the network.
3. <u>Lingua franca</u> may be considered as a special language used between people whose native languages are different.
4. <u>Usenet</u> is short for User Network which is defined as a network accessible via Internet and which is the home for thousands of users.

5. <u>Modem</u>, short for Modulator-Demodulator, is an electronic device which translates digital information produced by a computer into analog sounds which can be sent down telephone lines.
6. Everybody knows development as gradual growth of something so that it gets more advanced: e.g., "industry development". But there is another meaning of the word, which is an act or the result of making a product or design performed: e.g.: "This group of scientists is known for their significant developments of <u>computer software</u>".

Exercise 2. Summarize your knowledge on the Participle. Find participles and state their tense and voice.
1. Invented by Babbage in 1842 and called by its inventor "analytical engine" this machine became the first home computer.
2. Founded by Hollerith, the Tabulating Machine Company changed its name and became known all over the world as the International Business Machine Corporation (IBM).
3. The Automatic Controlled Sequence Calculator resulted from Howard Aiken work was 40 feet long by 10 feet high.
4. It had about the same computing power as a low-priced solar-powered calculator that a schoolchild might use today.
5. The problem concerned complicated processes taking place on the computer market.
6. The production process influenced by the general economic situation is being closely inspected.
7. The formation of the Internet Education Centres in St. Petersburg followed by other regions proved to be highly successful.
8. Given a special program the machine can translate from Chinese into English and vice versa.
9. The idea of machine-aided calculus having survived numerous ups and downs over the years of its life has only now become a world-wide reality.
10. Having been changed to conform to new ideas, the equations could be applied to problem solving.
11. Having been asked to translate into Chinese "out of sight - out of mind", the machine replied by a row of Chinese hieroglyphs.
12. With job changes occurring regularly, employees leaving and employees being hired, the problem of information securing becomes especially topical for companies.
13. The Internet providing a new method of doing business must be capable of providing the reliability for the user.

TEXT 2

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*
Nouns
   irony, assertion, multimedia, fiber, contemporary, wire, community, hypertext
Verbs
      to decommission, to consume, to associate

Exercise 2. *Read and translate the words and collocations.*
Pivotal period, to stress the fact, apart from the fact, research proposal, funding authorities, the span of time, be it text or graphics, vehicle for online advertising, multimedia facilities, to fuel imagination.

Exercise 3. *Match the synonyms.*
Verbs

1	2
1) attribute	a) emphasize
2) highlight	b) discover
3) master	c) transmit
4) reveal	d) show
5) stress	e) promise
6) deliver	f) ascribe
	g) improve
	h) provide

Adjectives

1	2
1. enormous	a) constant
2. private	b) personal
3. contemporary	c) interactive
4. powerful	d) tremendous
5. previous	e) modern
	f) important
	g) preceding

Exercise 4. *Make nouns from the following adjectives according to the model and translate them.*
Adjective+-ness
white, loud, clear, enormous, useful, attractive, exact, busy, user-friendly.

Exercise 5. *Be attentive and remember the meaning of the underlined terms and words.*

1. High-speed and long-distance networks connecting other networks to the Internet became major links and were termed <u>"backbones"</u>.
2. A computer providing other computers on a Network with valuable data was called <u>a "host"</u>.
3. <u>WWW</u> is an information space on the Internet unified by a common addressing system and containing a mix of text, sound, graphic and animation files which can have links between each other even if they are on different servers.
4. <u>Browser</u> is a program created for searching, navigating and displaying the computer material through the Web.
5. Data with links between separate elements that allowed users to move through information non-sequentially was termed as <u>hypertext</u>.

Comprehensive reading

A NET FOR ALL, AND A WEB TOO

The years 1989-96 was another pivotal period for what was effectively known as the Internet, stressing the fact that the original ARPANET had been followed by myriad of fast growing sub-networks operating in the U.S. and internationally. In 1989 the ARPANET was decommissioned, and in April 1995 the NSFNET reverted back to a pure research network, leaving a number of private companies to provide Internet backbone connectivity. At the same time the number of hosts as well as the network traffic grew at an enormous rate.

This veritable explosion in network use, apart from the fact that the personal computer became a household item in the same span of time, can be attributed to the result of a research proposal submitted to the funding authorities of the European Laboratory for Particle Physics in Switzerland, CERN (a French abbreviation for Conseil Europeen pour la Recherche Nucleaire). The title was "WorldWideWeb: Proposal for a HyperText Project," and the authors were Tim Berners-Lee and Robert Cailliau.

The World-Wide Web (also known as the WWW or Web) was conceived as a far more user-friendly and navigationally effective user interface than the previous UNIX-based text interfaces. The communications protocol devised for the WWW was termed HTTP (HyperText Transfer Protocol), hypertext being a navigational tool, linking data objects, be it text or graphics, together by association in what is effectively a web of pages, hence the use of the term "World-Wide Web." Berners-Lee and Cailliau describe the process as follows: "A hypertext page has pieces of text which refer to other texts. Such references are highlighted and can be selected with a mouse....When you select a reference, the browser [the software used to access the WWW] presents you with the text which is referenced: you have made the browser follow a hypertext link."

The WWW prototype was first demonstrated in December 1990, and on May 17, 1991 the WWW began to work due to granting HTTP access to a number of central CERN computers. As soon as browser software became available for the

more common operating systems such as Microsoft Windows and Apple Macintosh, this new tool was immediately picked up by the Internet community.

The World-Wide Web, the simplicity of Internet access for private individuals, as well as the increasing user-friendliness of the software necessary to master the Internet protocols contributed to the meteoric rise of network use in the 1990s.

Browsing through the original WWW proposal reveals an irony very characteristic to the development of the Internet, in the face of its author's assertion that "the project will not aim to do research into multimedia facilities such as sound and video." In 1996 the present and future of the Internet, and the WWW in particular, points to a convergence of media types, and multimedia has indeed become the catch phrase of the day. Despite serious limitations in contemporary network capacity as far as to sound and video, new technologies constantly enable the increase of interactive network experiences. This development is supplemented by a constant innovation in hardware; today's Internet backbones transmit data packets at a speed up to 200 megabits per second (by comparison, the NSFNET backbone of 1986 ran at the blazing speed of 56 kilobits per second). Today the modems of most Internet users run at a speed of 28.8 kbit/s and a digital connection can deliver at a speed of up to 128 kbit/s, but the possibility of using the fiber optic cables bringing cable TV to millions of homes, for Internet data transmission opens up for private connections running at a speed of up to 10 Mbit/s. Another new technology, ASDL, promises to use the existing telephone copper wires for even higher transmission speeds.

But what will these network technologies deliver to the Internet user? In 1996 commercial Internet hosts have overtaken educational and governmental applications and these commercial interests clearly consider the Internet, and the WWW in particular, as a vehicle for online advertising and commerce. Hence the Net user of today can be described as a consumer. The Internet is still a powerful medium for communication, and has in many ways fulfilled the vision of interactive computing which fueled J.C.R Licklider's imagination, but it remains to be seen whether it will be the democratizing medium of the 21st century, or merely become another static-filled television channel.

Notes:
household item - предмет домашнего обихода
span of time - промежуток времени
to submit a proposal - высказать предложение
catch phrase - фраза дня

COMPREHENSION CHECK

Exercise 1. *Replace the passages in their logical order.*

1) When the protocols were formed, much of the software and services that make up the Internet appeared. The basic services for remote connectivity, file transfer, and electronic mail were introduced in the mid and late seventies. The Usenet

news system appeared in 1981 and the World Wide Web information system in 1989.

2)The Internet of today is only one third a research and educational network because of universities and institutes connected to it. However, commercial communications have taken over the majority of Internet traffic.

3) In 1990, the ARPANET had had many other networks connected to it. Later, its role as a network backbone was taken over by the NSFNET funded by the National Science Foundation . The networking companies and organizations which provided the data connections to all the Internet hosts continued in their goal of providing easy global network access.

4) The Internet developed from the project initiated by the US Department of Defense - *Advanced Research Projects Agency* (ARPA). The ARPANET, as it was then called, was designed to be a non-reliable network service for computer communications over wide area. In 1973 and 1974, a standard networking protocol, a communications protocol for exchanging data between computers on a network, emerged from the various research and educational programs involved in this project. This became known as TCP/IP or the IP suite of protocols.

5) These protocols enabled ARPANET computers to communicate irrespective of their computer operating system or their computer hardware. We call such protocols heterogeneous. UNIX operating system was developed in the same era and TCP/IP became almost synonymous with the UNIX which was spread throughout the many educational institutions around the US for a low cost. Multi-user systems such as UNIX soon became the most popular method of accessing the Internet.

Exercise 2.
a) How many stages can you find in the process of the Internet creation and development?
b) Who created the Internet?

LANGUAGE ACTIVITY

Exercise 1. *Summarize your knowledge on the Absolute Participial Construction. Find the construction in the sentences. Translate the sentences into Russian.*
1. Computers using binary language represented by a single binary digit (1 or 0), one of the earliest sections of the Internet was called Bitnet.
2. A high-speed network connection having been established between five computing centres, they in turn made their facilities available to the local universities.

3. Network is a system of computers connected together to share programs, data, etc., the Internet being effectively a worldwide network of networks.
4. The cost of local phone calls being not so high, using e-mail becomes the most spread use of the Internet.
5. Satellites have been a part of the world telephone and television networks for decades, some of them carrying calls over oceans, others broadcasting pictures to millions of viewers.
6. It was found that certain parts of the brain being damaged, men lost their ability to do certain things.
7. The earliest translation engines were based on direct translation principle, input sentences of the source language being translated directly into output sentences of the needed language.

TEXT 3

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below.*
Nouns
    circumstances, employee, infancy, think-tank
Verbs
    dive, mention
Adjectives
    strategic, relevant, foremost, comprehensible, awesome

Exercise 2. *Read and translate the words and collocations.*
Strategic problem, relevant figure, the missing packet, highly technical project, to split, to run the project, under the circumstances, via network, in its infancy.

Exercise 3. *Match the synonyms.*
Verbs

1	2
1. split	a) hope
2. communicate	b) provide
3. participate	c) decompose
4. expect	d) contact
	e) take part

Nouns

1	2
1. destination	a) idea
2. infancy	b) addressee
3. receiver	c) sender
4. circumstances	d) childhood
5. conception	e) address
	f) conditions

Exercise 4. *Make new words from the following nouns according to the model and translate them.*

Pre- +noun

disposition, face, text, vision, position, diction, history.

Scan-reading

THE INTERNET INVENTORS

In 1979 Paul Baran, Vint Cerf, Jon Postel and Bob Braden proposed the Internet conception.

Its prehistory dates back to the early 1970s when the RAND Corporation, America's foremost Cold War think-tank, faced a strategic problem. The question was: how could the US Army communicate under circumstances of nuclear war, in zones involved into military operations? It was the Internet that became the answer. Each message is split into data packets and sent out via the computer network. Then it goes to its destination by whatever route was available, passing through many other computers, each of them being a part of the global network. In case one packet is missing, a receiver asks a sender to send the missing packet again. The above mentioned individuals were carrying out that research.

Paul Baran, then the employee of the RAND Corporation, was running the DARPANet (Defense Advanced Research Project Network).

Vint Cerf, a.k.a.* the Father of the Internet, invented computer protocols for the DARPANet, which allowed communication between computers of various types.

Jon Postel was the Project Leader for one of the National Science Foundation Project and the Gigabit Network Communication Research Project. These two highly technical projects were completely incomprehensible to those who were not foremost scientists like Jon Postel. Postel had an M.Sc. degree in Engineering and a Ph.D. in Computer Science.

But the most relevant figure in Internet creating was a young Englishman who single-handedly made the World Wide Web. His name is Tim Berners-Lee. Actually, he did not participate in creating the Internet itself, but he designed the World Wide Web, the "killer application" of the Internet. The Web is the reason for which millions of people dive into the Net. Even though still in its infancy, the Web is fascinating, it's a global library. Once it's fully formed, it could be awesome. Tim

Berners-Lee's Web is what transformed the Net from academic back-water into the global stream of fresh water it is today.

Tim Berners-Lee created the Web at the age of 32. At the same age Bill Gates was on his way to his first billion. Like Gates, Berners-Lee was introduced to computers while still a child - his parents were mathematicians. On graduating from Oxford, he developed the first Web prototype in 1980 for his personal use. Nowadays, he expects the Web to become a place where one could find any fact about anything quickly and cheaply.

The Web let the Net be used in a logical way. It created a standard that everybody could - and did - follow.

*a.k.a. - also known as

Notes:
awesome - впечатляющий
foremost – выдающийся, знаменитый (напр.: ученый, писатель)
think-tank – группа экспертов при правительстве или организации, консультативный совет, мозговой центр
message destination – адресат
killer application - программа вне конкуренции

Academic Degrees:
B.S. (B.Sc.) - Bachelor of Science; a first university undergraduate degree.
M.S. (M.Sc.) - Master of Science; a first university graduate degree.
Ph.D. - Doctor of Philosophy; a high rank university degree granted for some research.

COMPREHENSION CHECK

Exercise 1. *Answer the questions.*
1. What way out of the possible war danger was proposed?
2. How could you characterize the conventionalists and developers of the new tool of communication?

Exercise 2.
- ***Summarize the information about the reasons that could possibly spark the development of the Internet, according to the texts.***
- ***Retell the story of Tim Berners-Lee as a WWW founder using the information given above.***

Exercise 3. *Read the text and entitle it.*
We know that the story of the World Wide Web started at CERN, Switzerland. That was its birthplace. But what about the present day? We must mention the Massachusetts Institute of Technology, better known as MIT. Here the Web and its founder Tim Berners-Lee currently reside. MIT collaborates with CERN and

European INRA to develop the Web Project. Much research is being carried out and supervised from the Laboratory for Computer Science at MIT.

Find some extra information of your own concerning Internet-related research of today.

LANGUAGE ACTIVITY

Exercise 1. *Paraphrase the underlined expressions and words.*
1. The problem was how the army could communicate <u>around the zones involved into the nuclear war events.</u>
2. Bill Gates and Paul Allen <u>are controlling</u> the Microsoft Corporation with more than 18.000 employees and 48 companies.
3. Information goes to its <u>destination</u> by whatever route is available passing through many other computers on the way.
4. These two projects are so highly technical that they are <u>completely incomprehensible</u> to those who are not foremost scientists.
5. <u>A special team experienced in the field of new technologies</u> was consulting the government.
6. Tim Berners-Lee was introduced to computers <u>while a child</u>.
7. <u>This engineer's current interests include</u> multimedia conferencing, electronic mail, very large networks and very high speed communications.
8. The Microsoft Network was intended as <u>a pay-as-you-go</u> online services.

TEXT 4

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below:*
Nouns
   term, surface, portion, brightness, hue, tablet, digitizer, raster, pattern, portion
Verbs
   coat, energize, determine, supplant
Adjectives
   pictorial, various, typical

Exercise 2. *Read and translate the collocations:*
animated motion pictures, energized by the electron beam, resulting image, pressure sensitive tablet, preexisting images on the paper, pattern-recognition device, architectural drafting, widespread use, raster graphics.

Exercise 3. *Match the synonyms.*

Verbs

1	2
1. display	a) appear
2. energize	b) activate
3. record	c) exist
4. generate	d) produce
5. emerge	e) show
6. convert	f) transform
	g) write down
	h) refresh

Nouns

1	2
1. term	a) activity
2. portion	b) color
3. intensity	c) word
4. hue	d) sector
5. dot	e) point
	f) beam
	g) screen

COMPUTERS GRAPHICS

Computer graphics means the use of computers to produce pictorial images. The images produced can be printed documents or animated motion pictures, but the term computer graphics refers particularly to images displayed on a monitor. Monitor can display graphics as well as alphanumeric data. A computer-graphics system basically consists of a computer to store and manipulate images, a monitor, various input and output devices, and a graphics software package - i.e., a program that enables a computer to process graphic images by means of mathematical language.

