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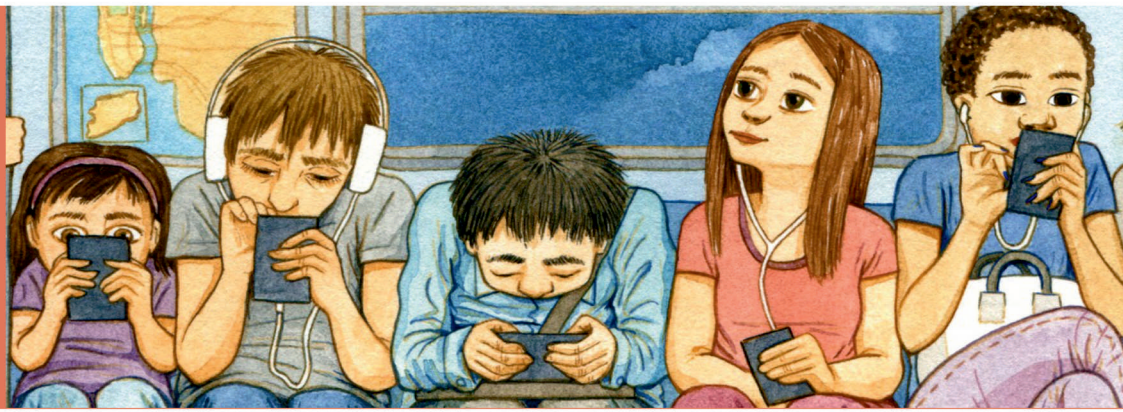

ПРОФЕССИОНАЛЬНЫЙ АНГЛИЙСКИЙ В СФЕРЕ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ

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Пособие включает пять базовых тем «Computers and IT in the Modern World: Problems and Perspectives», «Hardware. Inside the Computer: how it Works», «The Internet and Online Services: your Computer is not Alone», «Software: Programs to Make your Life Easier» и «Computer Security: your Computer is Under Attack», представленных как аутентичными текстами, так и упражнениями репродуктивного и креативного характера, направленными на развитие навыков устной и письменной речи. В приложении представлены научно-публицистические тексты, соответствующие общей тематике курса и предназначенные для самостоятельного чтения, интерпретирования и комментирования студентами.

Учебно-методическое пособие предназначено для студентов 2 курса, обучающихся по направлениям подготовки 44.03.01 «Педагогическое образование» (профили подготовки «Информатика» и «Математика и информатика») и 09.03.03 «Прикладная информатика» (профиль подготовки «Прикладная информатика»).

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CONTENTS

ПРЕДИСЛОВИЕ

Данное пособие представляет собой учебное издание по практическому курсу английского языка в сфере информационных технологий и предназначено для практических занятий студентов 2 курса, обучающихся по направлениям «Информатика и математика», «Информатика» и «Прикладная математика». Пособие состоит из 5 модулей, соотносящихся с основными темами, рассматриваемыми в 3–4 семестрах 2 курса, и приложения с текстами, тематически соответствующими указанным направлениям. Данное пособие, благодаря своей структуре и используемому языковому материалу, может использоваться и при обучении студентов других специальностей, поскольку тематика текстов и соответствующих им упражнений позволяет рассмотреть ряд проблем, актуальных для современного общества в целом. Основной целью пособия является развитие и совершенствование основных коммуникативных навыков студентов во всех видах речевой деятельности.

Учебно-методическое пособие включает 5 базовых тем, обсуждение которых не представляется возможным без опоры на специальные знания, полученные в ходе изучения дисциплин основного курса: «Computers and IT in the Modern World: Problems and Perspectives», «Hardware. Inside the Computer: how it Works», «The Internet and Online Services: your Computer is not Alone», «Software: Programs to Make your Life