A computer displays images on the phosphor-coated surface of a graphics display screen by means of an electron beam that sweeps the screen many times each second. Those portions of the screen energized by the beam emit light, and changes in the intensity of the beam determine their brightness and hue. The brightness of the resulting image fades quickly, however, and must be continuously "refreshed" by the beam, typically 85 times per second.

Graphics programs enable a user to draw, color, shade, and manipulate an image on a display screen with the use of a mouse, a pressure-sensitive tablet, or a light pen. Preexisting images on paper can be scanned into the computer through the use of scanners, digitizers, pattern-recognition devices, or digital cameras. Frames of images on videotape also can be entered into a computer. Various output devices

have been developed as well; special programs send digital data from the computer's memory to film recorder, which records the image sequence on video film. The computer can also generate hard copy by means of plotters and laser or dot-matrix printers.

Pictures are stored and processed in a computer's memory by either of two methods: raster graphics and vector graphics. Raster-type graphics maintain an image as a matrix of independently controlled dots, while vector graphics maintain it as a collection of points, lines, and arcs. Raster graphics are now the dominant computer graphics technology.

Raster graphics create uniform colored areas and distinct patterns and allow precise manipulation. Raster graphics emerged in the early 1970s and had largely displaced vector systems by the 90s.

Vector-graphics technology was developed in the mid-1960s and had been widely used until it was supplanted by raster graphics. Its application is now largely restricted to highly linear work in computer-aided design and architectural drafting, and even this is performed on raster-type screen with the vector-type screens with the vectors converted into dots.

Computer graphics has found widespread use in printing, product design and manufacturing, scientific research, and entertainment since 1960s.

Notes:
- to sweep –сканировать
- raster graphics – растерная графика
- vector graphics – векторная графика

COMPEHENSION CHECK

Exercise 1. *Answer the questions.*
1. What does computer graphics system consist of?
2. What a graphics software package is?
3. How do electrons influence the formation of images on a graphic display screen?
4. What devices help users to receive needed images on a display screen?
5. What are two methods to store and process pictures in a computer memory?

Exercise 2. *Complete sentences with the collocations below.*
1. The images produced on a computer screen can be printed documents or ….
2. The portion of the display screen … by an electron beam.
3. The brightness of the … fades quickly.
4. Computer graphics has found a … in different spheres of human activities since 1960s.
5. Vector graphics were supplanted by ….

6. Software program enables a computer to process graphic images by means of ….

7. A graphics display screen is a ….

(raster graphics, are energized, phosphor coated surface, animated motion pictures, widespread use, mathematical language, resulting image).

Exercise 3. *Write a summary of the text according to the given plan; insert the words and collocation below.*

1. Definition of the term "computer graphics".
2. The main components of a computer-graphics system.
3. The function of an electron beam in producing an image on the display screen.
4. Devices for producing images.
5. Methods of storing and processing pictures in a computer memory.
6. Users of computer graphics.

(the term means, as for, special attention is given to, a set of, due to, one can safely say).

LANGUAGE ACTIVITY

Exercise 1. *Summarize your knowledge of Modal Verbs. Complete sentences with suitable verbs.*

1. There are some diseases when only computed-tomography scanners … save lives for patients.
1 – should
2 – can
3 – must

2. Internet … be available to any schoolchild in Russia.
1 – need
2 – must
3 – couldn't

3. No part of this publication … be reproduced.
1 – may
2 – could
3 – mustn't

4. If one of the packets didn't reach your address, you … send just this packet again.
1 – mustn't
2 – might
3 – should

5. If you wish to have cheap and fast correspondence, you … use e-mail.
1 – ought to
2 – can't
3 – must

6. Even with the biggest computers available today, we still … reliably predict the weather for next week.
1 – can
2 – cannot
3 – mustn't

7. Foreign language translation … prove to be a bit more complicated than a computer can handle.
1 – may
2 – must
3 – should

8. The ethics is the study of what is right to do in a given situation, or what we … do.
1 – could
2 – ought to
3 – need

TOPICS FOR DISCUSSION

Exercise 1. *Read the passage below and answer the question.*
Before an image can be displayed on a computer screen or monitor, it must be created by a computer program in a special part of the computer's memory, called a frame buffer. The frame buffer is usually located on the computer's graphics card. One method of producing an image in the frame buffer is to use a Nock of memory called a bitmap to store small, detailed figures such as a text character or an *icon* (small image). Frame buffer memory can also store other information, such as the color of each pixel.

Notes
frame buffer – буфер изображения, буфер кадра
bitmap – битовый массив

What kind of memory is used to display an image on a monitor?

Exercise 2. *Read the passage below and give us more information about using computer graphics.*
As recently as the 1980s, all the things that people built and used were originally designed with the use of rulers and other mechanical tools of the graphic artist. Today things are designed and built electronically with computers. The cars

that people drive are designed on a computer screen and tested in computer graphics simulations. Before doctors perform surgery, they use computer graphics in looking at X-ray images of the patient. Photographs are used to be stored on film. Now photos can be taken with digital cameras and sent as attachments to e-mail messages. You are most likely reading this text on a computer monitor. Today, almost all the things built and used in the world were originally designed with computer graphics.

TEXT 5

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below:*
a)
Nouns
   physician, unemployment, inventory, abundance, poverty, guidance, opportunity
Verbs
   outlaw, deny
Adjectives
   sensitive, intrinsic, unscrupulous

b) Pay special attention to the pronunciation of such words as:

robotization, realization, memorize, utilize, specialize, computerize, minimize, maximize.

Exercise 2. *Read and translate the collocations below.*
Unscrupulous charlatan, to maximize the benefits and minimize the harms, to be faced with decisions, to give a guidance, intrinsic power, to outlaw the interconnection computers.

Exercise 3.
a) *Match the synonyms.*
Verbs

1	2
1. reduce	a) refuse
2. deny	b) keep
3. protect	c) carry
4. store	d) respond
5. expect	e) stop
6. prevent	f) defend
	g) decrease
	h) hope

c) **Match the antonyms.**

Adjectives

1	2
1. obsolete	a) real
2. potential	b) harmful
3. beneficial	c) individual
4. abundant	d) public
5. private	e) sensitive
	f) poor
	g) contemporary

Scan-reading

NEW AGE, NEW PROBLEMS

Like any powerful tool, computers can be a force both for good and for harm. They can give physicians instant access to all of the information available on a patient in crisis, but they can also give unscrupulous charlatans the names of all cancer patients. They can give a business important new control over its inventory, but they can also give it privacy-invading control over its employee. Computerized robots might make work obsolete while producing abundance for everyone, but it can also throw millions of people into unemployment and poverty. To maximize the benefits and minimize the harms, those making decisions about the implementation of computer systems (e.g., programmers, systems designers, computer scientists, managers, legislators) must le sensitive, to the potential problems as well as to potential advantages of computers.

Because the computer gives us fundamentally new power, we are faced with decisions for which our experience may give little guidance. The danger of applying old standards to a fundamentally new situation might be well illustrated by the law passed soon after the production of the first automobiles, which required cars travelling the roads to be preceded by a man on foot carrying a red flag. This law reduced danger, but robbed the auto of its intrinsic power. Similarly, we could stop one type of computer crime by outlawing electronic fund transfer, or prevent a potentially dangerous accumulation of governmental power by outlawing the interconnection computers storing different sets of information about individuals, or prevent robots from taking workers jobs by outlawing robotization. It is possible to respond to every danger by cutting off the power that leads to that danger. But it is more productive to respond by analyzing each situation as it occurs. This way we may conclude that our fundamental values are better protected by changing our expectations or rules rather than by denying ourselves opportunities to take advantage of what the computer can do. Such an analysis requires some understanding both of social problems that computers may cause and the nature of our moral system.

Notes
privacy-invading control – контроль с нарушением права личной независимости
take advantage – воспользоваться преимуществом

COMPEHENSION CHECK

Exercise 1. *Answer the questions.*
1. What are the benefits for mankind connected with computers?
2. What are possible harms involved by computers using?
3. What is to be done to maximize the benefits and minimize the harms?
4. What is the best way of protecting our fundamental values?

Exercise 2. *Read "Commandments of Computers Ethics" and give your reasons "pro" or "contra" these rules.*
Commandments of Computer Ethics.
1. You should not use a computer to harm other people.
2. You should not interfere with other people's computer work.
3. You should not snoop around in the other people's computer files.
4. You should not use a computer to bear false witness.
5. You should not copy or use proprietary software for which you have not paid.
6. You should not use other people's computer resources without authorization or proper compensation.
7. You should not appropriate other people's intellectual output.
8. You should think about social consequences of the program you are writing or the system your are designing.
9. You should always use a computer in ways that insure consideration and respect for your fellow humans.

Notes
to snoop around - подглядывать, заглядывать
to bear false witness - собирать ложную информацию

LANGUAGE ACTIVITY

Exercise 1. *Translate the sentences below, paying special attention to the equivalents of the Modal Verbs.*
1. Old-fashioned people will have to accept the reality of the Internet world.
2. We can't continue our work. First, we are to bring light on the cause of the computer failure.
3. The first Internet created by Advanced Research Project Agency was to become the world's first indestructible defense communications network.
4. Only experienced programmers were allowed to work with the new systems.

5. Cellular phones rather than the traditional phone service are able to communicate with the remote districts of the continent.
6. Enormous work had to be done to prevent breaking commercial codes or organizing attacks before people can respond.
7. With new funds academic institutions and research installations will be able to continue research, development and testing new computational systems.

SUPPLEMENTARY READING

TEXT 6

Read the text and supply it with a title.

Most books and articles about the Net are "how to" works aimed at novices. Many thousands of technical papers, proposals, conference presentations, meeting notes, technical specifications and the like have been written. A few works have treated the Net from the standpoint of sociology, psychology, library studies or learning behaviour. Recently, an increasing number of researchers in the field of communications have begun to study the Net as well. Interestingly, it seems that most of the material treating the Net from the historical perspective has come from those on the Net itself. Much interesting material has been generated on Usenet. In addition, there are an increasing number of electronic journals which have made important contributions, such as the Amateur Computerist, the Electronic Journal of Virtual Culture and Computer Underground Digest. However, the study of the Net is a field which remains undiscovered territory for the historian. The natural scientists who study Man yesterday, today and tomorrow are the historian and archaeologist, the anthropologist, and the futurist respectively; the Net should be of supreme interest to each and all of them. The methods of statistical, social and physical sciences are most suited to an atomistic world in which events are predicable and repeatable. The natural scientist such as the astronomer or the geologist on the other hand might concern herself with a quasar or a volcanic explosion; such events are not at this stage of our culture predicable or able to be reproduced under laboratory conditions, but are nonetheless of great interest to the natural scientist. In the view of the statistical, deconstructivist social scientist who seeks to ape the physical sciences, the Net may not be much good to study: it is a data point of one. There has never been a Net like this in human culture. But it is equally a mistake to think that the changes brought about through the Net are entirely unprecedented. Changes in communications technology have often accompanied great social changes. We have now a unique opportunity - to study a culture in its infancy. We know only that we can not say for certain what the future of the Net may be. But that it is of tremendous importance to the future history of humanity cannot be disputed.

Exercise 1. *Answer the following questions using the information from the text.*

1. What are traditional and new sources for the Net study?
2. What branches of science are to be backed up by the Net study?

Exercise 2. *Topic for discussion.*
Give your standpoint of the importance of the Net for future scientific researches.

TEXT 7

SUPPLEMENTARY READING

Read the text and supply it with a title.

Over the last five years, the revolution in information technology (IT) has resulted in innovations that are having increasingly visible effects on the life of the average American. These developments affect not only how people work, but where they work, how much they work, or with whom they interact face-to-face or electronically. Will future workers continue to share physical proximity with their colleagues, or work largely alone wedded to digital devices with occasional electronic mail or voice communication? What will these changes mean for social trust and social life beyond the family? Will the growing trend of working at home with the aid of IT help strengthen the family or add to the intrusion of the workplace into the home? Will it reduce the hours people work, or increase them by infusing work into every sphere of life, devouring leisure time and family life? And how will the Internet affect the role and use of the traditional media?

These same IT innovations are revolutionizing information and entertainment delivery, affecting their production and consumption, transforming social life and behavior, even political institutions and the role of citizens within them. Some argue that the new technology of email, online discussions, on-demand information, and web-powered information diffusion and interest aggregation will lead to a more informed, engaged, and influential mass public. Will one live in a better informed and connected, more engaged and participatory society or in a society of lonely ex-couch potatoes glued to computer screens, whose human contacts are largely impersonal and whose political beliefs are easily manipulated, relying on the icons of a wired or wireless society?

The human meaning of these changes remains unclear at present. Some greet these developments with euphoria, others warn of dire consequences. The truth is likely to be somewhere in the middle. Some of the social/political changes will be liberating, some will have little social effect, but others may be harmful or even socially and politically explosive; some may even be perverse, and the most critical ones may well be unanticipated by everyone. For answers to these questions, one must move from ideological claims to empirical evidence.

Exercise 1. *Answer the following questions.*
1. To what possible consequences of IT revolution do you agree?

2. What consequences do you consider not to be probable?
3. Do you see some changes in your life that have already occurred. Do you like these changes or not?

WRITTEN TRANSLATION

Translate the texts using key-words.

Starting Time of Translation _____

ЧТО ТАКОЕ ИНТЕРНЕТ?

Где бы вы ни были, повсюду вы читаете, смотрите или слышите об Интернете.

Работаете ли вы в сфере образования или бизнеса, являетесь ли вы сотрудником государственного учреждения, работаете ли вы на компьютере, вам, вероятно, не раз задавали такой вопрос: "Какой у вас адрес в Интернете?"

Так что же такое Интернет? Внезапно ли появилась эта <u>глобальная сеть</u> **(1)**? Сколько людей пользуются сегодня Интернетом? В каком направлении развивается Интернет?

Ответы на эти вопросы позволяют специалистам развивать эту чрезвычайно важную коммуникационную систему.

Различают следующие этапы развития компьютерной техники:

1. <u>Эра</u> **(2)** "Черной Коробки" (1939-1970).

В то время компьютеры представляли собой гигантскую массу <u>электронных ламп</u> **(3)**, транзисторов или <u>интегральных схем</u> **(4)**. Они и заполняли огромные черные металлические коробки. Если вы закуривали или повышали голос они <u>со свистом вздыхали</u> **(5)** и останавливались. Большинство из них производилось фирмой IBM.

2. Эра Персональных Компьютеров (1970-1990).

Изобретение микросхем и новых операционных систем означало, что более дешевые и меньших размеров компьютеры могут теперь выполнять больший объем работы и гораздо быстрее. Мини-миниатюризация и усовершенствование <u>программного обеспечения</u> **(6)** <u>предоставили</u> компьютеры <u>в распоряжение</u> **(7)** малого бизнеса и семьи. К концу этого периода большинство людей пользовалось программами фирмы Майкрософт.

3. Эра Всемирной Сети (1992).

Начало Интернету <u>было положено</u> **(8)** в оборонной промышленности, а также исследователями академических лабораторий, работавшими над проблемой создания <u>неразрушаемой</u> **(9)** глобальной компьютерной коммуникационной сети. Несколько десятков специалистов США, в Объединенном Королевстве и в Норвегии – вот и <u>все, кто</u> **(10)** в это время являлся <u>истинными знатоками Интернета</u> **(11)**.

Новое средство **(12)** связи стало популярным тогда, когда операторы начали отправлять друг другу послания, чтобы обменяться **(13)** новыми идеями и обсудить общенаучные проблемы. Так возникла электронная почта **(14)**.

Интернет сегодня – это крупнейшая электронная коммуникационная сеть в мире. Еще совсем недавно некоторые источники утверждали, что Интернет связывает свыше 40000 различных сетей более чем в 100 странах. Полагают, что свыше 5 миллионов главных компьютеров участвует в Интернете и предоставляют услуги 40 миллионам пользователей **(15)** во всем мире.

Однако очень трудно установить **(16)** реальное число пользователей, чтобы сказать, насколько широко распространен Интернет. Никто не управляет этой сетью. Она не имеет руководства **(17)**, устанавливающего правила пользования и наделенного властью внедрять их.

Интернет расширяется во все возрастающем темпе **(18)**. Легче говорить о том, насколько Интернет вырос за годы, прошедшие с его внедрения **(19)**, чем назвать точное количество его пользователей.

1) global network
2) age
3) vacuum tubes
4) integrated circuits
5) to wheeze
6) software
7) to put within reach
8) to be started
9) indistructible
10)   the sum total of …
11)   Net-heads
12)   medium
13)   to share
14)   e-mail
15)   user
16)   to pin down
17)   regulatory body
18)   rate
19)   introduction

Finishing Time of Translation_____

Entitle the text and translate it.

Starting Time of Translation _____

Интернет часто рассматривается новичками как большая информационная "свалка" **(1)**. Но, чтобы им помочь сориентироваться в

огромном количестве фактов, существуют различные поисковые системы **(2)**, тематические сайты **(3)** и т.д. Имеются и такие коллекторы информации как энциклопедия **(4)**. Благодаря им, вам не нужно искать по сайтам необходимую информацию. Вам нужно только по взятому из Интернета адресу найти интересующую вас тематическую энциклопедию и прочитать все, что интересует по данной теме.

В сети имеются как универсальные **(5)** так и специализированные энциклопедии **(6)**.

В качестве примера можно привести сайт Кирилла и Мефодия (http: //www.km.ru). Здесь вы можете найти энциклопедию и кроме того 25 тематических разделов **(7)**. Поиск ведется по тематическому слову или словосочетанию **(8)**. В результате вы получаете ссылки **(9)** на тематические разделы, а затем и на статьи в самой энциклопедии. Например, при вводе слова "мышка" вам будут предложены статьи из разделов "Животные" и "Компьютеры".

Кроме того, на сайте вы имеете возможность принимать участие в конференции. В вашем распоряжении **(10)** доска объявлений, информация о новостях, погоде, валюте **(11)**. Можно сказать, что это лучшая в Росии интернет-энциклопедия **(12)**. Все ее статьи – абсолютно эксклюзивный материал.

Другой пример: Britannica (http: //www.Britannica.com). Это огромная универсальная англоязычная энциклопедия. Она представлена без сокращений **(13)**. Энциклопедия состоит из 2 частей: "Micropedia" и "Macropedia". Сначала вы получаете краткую информацию из "Micropedia", а затем, если нужно, из "Macropedia". Многочисленные ссылки на статьи из книг и журналов позволяют вам получить исчерпывающую информацию **(14)** по вашему вопросу.

1. information dust-bin
2. data retrieval systems
3. topic sites
4. encyclopedia
5. general encyclopedia
6. specialized encyclopedia
7. thematic sections
8. word combination
9. references
10. at your disposal
11. currency
12. virtual encyclopedia
13. without shortening
14. exhaustive information

Finishing Time of Translation_____

Chapter III

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below:*

Nouns

adherent, agency, audience, client, colleague, comprehensibility, diagram, drawing,　finding, medium, pamphlet, product, purpose, sphere

Verbs

ignore, overview, process, fragment, present, range, evaluate

Adjectives

frequent, spiritual, visual, comprehensible, multiple, valuable

Exercise 2. *Read and translate the collocations.*

It's worth considering, as easily understandable as possible, supplier's support staff, care about the information, to learn from the experience of the others, to browse through the Web.

Exercise 3. *Make different parts of speech from the following words according to the model.*

Verb+ion = noun

distribute, complete, evaluate, disseminate

Verb+ible/able = adjective

comprehend, understand, program

Adjective+(il)ity = noun

capable, comprehensible, possible

Adjective+ly = adverb

former, graphical, full, easy, frequent, expensive, visual, like, public

Exercise 4. *Remember and explain the terms.*

Benefit, crucial event, font choices, desktop publishing files, software patches, online graphic.

Exercise 5. *Match the synonyms.*

Verbs

1	2
1) update	a) propose
2) resort	b) connect
3) to employ	c) modernize
4) offer	d) ask for
5) click on	e) be useless
6) link up	f) provide
7) supply	g) turn on
	h) to use

Nouns

1	2
1. mode	a) aim
2. finding	b) environment
3. purpose	d) textbook
4. tool	e) client
5. tutorial	f) discovery
6. medium	g) instrument
7. customer	h) way
	i) distribution
	j) capability
	k) creation

TEXT 1

Comprehensive reading

The italicized sentences are to be translated into Russian.

USES OF THE WEB

The fact that the Web is being widely used for multiple purposes is without question. But before overviewing its benefits it is worth considering one fact that became a crucial event for it. The question is about a new mode of presenting information. Before, over the Internet and other wide area networks, the text has been the main mode of presentation. The Web changed that. Now the information could be presented in graphical format, complete with font choices and incorporated drawings, photographs, tables and other multimedia elements. These graphical elements offered different kinds of information and information providers were able to search precisely suitable elements. The result of these innovations is that the Web's capabilities are increasing, its information becomes more comprehensible too. Of course the work has to be done right and those who care about their information perfectly know how to do it.

The Web clients become more and more numerous to display fully formated word processing and desktop publishing files.

One of the first to use the Web was science. Dissemination of research and scientific findings has always been one of the purposes of the Internet and of the Web project at CERN in Switzerland. Today the Web is used as a tool of exchanging scientific information as it has been considered to do. But perhaps more important is that the Web is used to make research discoveries available to the general public, most of this information being presented so that it becomes as easy understandable as possible. Publicly funded research agencies are interested in making their work known to the public, in finding new ways to place their information. Booklets and pamphlets distributed through mailing are expensive and usually ignored. The Web is

the best way out of the problem. Now on a well-designed HTML page a user can demonstrate its activities graphically and these pages can be updated inexpensively and frequently.

Providing services for clients as to technical documents, software patches and answers to frequently asked questions is another benefit of the Web using. Customers with a Web access are able to take care of their own information needs without resorting to the help of supplier's support staff.

Many other services of this kind are likely to be developed for making the Web more friendly to users. For example, the possibility of Web based tutorials offering step-by-step procedures for installation a new piece of equipment or for programming your VCR. Well designed, this service is certain to be better than a usual, tech support phone call because it shows, rather than tells, the customer what to do and how to do.

It should be noted that these Web applications are not a one-way link. Customers need to know that they are not forgotten and that there is a place where they can learn from the experiences of other customers. It becomes possible due to HTML forms to provide a feedback and to answer questions on products. The latter is especially valuable in products ordering. Now there are many who are interested in this service rendered by the Web, and it is despite of the discussion as to the Web's security for credit cards use.

Why is the Web shopping so attractive? Imagine you can find a variety of products ranging from flowers to books for your music CDs, and all this by browsing through the Web and without leaving your home. Moreover, unlike home shopping on TV, you needn't sit through the other products that are of no use for you in order to find the item your have been looking for.

Shopping on the Web is like walking into a shopping mall (by the way, "mall" is the name given to many Web offerings). There is only one thing for the customer to do: click on the shop you want, turn on the online graphic to see a picture of the chosen product and address to the order forms page to do the ordering. Such services are expected to be more often used.

At last, such spiritual part of human activity as creative arts is not aside from the Web pages. People in creative arts are often regarded as adherent to traditional forms of arts and resistant to new technologies. However, it would be an erroneus opinion, because throughout the history people of arts have always been among the first to adopt new technologies to their work. Such examples as printing press or MIDI witness it.

Therefore, it is quite natural that the artists consider WWW to be a new medium suitable for presenting their works and for linking up with their colleagues. Now we see galleries of new visual art to appear online or the presentation of artworks that are asked to be evaluated by the Web users. As to creative writing, it becomes frequent on the Web and includes interactive stories, illustrated texts and even Web-based drama. The Web attracts artists by an inexpensive way of presenting their work and a built-in global audience. This is something about which artists could only dream before.

Of course, there are some arts that couldn't be placed on Web sites. But it may be a matter of future.

Notes
creative writings - литературные произведения
tech support - техническая помощь
visual art - изобразительное искусство
mall – большой торговый центр

COMPREHENSION CHECK

Exercise 1. *Answer the questions.*
1. What information does the text give you about the crucial event that enabled the Web to be widely used?
2. What are the reasons for scientists to use the Web so widely?
3. What services make the Web so user-friendly?
4. What other services, not mentioned in the text, could you cite?
5. What creative arts can be found today on the Web pages?
6. What other arts might be placed on the Web sites in future?

Exercise 2. *Topics for discussion.*
1. Is Web-shopping really attractive? Why?
2. Would you prefer to read fiction on the Web site or in a traditional way?
3. Are you a Web sites customer? If so, in what way is it beneficial to you?

Exercise 3. *Arrange the sentences in their logical sequence, using* so, as a result, after, before, etc.
1. Cruise lines have Web pages showing various types of cruises.
2. These pages offer information concerning tours and hotel accommodations as well as forms of transportation.
3. Planning a vacation becomes now much easier.
4. Many cities sponsor Web pages as well.
5. Many Web sites can help you in planning your travel or give you ideas of places you should visit.
6. You can learn about restaurants, sightseeing and shopping opportunities.

LANGUAGE ACTIVITY

Exercise 1. *Translate the following sentences into Russian, paying special attention to the word "the latter".*
1. New forms of the text provided feedback to customers, the latter being especially valuable in products ordering.
2. The software may be used to send the contents of the screen to a speech synthesizer, and the latter converts the screen contents into spoken words.

3. With e-mail it becomes possible to send information and to receive the answer almost immediately. The latter becomes especially beneficial for business decision-making.
4. The Internet has brought both financial and communicational benefits, the latter being especially important.

Exercise 2. *Summarize your knowledge on the Infinitive.*
Translate the sentences into Russian. Point out the Infinitives.
1. To transform the Net from academic backwaters into the global Web was the aim Berners-Lee decided to achieve.
2. The text to be translated with a computer shouldn't be too long.
3. His knowledge of the subject was deep enough to encourage the colleagues for future cooperation.
4. To use the Internet to conduct a real business has become every businessperson's need.
5. The aim was to have all the nets integrated in one system.
6. To start business a company needs a highly sophisticated computational equipment.
7. To write computer programs, to work out data to be processed is a very time-consuming job.
8. The problem is too complicated to be solved on the spot.

TEXT 2

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below:*
Nouns
  uselessness, myth, howler, target, fraught
Verbs
  to separate, to rearrange, to suffice, to click
Adjectives
  famous, separate, reliable, rough, source, automated, idiomatic

Exercise 2. *Match the antonyms.*

Verbs

1	2
1. suffice	a) fail
2. separate	b) produce
3. succeed	c) not to be enough
4. input	d) spend
	e) unite
	f) manage
	g) output

Adjectives

1	2
1. reliable	a) strong
2. weak	b) exact
3. complicated	c) valuable
4. rough	d) insecure
5. modern	e) simple
	f) out of date
	g) attractive
	h) interactive

Scan-reading

TRANSLATING MACHINES

Jokes about the uselessness of machine translation abound. The Control Intelligence Agency was said to have spent millions trying to program computers to translate Russian into English. The best it managed to do was to turn the famous Russian saying "The spirit is willing but the flesh is weak" into "The vodka is good but the meat is rotten". This story is a myth. But machine translation certainly produced its share of howlers and was too much relied upon.

It was Japanese researchers who moved by the linguistic barrier that seemed sometimes to separate their country's scientists and technicians from the rest of the world made energetic steps toward a reliable machine translation. Their efforts were imitated in the West.

The earliest "translation engines" were based on a direct, so called "Transformer" approach. Input sentences of the source language were transformed directly into output sentences of the target language. At first the machine did a rough analysis of the source sentence dividing it into subject-object-verb, etc. Then source words were replaced by target words selected from a dictionary and their order was rearranged according to the rules of the target language.

These rough operations with earlier machines resulted in a simplified transformation fraught with these silly sentences so much laughted at now.

Then came modern computers, which had more processing power and more memory. Their translation engines are able to adopt less direct approach, using what is called "linguistic knowledge". It is this that allowed to produce e-j bank and to succeed with "Tsunami" and "Typhoon" - the first Japanese language - translation software to run on the standard (English) version of Microsoft Windows. Linguistic knowledge translators have two sets of grammatical rules - one for the source language and one for the target language. They also have a lot of information about the idiomatic differences between the languages to stop them making silly mistakes.

Having been designed from the start for use on a personal computer rather than a powerful workstation or even a mainframe, "Tsunami" (English to Japanese) and "Typhoon"(Japanese to English) use memory extremely efficiently. As a result, they are fast on the latest PCs - translating at speed more than 30.000 words an hour. Do they produce perfect translations at the click of a mouse? Not at all. The machine translation comes at first to the hands of expert translators to get their teeth into. One mistake that the earlier researchers made was to imagine that only fully automated machine translation would suffice.

Notes
e-j bank – Англо-Японский банк слов
howlers – грубейшие ошибки
polish up - улучшать
source language – исходный язык
target language – выходной язык
to get teeth into – тщательно (внимательно) изучать
workstation – рабочее место со всем компьютерным оборудованием

COMPREHENSION CHECK

Exercise 1. *Say what you have learned about:*
a) the direct "transformer" approach in machine translation
b) the "linguistic knowledge" method in machine translation

Exercise 2. *Answer the questions.*
1. What did machine translation lack since its earliest days?
2. Why have the Japanese researchers made energetic steps towards a reliable machine translation?

Exercise 3. *Comment on the following statements.*
1. The only purpose of machine translation is to produce a perfect translation at the click of a mouse.
2. Machine translation is to provide expert translators with good first drafts to polish up.

LANGUAGE ACTIVITY

Exercise 1. *Translate the sentences into Russian. Point out the Subjective Infinitive Constructions.*

1. The first thousand of the Net enthusiasts proved to be mainly academic and computer professionals.
2. Even the more sophisticated computational systems are unlikely to substitute the human brain.
3. CERN and MIT are known to be the first to turn towards Web development.
4. The Microsoft Corporation is considered to have become the world's biggest PC software provider.
5. The invention of microchips and new operating systems was expected to enable smaller and cheaper computers to perform difficult tasks faster.
6. The Web is stated to have created a standard that everybody could - and did - follow.
7. The boys enjoy, while looking NASA space flight transmission, to be informed what the astronauts are doing.

Exercise 2. *Translate the sentences into Russian. Point out the Objective Infinitive Constructions.*

1. Lady Byron considered computers to be basically stupid although they could seem clever.
2. We know the first computers to have represented a mass of vacuum tubes, transistors and integrated circuits.
3. Teachers expect the Centre of Education to provide them with information on programs for keeping students competitive in science and technology.
4. Businesspeople would like selling to be done anywhere via Web and other Internet resources.
5. We believe Hollerith to be the second giant after Babbage due to his "tabulating machine" to have completed the results of the 1890 US Census.
6. People involved in business know several cases of on-line fraud and computer-based espionage to have been committed.
7. Engineers know the speed of light to be the limiting speed on computers.
8. Do you know the Queen of Great Britain to become the first Head of State to use the global computer network.

TEXT 3

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below:*

Nouns
forefront, assignment, vision, pursuit, literacy, copyright, scheme
Verbs
pursue, encourage, to apply

Adjectives
   typical, curious, previous, adequate, renowned, virtual

Exercise 2. *Read and translate the collocations.*
Forefront of innovations, to answer assignments, vision of lifelong learning, benefit from other student's efforts, renowned universities, previous methods, distant institutions, pursuit of knowledge, company-sponsored classrooms, decline of literacy.

Exercise 3. *Match the synonyms.*
Verbs

1	2
1. pursue	a) consider
2. treat	b) concern
3. involve	c) study
4. explore	d) help
5. assist	e) use
6. apply	f) expect
	g) provide
	h) discover

Nouns

1	2
1. assignment	a) growth
2. education	b) learning
3. power	c) forefront
4. individual	d) human
5. innovation	e) task
6. fee	f) price
	g) institution
	h) energy
	i) learning

Reading and extracting information

VIRTUAL LEARNING

Given that universities are at the forefront of technological innovations, it is to be expected that new forms of delivering instruction, at the post-secondary level are emerging. Numerous universities have turned to the World Wide Web as a way to provide instruction to supplement the typical lecture system. In fact, entire courses have been placed on the Web, permitting students access to lecture material at any time and from any place. Students have been encouraged to treat the course Web site as a living document by adding their own links to material discovered in the process

of answering assignments or carrying out research projects. Thus, every student can potentially benefit from every other student's efforts. In such a situation, education can become a cooperative enterprise involving teachers and students alike. There is more: courses mounted on the Web are also available around the world so that we might expect to see international competition among universities. In fact many universities now accept admission applications over the Web. There is a danger of uniformity as the globally renowned universities make their presence felt everywhere. How will local colleges and universities compete? They will have to provide a variety of services—hand-on experiences, local special conditions, direct personal attention—not available to distant institutions. It does seem to be the case that educational institutions will have to be flexible, imaginative, and perhaps lucky, to survive in a networked world.

But it should be noted that new technology is not replacing teachers but rather is extending the power of imaginative teachers and curious students to explore the world in ways not previously possible. Well trained teachers, assisted by technical staff, operating with adequate equipment, connected to the Internet, and financed with adequate operating funds are the basic necessities for success in the wired world. Education is usually considered in the context of educational instructions elementary schools, high schools, vocational schools, colleges, and universities—but considerable learning goes on in the workplace as well as in company-sponsored classrooms. Many people have a vision of lifelong learning as a combination of institutionalized instruction and the individual pursuit of knowledge. Traditionally, libraries have played a very important role in enabling motivated individuals to pursue their interests in a self-directed manner.

Now with the emergence of the Internet, and the explosive growth of information, it is not unrealistic to consider the self-education to become accessible beyond reduction of formal institutions. One early proposal is to get electronic books into homes—through a national digital library and small, sharp-screened computers—in an era of declining literacy. It is a vision to have an online library of books, not just public domain ones currently available on a number of Web sites, but newly published ones for which copyright still applies and that would be readily accessible for a small fee. Such a scheme could provide supplementary resources for schools as well and would operate in parallel with the school system.

Notes
to hand on – передавать, длиться
lifelong learning – непрерывное обучение
forefront – передовая линия

COMPEHENSION CHECK

Exercise 1. *Answer the questions.*
1. Why education over the Web can become a cooperative enterprise friendly to teachers and students alike?

2. Why can universities exchange experiences with distant educational institutions be useful?
3. What means can nowadays help teachers and students explore the world?
4. What is the difference between the vision of the traditional lifelong learning and the online learning?

Exercise 2. *Read the passage below.*
Computer scientists, cognitive psychologists, education experts and professors are working on projects that can change the way teachers teach and students learn. According to these scientists, successful education is to develop along seven topic principles:
– Simulating real-life environments (e.g., a stock market, a hospital, a shop)
– Enabling self-paced learning
– Lowering intimidation factor (e.g., fear of looking stupid)
– Reducing behavioural problems in the classroom
– Increasing one-to-one interaction
– Providing access to more information
– Implementing "situated learning"

Notes
behavioural problem - проблема поведения
cognitive psychology - психология познания
intimidation – стесненность, закомплексованность
self-paced learning - индивидуальный темп обучения
situated learning - ситуативное обучение
stock market - оптовая биржа

Do the teaching methods of the Virtual College correspond to the above-mentioned principles? Prove your statement.

Exercise 3. *Retell the passage paying special attention to the new learning merits. Continue it beginning your talk with the word "However…" Expose your ideas about demerits of such instruction.*

New Ways to Learn
In the information economy knowledge is power. However, traditional teaching is expensive and slow. New technologies make learning more productive.

In companies centralized training is now giving way to distributed, "just-in-time" learning. The result is increased flexibility, better retention and lower costs.

In schools and colleges students surf the Internet, use Lotus Notes, exchange e-mail, use multimedia CD-ROMs and perform simulations. These techniques break down barriers, customize instruction and make education more cost-effective.

Notes
surf the Internet – быстро просмотреть информацию в Интернете
Lotus Notes - электронный органайзер (ежедневник) Лотус
retention - способность к запоминанию

LANGUAGE ACTIVITY

Exercise 1. *Complete the sentences with the prepositions given below* at, to with, *from, on, out, of.*
1. Due to Web sites you can benefit … the information obtained.
2. Online libraries could provide … supplementary information for schools.
3. Internet competitions among universities might become possible … the Web.
4. New laboratory is provided … everything necessary to carry … research.
5. Being at the forefront of technological innovations universities were the first to turn … the Web.
6. Students can answer … assignments of the Web course.
7. The departments … computer science were founded at universities.
8. Web courses are available to remote students … any time.

Exercise 2. *In the texts you have read there were preposition* since, during, for *which sometimes are quite confusing. Here are some useful rules to help you.*
Since is used to show the starting point of an action, to say when something started. It is often used with the Present Perfect tense.
Example: I have studied English since 1981.
For is used to indicate the duration of an action (how long something has gone on).
Example: I have studied English for eight years.
During is used to indicate the period in which an action occurs.
Example: Herbert played tennis during the summer.
Try this exercise.
1. John has worked here … 1984.
2. I have known him … two years.
3. I have been working here … hours.
4. I've been working here … 2 o'clock.
5. He's been sleeping … ages.
6. I saw them … my stay in London.
7. He spoke … three quarters of an hour.
8. I have been waiting … weeks.
9. It rained … the night.
10. I stayed there … two months.

TEXT 4

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below:*

Nouns
   structure, autograph, immoderation, notification, recipient

Verbs
   apply, sign, cause, search, indicate

Adjectives
   official, preliminary, unacceptable, overloading

Exercise 2. *Explain and remember the terms.*
Business etiquette, e-correspondence, business letters, logotype, digital format, hacker.

Exercise 3. *Match the equivalents of collocations.*

1. strict rules	a. строгие правила
2. to be stored in digital format	b. сохранять в цифровом формате
3. preliminary scanned	c. предварительно отсканированный
4. attachment	d. приложение
5. extension	e. расширение
6. different fonts	f. различные шрифты
7. encode the message	g. закодировать послание
8. recipient	h. получатель
9. confirmation of receiving	i. подтверждение получения
10. correspond to the requirement	j. соответствовать требованиям
	k. список получателей
	l. автоматическая доставка
	m. усложнить поиск

Scan-reading

NETIQUETTE

Business etiquette and the rules of good form apply to e-mail also. In English there even appeared a neologism "netiquette", derived from words "net" and "etiquette" Especially strict rules apply to business e-correspondence with partners and clients. Official and business letters are written on the forms of the company, that are to be stored in digital format on your computer. There is a logotype, an address and the phones of your organization on such a form. And you use the same strict

structure and the style of the letter as if you were writing it on the paper. You can sign your letters with the autograph, preliminary scanned and saved in digital format. In case when you send some attachments with your letter, you have to indicate the number of pages which these files were fit to. If this is graphics, you have to indicate also their extension, format and quantity.

In official letters no misprints, usage of different fonts, graphical immoderations, emotions express and mixing of Latin and Cyrillic are allowed. A lot of Internet users prefer to communicate in Russian using Latin font. This technique is unacceptable in business correspondence.

It is a bad form to send documents attached while leaving the letter blank. All files, sent via e-mail must be accompanied by greeting and some comments.

When you receive a business letter, it is required to send a short notification of it immediately. You can send a detailed reply later, when it is needed. But if you have received a letter, which is evidently addressed not to you, you may not answer it.

It is not recommended to send secret files which can be opened by any hacker. However you can encode your messages. It is clear that the recipient should know about it and have a decoding program.

Before sending a text or graphic files, make sure that they do not contain viruses.

There is a function of automatic delivery of your messages in e-mail, to someone's address or fax number. You shouldn't use this function too much, because it often happens that your computer, without having received the confirmation of receiving, continues sending the message again and again. That causes overloading of recipient's mailbox or uses out all the paper in the fax machine.

We suggest to save the recipient's addresses in the special address book in the integrated folders, such as "friends", "business partners", "clients", "colleagues", etc. If you save all of the addresses in one place, this would not only make the search of the needed recipient harder, but also can lead to incidents, such as you may send a letter that you wrote to your beloved woman, to your boss, after you had clicked the wrong line. By the word, if you have discovered that you had sent a message to the wrong address, you should send apologies and explanation in pursuit.

The address book allows you to choose as many recipients as you wish, and after that the same letter will be sent to all these addresses. This certainly saves your time but doesn't correspond to the requirements of business etiquette. The point is that every recipient gets the full list of addresses, that you have sent the letter to, with the message itself.

Notes
attachment - приложение
by the word - одним словом
Cyrillic - кириллица
fit to - вводить (в компьютер)
folder - папка
form - (зд.) бланк
Latin - латиница

misprint - опечатка
notification - уведомление
recipient - адресат
the point is - дело в том

COMPREHENSION CHECK

Exercise 1. *Answer the following questions.*
1. What does a neologism "netiquette" mean?
2. What rules are you to follow in business correspondence?
3. What are you expected to do when you receive a business letter?
4. What can you tell us about a function of automatic delivery?
5. Why are you to save the recipient's addresses in the special address book?

Exercise 2. *Look at the two similar sentences. Which one is true? What makes the second sentence false?*

1. Netiquette rules are especially strict in private correspondence.
2. Attachments to your business letters are allowed in e-correspondence.
3. While e-mailing your business letter you needn't observe formulas of politeness.
4. It is not recommended to send via e-mail secret information.
5. You should use either Latin or Cyrillic font in official letters.
6. You shouldn't overuse the function of your message's automatic delivery in e-mail.

1. Netiquette rules are especially strict in business correspondence.
2. Attachments to your business letters in e-correspondence are not recommended.
3. All business letters sent via e-mail must be accompanied by a greeting.
4. It is safe to send via e-mail secret information.
5. Mixing Latin and Cyrillic fonts in official letters is allowed.
6. You may use the function of your message's automatic delivery in e-mail as often as you need.

LANGUAGE ACTIVITY

Exercise 1. *Summarize your knowledge on the Gerund.*
I.   Translate the sentences into Russian. Point out the Gerunds.
1. The old companies were afraid of being removed from the market by the recently appeared companies.
2. The great advantage of the so-called graphic computers lies in solving design problems.
3. Having spent half an hour waiting for their home page to load some users are gradually getting nervous.
4. On leaving school I hoped to find a job that would suit my dispositions.

5. Security considerations prevented the banks from adopting the Internet as a mean of funds transfer.
6. The firm would like to be sure of following the right course of actions.
7. The hacker was accused of having secretly used other people's private information.
8. Success depends on being in the right place at the right time.

II. *Translate the sentences into Russian. Point out the Gerundial Constructions.*
1. Our having accomplished the work so quickly surprised everybody.
2. Some doctors object to children's playing computer games too often.
3. A good way to learn about a company's doing business on the Net is through the Commerce Net.
4. You can't start work without a precaution against a computer failure being taken.
5. Computers were appreciated for their having completely changed many fields of human activity.
6. Computer expert system advising a user how to solve a problem approaches to a human expert.

III. *Begin the following sentences with the given expressions.*
A) be sure of, be fond of, be interested in, be engaged in, be proud of.
B) rely on, insist on, prevent from, succeed in, result in.

A)… meeting his friends at the conference.
… setting his business.
… working day and night at the project.
… surfing through the Net.
… having found the solution for the problem.
B) … our going on with the work.
… working out a new televised course.
… using the Web as a tool for exchanging scientific information.
… his having done everything well.
… making a wrong decision.

Exercise 2. *Put the verbs in brackets into the correct form.*
1. If I had known that you were in hospital I (visit) you.
2. If I (know) that you were coming I'd have baked a cake.
3. If you (arrive) ten minutes earlier you would have got a seat.
4. You would have seen my garden at its best if you (be) here last week.
5. I wouldn't have believed it if I (not see) it with my own eyes.
6. I (offer) to help him if I had realized that he was ill.
7. If I (realize) what a bad driver you were I wouldn't have come with you.
8. If he had known that the river was dangerous he (not try) to swim across it.

TEXT 5

WORD-STUDY

Exercise 1. *Check the transcription in the dictionary and read the words listed below:*

Nouns

virus, sophistication, vendor, environment

Verbs

encounter, misidentify, ensure, urge, seek

Adjectives

various, manual, prevalent, malicious

Exercise 2. *Match the synonyms:*

Adverbs

1	2
1. rapidly	a) actually
2. actively	b) likely
3. previously	c) essentially
4. truly	d) formerly
5. originally	e) idly
	f) quickly

Verbs

1	2
1. predict	a) correct
2. propose	b) spread
3. extract from	c) defend
4. protect	d) derive from
5. drop	e) go down
7. fee	f) forecast
	g) offer

Comprehensive reading

VIRUSES

About 16.000 viruses have been encountered by various antivirus research labs, and that number is expected to continue growing rapidly.

Though it is difficult to predict what the next major class of viruses will be or when it will hit, the place it hits is likely to be the Internet. Viruses are spread due to human contacts, such as exchanging disks or posting an infected file on a server. But they move from system to system also by themselves actively seeking out new computers to infect.

IBM researchers have proposed an automated system that can identify new viruses as well as develop and disseminate the antidotes. The software will be able to identify a previously unknown virus by either analyzing changes to a file or studying the characteristics of a file for code common to viruses. When a potential virus is identified, the infected file will be sent to the virus-lab computer. If the virus is known but not recognized by the user's system because of out-of-date software, updated antivirus data will be sent back to the user.

If the virus is truly unknown, the virus-lab computers will let it spread within a secure environment and then study the way the virus behaves, extracting its signature based on the common characteristics of the infected files. The signature will be tested to ensure it didn't misidentify clean files as infected. If the signature passes, it would be sent back to the machine on which the virus was originally identified and the virus will be removed.

IBM estimates that the entire process should take only about 3 minutes. Within a day, the updated virus signature will be sent out to all computers running IBM's software, protecting them from possible infection. This automated system will be faster than the manual process used in today's antivirus software, which typically takes several weeks to a few months to send new virus signatures to all subscribers.

Other disaster faces the antivirus community in the coming years. As computer prices continue to drop and more users get connected, the general level of user sophistication goes down. As a result, hoaxes have begun to spread around the Internet like wildfire. They are so prevalent that most users are more likely to be bothered by hoaxes than by actual viruses.

A hoax typically takes the form of an e-mail message: it warns the user of a virus spreading as part of another e-mail message that will cause damage to the user's computer. The message urges users to send the warning to all their colleagues. In fact there is no virus, but the hoaxer's message can take on viruslike characteristics as it replicates from system to system via e-mail. Although it is possible for a virus to spread via e-mail, such a virus has yet to be seen and studied.

Most users do not understand the difference between viruses and other malicious threats. Because of this, anti-virus vendors will have to continue extending their products to address more types of security problems, as well as to better detect the rapidly increasing number of viruses.

Notes
antidote - противоядие
hoax – дезинформация, трюк
seek out - выискивать
signature – отличительный признак, сигнатура
replicate - воспроизводить
sophistication- зд. профессионализм

COMPREHENSION CHECK

Exercise 1. *Answer the following questions using the information from the text:*

1. What are two main infections spread in computer – Internet world now?
2. What are the sources of viruses actively spreading in the world?
3. What is the aim of the IBM anti-virus research laboratory?
4. What two anti-virus methods did IBM researchers develop?
5. What is the advantage of the IBM automated anti-virus system?
6. Is the virus problem the single problem facing now anti-virus community?
7. What is the reason of this new malicious threat?

Exercise 2. *Topics for discussion.*
Summarize the information about the method of identifying new viruses developed by anti-virus laboratories.
Don't you think that hoaxes may be qualified as a computer terrorism?

LANGUAGE ACTIVITY

Exercise 1. *Read the table below.*

Two or more nouns can be combined in several ways.
   1. 's possessive (Dollerith's invention)
   2. one noun used as adjective (office hours)
   3. phrases with of (flow of information)
   4. compound nouns forming one word (workplace)

Exercise 2. *Reread the chapters II and III and write noun combinations under the following four headings:*

's possessive	one noun used as adjective	phrases with "of"	compound nouns forming one word

Exercise 3. *Translate the sentences into Russian. Point out the For+Infinitive Constructions.*
1. Everything has been done for Internet shopping to be of great interest to everyone involved in commerce.
2. It is already possible to talk to a computer for a speech to be accepted directly (voice input).
3. For the results to be a success much work is to be done.
4. Almost every family was eager for a PC to be bought and applied to home holding.
5. For the data on every happening to be the freshest the information on the Web is being constantly updated.

SUPPLEMENTARY READING

TEXT 6

Exercise 1. *Retell the text using the words and expressions: as the result, besides, to be noted, unfortunately, widely used.*

3D SCANNERS IN ARCHEOLOGY

For nearly two decades, Cyberware has developed and produced the world's most advanced 3D scanning products and software. These innovative products include 3D scanners and the supporting software that continuously provides three-dimensional imaging. Cyberware 3D Scanners and software have been used in applications such as artistic product design, research, animation and special effects for film, reconstructive and cosmetic surgery medical appliance design, anthropometry, ergonomics, and personal portrait sculpture.

Computer technologies are more and more widely used in different fields of human activities. For example, the using of scanners in archeology. A French 3D scanner has been installed at an archeological dig site in Greece.

The excavation was on the slopes of Mount Olympus and was managed by specialists of the Department of Archeology and History of Art at the University of Thessalonica.

The site included a temple complex dating 413 BC, with associated baths, stores, lodgings and other structures. Among the many artifacts found at the site are hundreds of sculptures varying from 3 feet tall to life size. Between them were the goddesses Demeter and Aphrodite.

The scanner has been installed on site to scan these sculptures and other artifacts. It captured the shape and color of an object in about 17 seconds. A graphic workstation was also used. It immediately showed the results of the scan as full-color 3D model, allowing users to rotate and view the model from all sides. Special software tools instantly measured the object's size and volume.

The smooth, light colored stone from which the Greek sculptures were carved made an ideal subject for 3D scanning. As some of the sculptures were quite large, the software was used to automate the process of assembling multiple scans into a complete 3D model. (The possibility of scanning individual potsherds and using software to help reassemble the pieces into a 3D model of the original pot is under consideration).

One of the goals of the project was to give viewers a virtual-reality experience of the artifacts.

Notes
artifact – произведение искусства
dig site, excavation – раскопки
goal – цель
goddess - богиня

potsherd – черепок, осколок глиняной посуды

TEXT 7

Read the text and add other "smiles" that you know. What is their meaning?

COLON, DASH, BRACKET…

What are "smiles"? Any experienced computer user will find it easy to answer: these are various signs, frequent in computer letter-writing. They consist of ordinary punctuation marks and letters, and their basic function is to depict the speaker's mimics. His/her grimaces, smiles, grins…

It's not that easy for a novice to read "smiles". First, one should look at "smiles" turning the head aside. Here is an example - a widespread "smile": colon, dash, bracket.

:-)

What's that? Turn your head and you'll see a smiling face ☺. Thus, such "smile" in the end of the phrase means that the author of the letter is smiling.

But since you substitute the bracket with another one, the facial expression will get quite opposite. It's not a smile any longer, but sadness, annoyance, disappointment ☹…

And some more frequent smiles.

;-) a winking smile (joke)

:-D very funny

:-@ I'm shouting

8-OO, My God!

:-E an angry grin (fury)

No doubt, this is a small part of the existing "smiles". Approximately, they number 200.

What other "smiles" do you know? What is their meaning?

WRITTEN TRANSLATION

Exercise 1.

Starting Time of Translation _____

a) Translate the passages into Russian in writing.
1. The "real "Altair was not very impressive; it held only enough data to store the first four lines of this paragraph. The user could not type anything with it anyway, as it had no keyboard or monitor and no word-processing software - or any type of software, for that matter. The user had to load each program into memory by

toggling electrical switches on the front. About all the Altair could do was to play a simple-minded game in which the user imitated the patterns of flashing lights on its control panel. Oh yes, users also had to solder the computer together themselves from raw electronic components - the Altair was only available in kit form.

2. The Altair inspired electronics enthusiasts across the country to begin building their own computers. In 1976 in a spare bedroom in Cupertino, California, college dropouts Steve Jobs and Stephen Wozniak began assembling their own microcomputer, with which they dubbed the Apple.

3. The personal computer phenomenon also gave new life to an area north of San Jose, California, known as Silicon Valley. The area takes its name from the primary raw material used in the manufacture of computer chips, the element silicon, more popularly known as "sand." William Shockley, one of the co-inventors of the transistor, founded one of the first Silicon Valley firms near his home in Palo Alto in 1955, where he could draw upon top scientific and engineering talent from Stanford University and the University of California at Berkeley. The area prospered greatly in the 1970s and 1980s from the production of components, peripherals, and software for the personal computer industry.

Finishing Time of Translation_____

b) Now compare your translation with that done by a computer (Prompt '99).

1. "Реальный" Altair не был очень внушителен; это проводило только достаточно данных, чтобы хранить первые четыре линии этого параграфа. Пользователь не мог напечатать что-нибудь с этим так или иначе, поскольку это не имело никакой клавиатуры или монитора и никакого программного обеспечения обработки текстов — или любого типа программного обеспечения, в этом отношении. Пользователь был должен загрузить каждую программу в память toggling электрическими выключателями на фронте. Относительно всего Altair мог делать, был игра(пьеса) бесхитростная игра, в которой пользователь подражал образцы высвечивания огней на его пульте управления. О да, пользователи также были должны спаять компьютер вместе непосредственно от сырых электронных компонентов - Altair был только доступен в форме комплекта.

2. Altair вдохновил энтузиасты электроники поперек страны, чтобы начать строить их собственные компьютеры. В 1976 в запасной спальне в Cupertino, Калифорнии, уволенные колледжа Стив Джобс и Стивен Возниак начал собирать их собственный микрокомпьютер, который они дублировали Яблоку.

3. Явление персонального компьютера также дало новую жизнь к области к северу от Сан-Хосе, Калифорнии, известный как Кремниевая Долина. Область берет ее название(имя) от первичного сырья, используемого в изготовлении чипов компьютера, кремния элемента, более обычно известный как "песок". Уильям Шоклей, один из изобретателей компании транзистора, основал одну из первых Кремниевых фирм Долины около его

дома в Palo Альте в 1955, где он мог тянуть(рисовать) на высший научный и технический талант от Stanford Университета и Университета Калифорнии в Berkeley. Область процветала очень в 1970-ых и 1980-ые от производства компонентов, периферий, и программного обеспечения для промышленности персональных компьютеров.

Exercise 2. *Topic for discussion.*
Will computers ever substitute interpreters and translators?

Exercise 3. *Entitle the text and translate it into Russian.*

Starting Time of Translation _____

Human translator shouldn't have any fear that their jobs are abolished – at least for now. None of the new translating systems are yet able to take a page of a text and render it into a different language without the aid of a bilingual editor who can take off possible ambiguities of the machine-translated text. A truly automatic system is a dream, at the moment because machine translation can only reduce the work involved in human translation.

And it does. The present generation of machine-translation systems are not too expensive. At the same time they can nearly double the output of human translators of technical documents. So the savings, especially for small firms unable to maintain a large staff of skilled translators, can be considerable.

Japan's computer makers are developing machines that can translate freely among several different languages. For example, there is a machine called Atlas-2 that can deal with Japanese, French, German and English. In the nearest future, Spanish, Chinese and Korean will be added. To make this system as simple as possible, programmers have invented a coded, numerical language called "interlingual".

Instead of translating directly from Japanese to German, the computer would translate from Japanese into interlingual and then into German. This process needs less number of dictionaries that programmers have to construct (a Japanese-German, Japanese-French or Japanese-Spanish). Without interlingual each pair of languages would require the development of a specific set of grammatical rules and bilingual dictionary.

Finishing Time of Translation_____

Exercise 4. *Topics for discussion.*
Do you agree that even new translating systems are unable to render a page of text into a different language without a bilingual editor?
Your ideas to prove your position.

Exercise 5. *Translate the text into Russian and write a small composition of your own about "modern secretary".*

Starting Time of Translation _____

The secretary with her notebook and pencil is a well-known twentieth-century figure, but will she still be around in the twenty-first century? When she takes down letters from dictation, she writes in shorthand, and there are several varieties of this script. She then has to transcribe what she has written, and often enough we hear her mutter over her typewriter words which sound rather like "I can't read my own shorthand".

Instead of writing her shorthand by hand, she could use a keyboard machine known as a "Palantype" machine. But after taking down dictation in Palantype shorthand on her machine, she will still have to transcribe it.

A "Palantype dictionary" fed into a computer covers more than 70,000 words recorded in a magnetic disc store. The Palantype operator takes down the dictation on a machine linked to the computer which, interprets and transcribes it. The transcription needs a certain amount of editing, as, even if the computer can choose correctly between words of similar sounds such as *write* and *right,* it is still not yet able to exercise the same degree of selectivity as an intelligent secretary. But no doubt the day will come when the transcription is more or less perfect. The next step will be to eliminate the Palantype operator and to give the computer ears. The National Physical Laboratory is already conducting experiments aimed eventually to teach a computer to recognize and understand human speech. These experiments concentrate for the moment on recognition of vowel sounds spoken into a microphone.

Using a computer to transcribe shorthand will be of particular help whenever immediate transcripts are necessary. But who is going to read all the millions of words transcribed at conferences, parliamentary debates, and so on? Why waste human time if a computer can do it for you? In America, they are already working on a computer system devised to scan printed matter and pick out key words in order to give at least a brief summary of the subject matter.

*Finishing Time of Translation*_____

Exercise 6. *Translate the text into English using key-words.*

Starting Time of Translation _____

Революция в грамматике

Британские лингвисты предприняли попытку **(1)** упростить систему правописания **(2)** в английском языке, отказавшись от употребления принятой сегодня **(3)** интерпретации французских, греческих и латинских слов-заимствований **(4)**. Причина этой инициативы - результаты последнего исследования, которые показали, что лишь у 13% проверенных слов правописание соответствует написанию **(5)**. Только 17 % англичан смогли верно написать такие слова как "рост", "необходимый", "расселение", "раздельный", "откровенно", "бизнес".

"Пишется Манчестер - произносится Ливерпуль". Это старая лингвистическая шутка, с которой знакомы миллионы людей, изучающих английский язык со всеми его хитросплетениями **(6)**. Изменить ситуацию и упростить язык - эту задачу поставили перед собой эксперты корпорации Би-би-си и национального "Общества за упрощенный английский язык".

В системе Интернет открыта страница "Движение упростителей", провозгласивших курс **(7)** на "мягкую лингвистическую революцию". Ежемесячно проводятся дебаты **(8)** по 20 словам с противоречиями в написании и произношении. Эта работа предполагает **(9)** создание толкового словаря "нового языка" и последующего включения его в Оксфордский словарь в качестве дополнения.

Лишь за последние 3 месяца к Интернет-странице подключилось полмиллиона человек из 39 стран. Редакцией **(10)** было получено более 50000 посланий.

"Общество за упрощенный английский язык" отмечает, что не проводился ситемный анализ устного языка, и лишь появление печатания 5 веков назад заложило некоторые стандарты **(11)** соответствия письменной и устной речи. Теперь нужно прийти к общей точке зрения относительно произношения слов и соответствия **(12)** в письменном изложении. В качестве примера "трудных слов" можно привести такие слова как "долг", "фотография", "алюминий". Члены "Общества" призывают лингвистов разработать новый алфавит английского языка, отказавшись **(13)** от латинского.

1. to undertake the attempt
2. spelling
3. current
4. loan-words
5. writing
6. complexity
7. to proclaim the course for …
8. to conduct the debates about
9. to expact
10. editorship
11. to set standarts
12. correlation
13. to reject

Finishing Time of Translation_____

Chapter IV

Аннотация (Abstract/Summary) – это краткое изложение содержания статьи (доклада, заметки) с целью дать возможность понять читателю стоит ли знакомиться с текстом более подробно. Аннотация отражает тематику текста и основную мысль автора. Обычный объем аннотации 500-600 п.зн.

Структура аннотации:

1) название работы (статьи, доклада), фамилия и инициалы автора, выходные данные оригинала (то есть название журнала, статьи или монографии, год издания, номер, том и т.д.);
2) формулировка темы работы (статьи, доклада);
3) краткое содержание статьи (доклада), составленное из простых предложений, связанных по определенным правилам.

Если аннотация составляется на английском языке, то допускаются только безличные предложения со сказуемым в страдательном залоге, как правило, в форме Present или Past Simple, иногда в Present Perfect Passive Voice.

Чаще всего используются следующие клише:

…is/are discussed (described, mentioned)	обсуждаются (описываются, упоминаются)
…is/are considered (outlined)	рассматриваются
…is/are presented (shown)	представлены, показаны
…is/are studied (investigated, examined)	исследуются
…is/are obtained (found, established)	получены, обнаружены, установлены.

Use is made of …	
A (short) description given of …	кратко описаны
A (thorough) study made of	тщательно исследованы
Particular (special) attention is given (paid) to …	особое внимание уделено

Иногда используются конкретизирующие наречия и сочетания, такие как:

accurately (carefully) - тщательно, внимательно
thoroughly, in detail – подробно, детально
clearly – четко, ясно
fully – во всей полноте и т.д.

Для формулировки темы работы (статьи) можно использовать сказуемое в Present Simple Active Voice. Например: The text deals with (studies) …

Далее придаточные предложения должны быть преобразованы в причастные или инфинитивные конструкции, а примеры и иллюстрации любого вида исключены. Пример аннотации:

TEXT 1

SI*IN DIGITAL LIBRARIES

Digital libraries can be viewed as infrastructures for supporting the creation of information sources, facilitating the movement of information across global networks, and allowing the effective and efficient interaction among knowledge producers, librarians and information and knowledge seekers. Typically, a digital library is a vast collection of objects stored and maintained by multiple information sources, including databases, image banks, file systems, email systems, the Web and other methods and formats. Often, these information sources are heterogeneous**, in terms of how the objects are stored, organized and managed, and the platforms on which they reside. Moreover, the information sources are dynamic in the sense they may be either included in or removed from the digital library system. Furthermore, digital libraries are composite*** multimedia objects comprising different media components including text, video, images, or audio. Therefore, the challenge is to provide users with the ability to seamlessly and transparently access to digital library objects in spite of the heterogeneity and dynamism among the information sources, and the composite multimedia nature of the objects. To accomplish this, the problem of heterogeneity and SI must first be resolved.

Although there have been several techniques proposed by the research community, especially the database and agent communities, these techniques cannot be easily adapted to digital library environments. This is because, while database integration primarily deals with structured textual data, SI in digital libraries requires the ability to deal with massive amount of multimedia objects.

Notes
*SI – system integration
**heterogeneous – разнородный
***composite – составной, комбинированный

Abstract (Summary) to Text 1
Text "SI in Digital Libraries" is about the creation of information sources and the movement of information via global networks. This information may be of interest to students, professors and research community engaged in studying the techniques of adapting to digital library environment.

Резюме (Resumé) – вид компрессии текста, в котором допускается краткая оценка исходного материала и выводы из прочитанного. Обычно требуется изложение текста в виде устного резюме.

Резюме состоит из трех частей, которые соединяются в единое целое с помощью определенных речевых клише.

I. Вступление. Формулировка темы.

The text (clipping item) deals with …
The text (clipping item) concerns …
The text (clipping item) is concerned with …
The text (clipping item) focuses on …

В тексте (отрывке, заметке)
говорится о …

II. Основное содержание – краткое описание текста с некоторой оценкой.

According to the text …
From the text we know that …
It is clear from the text …

Из текста ясно, что…

According to the author …

Как считает автор …

One of the main problems to pay
attention to is …

Одной из главных проблем,
на которую следует обратить
внимание, является…

It should be mentioned
(noted, pointed out) …

Следует упомянуть
(отметить, указать)…

Particular emphasis is placed on …

Особое внимание обращается на
…

In my opinion …

По моему мнению

Further on …

Далее

III. Заключение.

In conclusion we can say …

В заключении можно сказать…

Summing it up…

подытоживая …

On the whole one can safely say …

В целом вполне можно сказать…

The author comes to the
conclusion that …

Автор приходит к выводу, что…

All things considered we
can conclude that …

Рассмотрев все, мы можем
сделать вывод о том, что …

Resume to Text 1

This text deals with the development of digital libraries which is a vast collection of objects stored and maintained by multiple information sources, including database, file systems, email systems, etc. Digital libraries are multimedia objects containing different media components including text, video images, audio.

But up till now not all techniques proposed by the research community can be easily adopted to digital library environments as SI in digital libraries requires the ability to deal with massive amount of multimedia objects.

Реферат (Precis) - это конспективное описание оригинального произведения (текста, статьи, доклада или монографии), передающее его

основной смысл. В реферате кратко и четко излагаются все основные положения оригинала. Как правило, объем реферата составляет 1/3 оригинала.

Реферат не предлагает выводов или комментариев составителя, допускаются только выводы автора оригинала, если таковые есть.

По структуре реферат напоминает развернутую аннотацию, с употреблением вышеприведенных речевых клише.

К списку речевых клише можно добавить следующие:

I. The aim (object, purpose, task) of the study is…
   Цель (задача, назначение) работы состоит в …
  The paper describes new approaches (methods, techniques) to …
  В статье описываются новые подходы (методы, методики) к …
  The book is further developing the concept of …
  В книге далее разрабатывается концепция о …

II. The study was intended to establish for determining …
   Это исследование было предпринято с целью установления (определения) …
   New facts (as to how) have been found …
   Были обнаружены новые данные о …
   If should be noted that this approach allows (permits, enables) to assume …
   Следует отметить, что этот метод позволяет (дает возможность) предположить, что…
   The theory supports the author's assumption …
   Теория подтверждает предположение автора …
   The approach used presents (has, offers) several advantages...
   Использованная методика имеет (представляет) несколько преимуществ.
   Among other problems the paper raises the problem of …
   Среди других проблем в статье поднимается вопрос о …
III. A general conclusion is made concerning …
    Делается общий вывод относительно …
    Thus, we can make a conclusion that …
    Таким образом, мы можем сделать вывод, что …
    Another approach was offered (suggested) …
    Был предложен другой подход …
    What is more … - Более того….
     not only…but also… - не только … но и…
     on the one hand/on the other hand – с одной стороны/с другой стороны
    Having analyzed the information one can say that …
    Проанализировав всю информацию, можно сказать, что …
     Nevertheless – тем не менее

Read the text and translate it.

DATABASE

The earliest known use of the term 'data base' was in June 1963, when the System Development Corporation sponsored a symposium under the title Development and Management of a Computer-centered Data Base. Database as a single word became common in Europe in the early 1970s and by the end of the decade it was being used in major American newspapers. (Databank, a comparable term, had been used in the Washington Post newspaper as early as 1966.)

The term database originated within the computer industry. A database is a collection of records stored in a computer in a systematic way, so that a computer program can consult it to answer questions. The items retrieved in answer to queries become information that can be used to make decisions. The computer program used to manage and query a database is known as a database management system (DBMS). The properties and design of database systems are included in the study of information science.

The central concept of a database is that of a collection of records or pieces of knowledge. Typically, for a given database, there is a structural description of the type of facts held in that database: this description is known as a schema. The schema describes the objects that are represented in the database, and the relationships among them. There are a number of different ways of organizing a schema, that is, of modeling the database structure: these are known as database models (or data models). The model in most common use today is the relational model, which in layman's terms represents all information in the form of multiple related tables, each consisting of rows and columns (the true definition uses mathematical terminology). This model represents relationships by the use of values common to more than one table. Other models such as the hierarchical model and the network model use a more explicit representation of relationships.

Strictly speaking, the term database refers to the collection of related records, and the software should be referred to as the database management system or DBMS. When the context is unambiguous, however, many *"database"* administrators and programmers use the term database to cover both meanings.

Many professionals would consider a collection of data to constitute a database only if it has certain properties: for example, if the data is managed to ensure its integrity and quality, if it allows shared access by a community of users, if it has a schema, or if it supports a query language. However, there is no agreed definition of these properties.

Database management systems are usually categorized according to the data model that they support: relational, object-relational, network, and so on. The data model will tend to determine the query languages that are available to access the database. A great deal of the internal engineering of a DBMS, however, is independent of the data model, and is concerned with managing factors such as performance, concurrency, integrity, and recovery from hardware failures. In these areas there are large differences between products.

The first database management systems were developed in the 1960s. A pioneer in the field was Charles Bachman. Bachman's early papers show that his aim was to make more effective use of the new direct access storage devices becoming available: until then, data processing had been based on punched cards and magnetic tape, so that serial processing was the dominant activity. Two key data models arose at this time: CODASYL developed the network model based on Bachman's ideas, and (apparently independently) the hierarchical model was used in a system developed by North American Rockwell, later adopted by IBM as the cornerstone of their IBM product. The relational model was proposed by E. F. Codd in 1970. The first successful database product for microcomputers was dBASE for the CP/M and PC-DOS/MS-DOS operating systems.

During the 1980s, research activity focused on distributed database systems and database machines, but these developments had little effect on the market.

In the 1990s, attention shifted to object-oriented databases. These had some success in fields where it was necessary to handle more complex data than relational systems could easily cope with, such as spatial databases, engineering data (including software engineering repositories), and multimedia data. Some of these ideas were adopted by the relational vendors, who integrated new features into their products as a result.

In the 2000s, the fashionable area for innovation is the XML database. As with object databases, this has spawned a new collection of startup companies, but at the same time the key ideas are being integrated into the established relational products. XML databases aim to remove the traditional divide between documents and data, allowing all of an organization's information resources to be held in one place, whether they are highly structured or not.

Task 1. *Write the summary of the text (about 6 lines).*
Task 2. *Write out main terms from the text and give explanation in English.*

Read and translate the text.

CENTRAL PROCESSING UNIT

1. A central processing unit (CPU) or **processor** is the piece of hardware in a computer that interprets and executes instructions and data contained in software. Microprocessors are CPUs that are manufactured on integrated circuits, often as a single-chip package. Since the mid-1970s, these single-chip microprocessors have become the most common and prominent implementations of CPUs, and today the term is almost always applied to this form.

2. The term "Central processing unit" is, in general terms, a functional description of a certain class of programmable logic machines. This broad definition can easily be applied to many early computers that existed long before the term "CPU" ever came into widespread usage. The term and its acronym have been in use at least since the early 1960s.

MICROPROCESSORS

3. An innovation that has significantly affected the design and implementation of CPUs came in the mid-1970s with the microprocessor. Since the introduction of the first microprocessor (the Intel 4004) in 1970 and the first widely-used microprocessor (the Intel 8080) in 1974, this class of CPUs has almost completely overtaken all other implementations. While the previous generation of CPUs was integrated as discrete components on one or more circuit boards, microprocessors are manufactured onto compact integrated circuits (ICs), often a single chip. The smaller transistor sizes mean faster switching time due to decreased gate capacitance. This has allowed synchronous microprocessors to utilize clock rates ranging from tens of megahertz to several gigahertz. Additionally, as the ability to construct exceedingly small transistors on an IC has increased, the complexity of and number of transistors in a single CPU has increased dramatically. This trend has been observed by many and is often described by Moore's law, which has proven to be a fairly accurate model of the growth of CPU (and other IC) complexity to date.

4. While the complexity, size, construction, and general form of CPUs has changed drastically over the past sixty years, it is notable that the basic design and function has not changed much at all. Almost all common CPUs today can be very accurately described as Von Neumann stored program machines.

5. As the aforementioned Moore's law continues to hold true, concerns about the limits of integrated circuit transistor technology have become much more prevalent. Extreme miniaturization of electronic gates is causing the effects of phenomena like electromigration and subthreshold leakage to become much more significant. These newer concerns are among the many factors causing researchers to investigate new methods of computing such as the quantum computer as well as expand the usage of parallelism and other methods that extend the usefulness of the classical Von Neumann model.

CPU OPERATION

6. The fundamental operation of most CPUs, regardless of the physical form they take, is to execute a sequence of stored instructions called a program. The program is represented by a series of numbers that are kept in some kind of computer memory. There are three steps that nearly all Von Neumann CPUs use in their operation, **fetch, decode,** and **execute.**

7. The first step, **fetch,** involves retrieving an instruction (which is a number or sequence of numbers) from program memory. The location in memory is determined by a program counter, which stores a number that identifies the current location in this sequence. In other words, the program counter keeps track of the CPU's place in the current program. Having been used to fetch an instruction, the program counter is incremented by the number of memory units fetched.

8. The instruction that the CPU fetches from memory is used to determine what the CPU is to do. In the **decode** step, the instruction is broken up into parts that have significance to the CPU. The way in which the numerical instruction value is interpreted is defined by the CPU's Instruction set architecture (ISA). Often, one group of numbers of the instruction, called the opcode, indicates which operation to perform. The remaining parts of the number usually provide information required for that instruction, such as operands for an addition operation. The operands may contain a constant value in the instruction itself (called an immediate value), or a place to get a value: a register or a memory address. In older designs the portions of the CPU responsible for instruction decoding were unchangable hardware devices. However, in more abstract and complicated CPUs and ISAs, a microprogram is often used to assist in translating instructions into various configuration signals for the CPU. This microprogram is often rewritable and can be modified to change the way the CPU decodes instructions even after it has been manufactured.

9. After the **fetch** and **decode** steps, the **execute** step is performed. During this step, various portions of the CPU are "connected" (by a switching device such as a multiplexer) so they can perform the desired operation. If, for instance, an addition operation was requested, an ALU will be connected to a set of inputs and a set of outputs. The inputs provide the numbers to be added, and the outputs will contain the final sum. If the addition operation produces a result too large for the CPU to handle, an arithmetic overflow flag in a flags register may also be set (see the discussion of integer precision below). Various structures can be used for providing inputs and outputs. Often, relatively fast and small memory areas called CPU registers are used when a result is temporary or will be needed again shortly. Various forms of computer memory (for example, DRAM) are also often used to provide inputs and outputs for CPU operations. These types of memory are much slower compared to registers, both due to physical limitations and because they require more steps to access than the internal registers. However, compared to the registers, this external memory is usually more inexpensive and can store much more data, and is thus still necessary for computer operation.

10. Some types of instructions manipulate the program counter. These are generally called "jumps" and facilitate behavior like loops, conditional program

execution (through the use of a conditional jump), and functions in programs. Many instructions will also change the state of digits in a "flags" register. These flags can be used to influence how a program behaves, since they often indicate the outcome of various operations. For example, one type of "compare" instruction considers two values and sets a number in the flags register according to which one is greater. This flag could then be used by a later instruction to determine program flow.

11. After the execution of the instruction, the entire process repeats, with the next instruction cycle normally fetching next-in-sequence instruction due to the incremented value in the program counter. In more complex CPUs than the one described here, multiple instructions can be fetched, decoded, and executed simultaneously. This section describes what is generally referred to as a 'single cycle data 0patch, which in fact is quite common among the simple CPUs used in many electronic devices (often called microcontrollers).

Task 1. *Write in English the précis of the article "Central processing Unit".*
Task 2. *Translate paragraphs 7-9 into Russian in writing.*

Artificial Intelligence (Part I)

Task 1. *Read the blocks and find in the blocks answers to the questions below.*

1. What is artificial intelligence?
2. But what is intelligence?
3. Isn't there a solid definition of intelligence that doesn't depend on relating it to human intelligence?
4. Is intelligence a single thing so that one can ask a "yes" or "no" question? Is this machine intelligent or not?
5. Can AI simulate a human intelligence?
6. What about IQ? Do computer programs have IQs?
7. What is the main problem in comparing human and computer intelligence?

d) No. As we said, intelligence involves mechanisms, and AI research has discovered how to make computers carry out some of them and not others. If doing some tasks requires only mechanisms that are well understood today, computer programs can give very impressive performances on these tasks. Such programs should be considered "somewhat intelligent".

b) Intelligence is the computational part of the ability to achieve goals in the world. Different kinds and degrees of intelligence occur in people, many animals and some machines.

a) Artificial Intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs. The task of this science of using computers to understand human intelligence, but AI has not to limit itself to the methods that are biologically observable.

f) No, they don't. IQ is based on the rates at which intelligence develops in children. Later, the scale of IQ is extended to adults. It correlates well with the degree of various measures of success or failure in life. But making computers that can compete with humans score high on IQ tests would be a useless thing. For example, the ability of a child to repeat back a long sequence of digits depends on its other correlates well with other intellectual abilities, perhaps because it measures how much information the child can compute with at once. However, the same digit task is trivial for even extremely limited computers.
However, some of the problems on IQ tests are useful challenges for AI.

e) Sometimes they can, but usually not. On the one hand, we can learn something about how to make machines solve problems by observing other people or our own methods. But on the other hand, most AI work needs studying the problems that the world presents to intelligence rather than studying people or animals. In studying these world problems AI researchers more often use methods that involve much more computing than people can do.

c) Not yet. There is no such definition. The problem is that we cannot yet characterize in general what kinds of computational procedures may be called intelligent. We understand some of the mechanisms of intelligence and not others.

g) Some scientists suggest that all normal humans have the same intellectual mechanisms and that difference in intelligence depends on "quantitative biochemical and physiological conditions". The difference in intelligence is expressed in differences in speed, short-term memory, and the ability to form accurate and retrievable long-term memories.

As to computer programs, they have plenty of speed and memory, but their abilities correspond to the intellectual mechanisms that program designer understands well enough to put in programs. The problem is that cognitive sciences still have not succeeded in determining exactly what the human abilities are. It is likely that organization of the intellectual mechanisms for AI can be different from that in people.

Notes
IQ – intelligence quotient, your level of intelligence, measured by a special test.

Task 2. *Write the resume of the resulted text "Artificial Intelligence" (Part I).*

Artificial Intelligence (Part II)

Task 1. *Read the text and check the difference between the information in the I and II Parts of the text.*

1. There is interest in the results of AI from at least four directions. In particular there is the study of robotics which is concerned, to a large extend, with the practical requirements of industry for mechanical devices which can perform 'intelligent' tasks — tasks of a versatility and complication which have previously demanded human intervention or control — and to perform them with a speed and reliability beyond any human capabilities, or under adverse conditions where human life could be at risk. Also of interest commercially, as well as generally, is the development of expert systems, according to which the essential knowledge of an entire profession — medical, legal, etc. — is intended to be coded into a computer package! Is it possible that the experience and expertise of human members of these professions might actually be supplanted by such packages? The question of whether the computers can simulate genuine intelligence clearly has considerable social implications. Another area in which AI could have direct relevance is psychology. It is hoped that by trying to imitate the behaviour of a human brain (or that of some other animal) by means of an electronic device — or by failing to do so —-one may learn something of importance concerning the brain's workings. Finally, there is the optimistic hope that for similar reasons AI might have something to say about deep questions of philosophy.

2. How far has AI been able to progress to date? It would be hard to try to summarize. There are many active groups in different parts of the world. Nevertheless, it would be fair to say that, although many clever things have indeed been done, the simulation of anything that could pass for genuine intelligence is yet a long way off. But to give an optimistic example it should be mentioned some of the impressive achievements, and then some remarkable recent progress with chess computers.

3 One of the first AI devices was W. Grey Walter's 'tortoise', made in the early 1950s, which moved around the floor under its own power until its batteries ran low. A somewhat separate line of development is exemplified by the computer program, designed in 1972, which can converse sensibly about a collection of blocks, of various shapes and colours which, in simulation, it places on top of one another in different orders and arrangements. Despite such early successes, it is remarkable how difficult it proved to design the control of even a simple, jointed 'robot arm', which has to manoeuvre around, avoiding crowded obstacles, where the required motions may seem 'obvious' to a human looking on. The Interpretation of visual scenes generally is also an area where the procedures of Al have so far got nowhere close to what the human brain (and, indeed, most other animals) seems 'effortlessly' to be able to achieve.

4. Perhaps more close to the human intelligence is the computer program developed in the mid-1960s, which simulates a psychotherapist — so successfully that some patients find that they prefer the computer to a human therapist, and are prepared to

reveal more of themselves to it than they are to its human counterparts. Though this may give an impression that the computer has some understanding, in fact it has none, and is merely following some fairly simple mechanical rules.

5. Chess-playing computers probably provide the best examples of machines exhibiting what might be thought of as "intelligent behaviour". In fact, some machines have now reached an extremely respectable level of performance in relation to human players approaching that of 'International Master'. (These computers' ratings would be a little below 2300, where, for comparison, Kasparov, the world champion, has a rating greater than 2700.) In particular, a computer program by Dan and Kathe Spracklen has achieved a rating of 2110 and has now been awarded the 'Master' title. Even more impressive is 'Deep Thought' which has a rating of about 2500 and recently achieved the remarkable feat of sharing first prize (with Grandmaster Tony Miles) in a chess tournament (in California, 1988) actually defeating a Grandmaster (Bent Larsen) for the first time! Chess computers now also excel at solving chess problems, and can easily outstrip humans at this endeavour.

6. Chess-playing machines rely a lot on 'book knowledge' in addition to accurate calculational power. It is worth remarking that chess-playing machines far better on the whole, relative to a comparable human player, when it is required that the moves are made very quickly; the human players perform relatively better in relation to the machines when a good measure of time is allowed for each move. The computer's decisions are made on the basis of precise and rapid extended computations, whereas the human player takes advantage of 'judgements', that rely upon comparatively slow conscious assessments. These human judgements serve to cut down drastically the number of serious possibilities that need be considered at each stage of calculation, and much greater depth can be achieved in the analysis, when the time is available, than in the machine's simply calculating and directly eliminating possibilities, without using such judgements.

Task 2. *Define the number of blocks where you can find information about:*
   a) the program simulating a psychotherapist;
   b) the results of active groups working on AI;
   c) the differences in chess-playing strategy between chess-playing computers and humans;
   d) the main directions that are of interest as to the results of AI development;
   e) the impressive success with chess-playing machines;
   f) the attempts to construct the first robot;
   g) the score of the last chess match "Computer-Kasparov".

Task 3. *Write the précis of the text "Artificial Intelligence" (Parts I and II).*

Read the text and pay attention to the chronological stages of computer games development.

Computer Game Prehistory

1. 1890. The USA is hit by a mass movement of the customers to play games on coin operated devices - the first ones being phonographs. These recording devices were set up in hotel lobbies, railway stations and small pubs or restaurants. The working class population, clerks and businesspeople used the machines during their lunch breaks.

Around 1885 the kinematoscope became the favourite toy of the population. Now people used to look at wonders of the world, famous buildings, athletic men movies.

In the end of th 1890ies the kinematoscopic devices have again been replaced by the mutoscopes. Mutoscopes were interactively controllable kinematoscopes. A lever served as the interface for replay speed, forward/ backward movement or freeze frames.

The History of Computer Games

2. The history of computer games - mistakenly termed videogames - probably started in 1961. The early programmers and game designers came up with ideas which have been taken over by the industry and have nowadays become cultural stereotypes. Game types like combat games, strategy, simulation or dungeons and dragons were early 60ies inventions but they are still alive today and probably more vital than ever. Having a look at the old predecessors of today's Playstation and Dreamcast games might explain why certain stereotypes are so persistent. Comparing early games with today's programmes also shows the technological progress achieved during the last 4 decades. It seems that the gaming industry and game technology nowadays challenges the complete computer industry in becoming the key industrial branch.

Autumn 1961 Digital Equipment Corp. delivers a PDP-1 computer to the MIT in Cambridge, Mass. This was the first computer equipped with a cathode ray tube monitor and a keyboard. DEC expected the MIT scientists to develop scientific programmes with the machine they donated, yet two scientists programmed an application which is said to have been the first computer game.

1962. Stephen Russell, Peter Samson, Dan Edwards, and Martin Graetz realized spacewar**,** a shoot-up game with animated spaceship icons on a black and white monitor. Two users could shoot the other player's spaceships in order to "survive".
A number of programmers working on big mainframe computers developed different computer games during the following years. Most of these games have been programmed in BASIC programming language:
3. Lunar Lander was a text based simulation game. The user had to type in to what amount a lunar spacecraft should accelerate or decelerate. The computer then calculated the fuel consumption, landing speed and height above the lunar ground. All the information was output in monochrome numbers on a black and white screen.

More recent adoptions of the basic idea of Lunar Lander add graphics and sound to the game, which of course were not available on 1966ies computer terminals. (A recent remake of Lunar Lander is the Web application Mars Lander.)

HAMMURABI (KINGDOM) simulated economic processes in a virtual Mesopotamian kingdom. The player was asked to numerically specify tax rates and other parameters and was then told about tax revenues, food supplies available, birth and death rates and the profits of the kingdom. Hammurabi could be considered a predecessor of SimCity.

HUNT THE WUMPUS consisted of a network of tunnels and rooms. The first implementation was said to have used a dodeocaedric structure. Players were able to wander around in the tunnels and they were warned whenever they approached the "Wumpus". Nobody knows what a Wumpus is, but it must have been something dangerous, because you could read on your console when coming close to it: "You are in node x. I smell a Wumpus. Move or shoot". Then there were bats able to move you to another room. (Console message: "I smell a bat".). Hunt the Wumpus is a predecessor of the Dungeon & Dragons genre.

4. The software developers at Epic Megagames released a programme called UNREAL in 1998. The programme was written in C++ by Tim Sweeney, programmer of the small corporation. Tim Sweeney made ample use of the 3D features of the Voodoo graphic card, then one of the best 3D cards available. The game was also bundled with a 3D Editor enabling the consumer to build levels of his own. Not only was it possible to use the textures and sounds shipped with the software, but it was also possible to import any texture material, 3D object or soundfile, if it was in the PCX, DXF or WAV-file format. The most exciting feature of UNREAL is a scripting language called UNREALScript, which is a close dialect to Java and C++. UNREALScript is an object-oriented language. Classes already implemented in the game (like effects, water, fog, monsters, moving objects) can easily be extended by creating new classes which inherit the original classes' properties.

Task 1.
> a) *write out from the text key words and word combinations that support the main idea of the text;*
> b) *using these words and word combinations write they summary of the text reflecting the reasons of computer games progress.*

Task 2. *Topics for discussion.*
1. Is it possible nowadays to play such games as "Spacewar", "Luna Lander", "Hammurabi", "Hunt the Wumpus"? If it is yes, have you ever played them? If it is not, why?
2. What other computer games are played today?
3. Could you explain why the programme called UNREAL became a novelty for computer games?
4. Are you a fan of computer games or are you indifferent to them?

Read the text. Entitle it so that the title renders the main idea of the problem.

The idea of an optical computer was first conceived in the 1960's after the discovery of optical nonlinearity; rather than using electronics, it was proposed that the use of optics could yield advantages such as massive parallelism, and speed that could beat any electronic counterpart.

The matter is that the speed of conventional computers is achieved by miniaturizing electronic components to a very small micron-size scale so that those electrons need to travel only very short distances within a very short time. The goal of improving on computer speed has resulted in the development of the Very Large Scale Integration (VLSI) technology with smaller device dimensions and greater complexity. Whereas VLSI technology has revolutionized the electronics industry and established the 20th century as the computer age, increasing usage of the Internet demands better accommodation of a 10 to 15 percent per month growth rate. Additionally, our daily lives demand solutions to increasingly sophisticated and complex problems, which requires more speed and better performance of computers. For these reasons, VLSI technology is approaching its fundamental limits in the sub-micron miniaturization process. Further miniaturization of lithography introduces several problems such as dielectric breakdown, hot carriers, and short channel effects. Therefore, a dramatic solution to the problem is needed, and unless we gear our thoughts toward a totally different pathway, we will not be able to further improve our computer performance for the future.

Optical interconnections and optical integrated circuits will provide a way out of these limitations to computational speed and complexity inherent in conventional electronics. Optical computers will use photons traveling on optical fibers or thin films instead of electrons to perform the appropriate functions. In the optical computer of the future, electronic circuits and wires will be replaced by a few optical fibers and films, making the systems more efficient with no interference, more cost effective, lighter and more compact. Optical components would not need to have insulators as those needed between electronic components because they don't experience cross talk. Indeed, multiple frequencies (or different colors) of light can travel through optical components without interfacing with each others, allowing photonic device to process multiple streams of data simultaneously.

Photonic device is made of a few ultrathin layers of non-conducting material. This photonic crystal is the latest in series of materials that reflect various wave lengths of light almost perfectly. Photonic crystals are on the cutting edge of microphotonics: Technologies for directing light on a microscopic scale that will make a major imact on telecommunication. Photonic crystals may make light do as many things as possible.

But even if the dream of on all-optical Internet is realized. Another problem will come. So far, network designers have found ingenious ways to pack more and more information into fiber optics, both by improving the fibers and by using new

tricks. But within five to 10 years, some expert fear it won't be possible Squeeze any more data into existing fiber optics.

<div align="right">

John Yoannopoulos
"Technology Review"
</div>

Task 1. *Choose about 5-7 sentences which support the main points of the text.*
Task 2. *Write the summary of the text (in English).*

Read the blocks below and arrange them in their logical order. Choose a suitable headline for each block.

Programming language

1. In the 1940s the first recognizably modem, electrically powered computers were created. Some military calculation needs were a driving force in early computer development. At that time, computers were extremely large, slow and expensive: advances in electronic technology in the post-war years led to the construction of more practical electronic computers. At that time only Konrad Zuse imagined the use of a programming language (developed eventually as Plankalkul) like those of today for solving problems.

2. A programming language is a stylized communication technique intended to be used for controlling the behaviour of a machine (often a computer). Like human languages programming languages have syntactic arid semantic rules used to define meaning.

3. The development of programming languages follows closely the development of the physical and electronic processes used in today's computers. At the beginning of the XIX century, Charles Babbage designed the first computer-like machines, which had several programs written for them (in the equivalent of assembly language) by Ada Lovelace.

4. Shortly after in 1958, Lisp was introduced. Lisp was based on lambda calculus, and is far more regular in its syntax than most non-Lisp derived languages. During the 1970s, Xerox PARC developed Smalltalk, an object oriented language. Based on the development of Smalltalk and other object oriented languages, it developed a programming language based on the syntax of C, called C++ in 1985. Sun Microsystems released Java in 1995 which became very popular as an introductory programming language taught in universities. Microsoft presented the C# programming language in 2001 which is very similar to C++ and Java. There are many, many other languages.

5. Subsequent breakthroughs in electronic technology (transistors, integrated circuits, and chips) drove the development of increasingly reliable and more usable computers. The first widely used high-level programming language was FORTRAN, developed during 1954-57 by an IBM team led by John W. Backus. It is still widely used for numerical work, with the latest international standard released in 2004. A Computer Languages History graphic shows a timeline from FORTRAN in 1954.

6. Programming languages have been under development for years and will remain so for many years to come. They got their start with a list of steps to wire a computer to perform a task. These steps eventually found their way into software and began to acquire newer and better features. The first major languages were characterized by the simple fact that they were intended for one purpose and one purpose only, while the languages of today are differentiated by the way they are programmed in, as they

can be used for almost any purpose. And perhaps the languages of tomorrow will be more natural with the invention of quantum and biological computers.

Task 1. *Render the resulted text into English (about 6-7 sentences).*
Task 2. *Make a Computer Language history graphic.*

Read and identify the topic of the text.

On-board and on-line

1. Businessmen will no longer have the luxury of escaping from their office by flying off on a trip. The airlines are going to bring their office to them in seat 3A, and those e-mails are going to have to be answered, like it or not. Such is the coming revolution in onboard flying. A recent poll of 3,000 frequent travellers reported that 60% use a laptop in flight. The 100 million e-mail messages per day today will grow to five billion by 2005, according to Forrester Research, and the number of people online today will triple. The bottom line is that people want e-mail and Internet in flight, and the airlines that provide it seem set to retain their business.

2. Past efforts at online onboard services have involved problems like laptop lockup, slow connections, limited coverage, high access charges, poor message security, unfamiliar user interfaces and too few access channels.

3. New technologies are becoming available, including higher bandwidth and better connection protocols. Sending e-mails from aircraft cabins will become commonplace. Meanwhile, suppliers are jostling for position in what they perceive as a huge potential market.

4. One might make a guess that the market will be bigger than current satcom services, which suffer from the "night" syndrome — there are limited times when one can call business partners, usually during daylight hours, while e-mails and Internet are not time sensitive. Currently satcom services account for around $10 million a year in revenues. Bets are that onboard e-mail and Internet services will far exceed that figure.

5. No single supplier can provide the complete solution by themselves. A group of companies will be needed to provide a complete and seamless solution. Over the past six months, a number of joint ventures have been gelling among satellite manufacturers and operators, airborne radio/avionics companies, broadcasters and programmers, and airlines.

6. There are two main thrusts in this activity: relaying broadcast entertainment material to aircraft in flight; and providing a route "to the seat" for Internet traffic. They do not of course have to be delivered and shown in real time. For Internet traffic, the assumption has to be that every passenger seat will eventually be capable of generating an individual data stream. But e-mails and Web pages can always be batched and distributed later by the onboard server. Traffic will be distributed to seats via the existing in-flight entertainment (IFE) system wiring, by pulsed infra-red (Bluetooth technology) or even by (very) local loop wireless. Both constitute services that are readily available on the ground. The only new thing is their provision for aircraft.

7. The two services can exist alone, and in some cases already do so. "Connexions by Boeing" Internet service is already available to business aircraft, at least in US airspace, said Boeing at the Famborough Air Show at end-July.

Task 1. *Topics for discussing.*
1. Is flying off on a trip a grief for businessman?
2. Why to worry about businessmen contacts with their offices while they have their laptops with them?
3. Is there any reason for suppliers to jostle for position in providing airlines with new connection?
4. How could you explain the phenomenon of "night" syndrome?
5. Can any single supplier provide the solution of the problem? Are there any examples when such work was accomplished a single supplier?
6. Translate the blocks 6-7 in writing.

Task 2. *Translate the blocks 6-7 in writing.*

Task 3. *Retell the text in your own words.*

TOPICAL VOCABULARY

A

abandon (for), v. – покидать
access, n. - доступ
accomodate, v. - устраивать, примирять
account, n. - (зд.) вклад
accuse (of) – обвинять
acquare v. - получать
add up, v – суммировать
adherent, n. – сторонник, приверженец, последователь
adirect, adj. – опосредованный (подход)
advance, n - продвижение, успех
advertise, v. – рекламировать
agent n. - агент
aim (at), v. - стремиться
allocate, v - размещать
amenity, n. – удобство
anticipate, v. - предвидеть, предчувствовать
applicant n. – претендент
appoint, v - назначать
argue (over), v. - спорить, оспаривать
array n – массив
assemble, v. – собирать, транслировать (программу) с помощью ассемблера
assert, v. - утверждать
associate, n - сторонник
attempt,n - попытка
attraction n – приманка, влечение
attribute, n. – качество, свойство
attribute, v. - приписывать
audience, n. - аудитория
available, adj - имеющийся в наличии, присутствующий

B

backbone, n . - магистральный канал связи
backward compatible with, adj – обратно совместимый
be about, v. – собираться
beneficial, adj. - полезный, выгодный
benefit, v. – помогать, способствовать
blur, v – стирать, отлаживать
break (up), v – разбивать, расформировывать
browse (through), v. - просматривать
browser, n - браузер, навигатор Web-страниц

built-in, adj. – встроенный, неотъемлемая (часть)
buy (from, into), v. - покупать, скупать (акции), вкладывать

C

cancellation, n – отмена, прекращение
capability, n. - способность
capable, adj. – способный
capitalize (on), v. – наживаться, получать прибыль
cause, v. - вызывать, заставлять
cerebrum, n – головной мозг
challenge, n – вызов
charge, v – занимать место, быть ответственным
circuit, n. – схема, цепь
circuitry, n. - компановка схемы
cite, v – ссылаться
claim, v. – требовать
click (on), v. - щелкнуть кнопкой (мыши)
colon, n – двоеточие
commission, v. – раскрутить (проект)
communication setting, n. - коммуникационные системы
compatible (with), adj. – совместимый
complete (with), adj. - снабженный
comprehensible, adj. - понятный
conceive (of), v. - представлять себе, задумать
concern,v. – касаться, интересоваться
confusion, n. - путаница
consent, adj – согласие
constituent, adj – правомочный
consumer,n. - потребитель
content, n. - содержание
control, v. - контролировать, управлять
convenient, adj – удобный
convergence, n - сходимость
counter, n. – счетчик
credit, n. – зачет
credit, v – приписывать
crucial, adj. – решающий
crude adj. – сырой, несовершенный, грубый
current, adj – нынешний, современный

D

dash, n – тире, пропуск

data base object, n. - объектная база данных
data, n. - данные
decline, n – упадок, спор
decomission, v. - приостановить
delivery, n – доставка
demerits, n. - недостатки
design, v. - конструировать, предназначать
despite, prep. - несмотря (на)
destination, n. - место назначения
develop, v. - развивать, разрабатывать
device, n. – прибор
devise, v. - придумать, изобрести
dial (up), v. - подключиться к
digital, adj. – цифровой
discovery, n. - открытие
disposition, n. – характер, поведение
dissemination, n. - распространение
distinction, n – различие
duplicate, v – дублировать, копировать

E

elaborate, v. – тщательно разрабатывать
e-mail, n. - электронная почта
emerge, v – появляться
enable, v. - позволять
endeavor, v – стараться (делать что-то), добиваться
ensure, v. – обеспечивать, гарантировать
enterprise, n. - предприятие, мероприятие
erroneous ad. - ошибочный
evaluate, v. - оценивать
event, n. – событие
eventually, adv. - в конце концов
evolve, v – развиваться
executive – служащий
expand, v. - расширять
expensive, adj. - дорогостоящий
exponent, n – выразитель, образец

F

facilities, n. - возможности
fail, v. - потерпеть неудачу
feedback, n. - обратная связь
fiber optics, n. - волоконная оптика

figure (out), v. - понять, разгадать
file, v – представить документы
finding, n. - открытие
font, n. - шрифт
forward, v. - отправлять, пересылать
fraud, n – мошенничество, обман, подлог
fraught, n – сложность, накопление
frequent, adj. – частый
freshman, n. - первокурсник, новичок
fuel, n. - топливо
fuel, v. - подогревать, питать
fulfil, v. - выполнять
further, adj. - дальнейший
further, v. – содействовать

G

gather, v. – собирать

H
handle, v – управлять, регулировать
hardware, n. - аппаратное обеспечение
housing, n – жилищное строительство
highlight, v. - выявлять, подчеркивать
hold, v – придерживаться (взглядов, убеждений)
howler , n.- грубая ошибка
host, n. - главный компьютер, головная машина
hover, v – колебаться

I

ignorance, n – невежество, неосведомленность
immoderation, n. - чрезмерность
impact (on), n. - влияние (на)
implement, v. - выполнять
improve, v. - улучшать, усовершенствовать
include, v. - включать (в себя)
initiate, v. - подготовить, разработать
insist (on), v. – настаивать
intact, adj – целый, целостный
intelligence, n - разум
introduce, v. – внедрять
invent, v. – изобретать
involve, v. - вовлекать
irrespective (of), adv. - независимо (от)

item, n. - (зд.) товар, образец
iteration, n – повторение

K

keyboard, n. – клавиатура
keypunch, n. – перфоратор

L

lack (of), n. - отсутствие, недостаток
lag, v – отставать
lead (to), v. – вести
leaflet, n. – листовка, рекламный проспект
lease, v. - сдавать/брать в аренду
leasing, adj – лизинг, долгосрочная аренда (машин, оборудования).
leave (off), v. – перестать, зд. вычеркнуть, убрать
link (up), v. – присоединять
liveliness – оживленность
long, adj. - давний
look (for), v. – искать

M

mail, n. - почта
maintain, v. – поддерживать, устанавливать
malicious, adj. – злой, злобный
mall, n. - торговый центр
manual, adj. - ручной
manufacture, v. – производить
mark, n – знак, метка
medium, n. - средство
merits, n – достоинство, преимущество
message, n. - сообщение
mid-level, n. - средний уровень
mighty, adj - мощный
miss, v. – упустить
mode, n. - способ, режим
multimedia, n. - мультимедиа (система обработки данных разных типов: текстов, видео, аудио, графиков и т.д.)

N

noteworthy, adj. - достойный внимания
notification, n. – сообщение, предупреждение

novelty, n – новость, новшество

O

obsolete, adj. – устаревший
occur, v. - происходить, случаться
occurrence, n. - случай
offer, v., n. - предлагать, предложение
opinion, n. – мнение
order, v. - заказывать
outclass, v – превзойти
outlaw, v. – ставить вне закона
outstrip, v – опережать, превосходить
overtake, v – догонять, овладевать
overview, v. - обозревать, рассматривать

P

packet-switching network, n. - сеть с пакетной коммутацией
pamphlet, n. - брошюра
pastime, n – приятное времяпрепровождение
patch, n. – вставка
pay (off), n. - (зд.) выгода
penalize, v. – наказывать, штрафовать
perform, v. - производить, выполнять
power supply, n – блок питания
present, v. - показывать, представлять
prevalent, adj. – общепринятый, распространенный
procure, v. - предоставить
profit, n. – прибыль
prone (to), adj. – склонный к чему-либо
proposal, n. - план, предложение
proprietary, adj. – частный, внутренний
prospects, n. - перспективы
provide (with), v. - обеспечивать
public, adj. - общественный, государственный
publicity, n – известность
punch, v. – выбивать
purpose, n. – цель
pursuit, n. – стремление, преследование, занятие

Q

query, n. - запрос

R

rack up, v. – выигрывать, достигать значит. результатов
realize, v. – осуществлять, понимать, сознавать
recipient, n. - получатель
refer (to), v. - ссылаться (на), адресовать (к)
regardless, adv. – независимо (от)
relate, v. - рассказывать
relevant, adj - нужный, соответствующий
remote, adj. - отдаленный
renew, v. – восстанавливать, возобновлять
rent, v. – арендовать
resolve, v. – решать (вопрос)
resources, n. – ресурсы, средства
retrieve, v. – искать
revenue, n. – доходы
revert, v. – возвратиться, вновь возвращаться
run, v. - действовать, работать

S

score, v – выигрывать
secure, v. - обеспечивать
seminal, adj. - основополагающий
senior-level - высший уровень
set, n. - ряд, набор
setting, n. - устройство, установка
shortage, n – дефицит, нехватка
similarly, adv. – подобно, точно так же
sit (through), v. - высидеть (до конца)
software, n. - программное обеспечение
sophistication, n. – утонченность, фальсификация
spiritual, adj. - духовный
split, v. - расщеплять, разъединять
spur, v – способствовать
staff, n. - персонал
stunt, n. - трюк
submit, v. - представить (кому-либо)
succeed (in), v. - преуспеть
suffice, v – удовлетворять, быть в достаточном количестве
suggest, v. - (зд.) указывать, заставлять думать
suit, n – иск, судебное производство
supplement, v. - добавлять, дополнять
supply, v. – снабжать
support, v. - поддержка, помощь

surf, v. – быстро просматривать
survival, n – выживание
survive, v. - выжить
switch (off), v. – выключать
switch (on), v. – включать

T

tabulate, v. - сводить в таблицу
take a backseat, v. – уступить место
take care (of), v. - заботиться (о)
take over, v. – перехватить, держать под контролем
threshold, n - порог
time sharing, n. - разделение времени, работа с разделением времени, режим разделения времени
time-consuming, n - трудоемкость
tool, n. - инструмент
trend, n. – направление
turn (to, on, out) v. - повернуться (к), обращаться (к), включить, отказаться
tutorial, n. - справочник, руководство
tycoon, n. – магнат

U

ultimate, adj. - конечный, завершающий, окончательный
underlaying protocol - базовый протокол
undertake, v. - предпринимать
undoing, n. – несостоятельность
unit, n. – блок, устройство, единица измерения
unscrupulous, adj. – беспринципный, недобросовестный
update, v. – модернизировать, усовершенствовать
utility, n – обслуживающая программа

V

variety, n. - разнообразие
vehicle, n. - (зд.) средство
vendor, n. - продавец
via, prep. - через
virtually, adv. – фактически
vision, n. - видение, мечта

W

whereas - тогда как
wholesale, adj. - оптовая торговля
witness, v. – свидетельствовать

List of Abbreviations (Chapters I-III)

AI   Artificial Intelligence - искусственный интеллект.

ASDL   Automatic Software Distribution Line - линия автоматического распределения информации.

B.S. (B.Sc.)   Bachelor of Science - бакалавр.

BBS   Bulletin Broad System - электронная доска объявлений.

ARPA   Advanced Research Project Agency - агенство по управлению передовыми исследованиями.

CD   Compact-Disk - компакт-диск.

CD-ROM   Compact-Disk Read-Only Memory - ПЗУ на компакт-диске.

CERN   Conseil Europeen pour la Recherch Nucleaire (fr.) European Council for Nuclear Research - Европейский Совет по ядерным исследованиям.

CTI   Computer Telephony Integration - компьютерная телефония.

DOS   Disk Operating System - дисковая операционная система.

DSS   Decision Support System - сложная система поддержки принятия решений.

ENIAC   Electronic Numerical Integrator and Calculator - электронный числовой интегратор и калькулятор.

GPS   General Problem Solver - система принятия решения.

GUI   Graphical User Interface - графический интерфейс пользователя.

HML   Hypertext Markup Language - язык разметки текстовых документов.

IAB   Internet Architecture Board - Совет по архитектуре Интернета.

IMP   Interface Messages Processor - сопрягающий процессор сообщений.

IPTO   Information Processing Techniques Offices - посты обработки информации.

IS   Information System - информационная система.

LAN   Local Area Network - локальная вычислительная сеть.

MIDI   Musical Instruments Digital Interface - цифровой интерфейс музыкальных инструментов.

MIS   Management Information System – информационно-управляющая система.

MIT   Massachusets Institute of Technology – Технологический институт в шт. Массачусетс.

M.S. (M.Sc.)   Master of Science - магистр.

NASA   National Aeronautics and Space Agency - Национальное агенство по аэронавтике и космосу.

NIC   National Internet Corporation - Государственная Интернет-корпорация.

NSF   National Science Foundation - Государственный фонд науки.

Ph.D.   Doctor of Philosophy - доктор философских наук.

RCA	Radio Corporation of America – Американская Радиокорпорация.
TCP/IP	Transmission Control Protocol/Networking Protocol - протокол с контролем передач.
UNIX	Operational system - операционная система.
VCR	Video Cassette Recorder - видеомагнитофон.
WAN	Wide Area Network - глобальная вычислительная сеть.

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PAGES FOR YOUR NOTES

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В 2009 году Университет стал победителем многоэтапного конкурса, в результате которого определены 12 ведущих университетов России, которым присвоена категория «Национальный исследовательский университет». Министерством образования и науки Российской Федерации была утверждена Программа развития государственного образовательного учреждения высшего профессионального образования «Санкт-Петербургский государственный университет информационных технологий, механики и оптики» на 2009–2018 годы.

The Department of Foreign Languages

The department of foreign languages was established on 20 September 1931. At that time the first new structural subdivision was singled out and the first head of the department, the associate –professor Falk K.I. (1931-1941) was assigned.

13 teachers worked at the department, namely, 7 teachers of English and 6 teachers of German.

The department of foreign languages was headed by:

1941-1951 senior teacher Mitskevich Z.P.

1953-1973 senior teacher Lisikhina B.L.

1973-1993 senior teacher Dygina M.S.

Professor Markushevskaya L.P. has headed the department since 1993.

At present the department consists of four sections: English, French, Russian and German, 30 teachers working in the staff.

More then 60 manuals were published at the department. The electronic versions of English Grammar, Computer in Use, Studying Optics have been produced. It helps students to improve their knowledge working on computers.

Much attention is given to working out different tests for distance education.

**Лариса Петровна Маркушевская
Лидия Ивановна Буханова
Ольга Игоревна Савенкова**

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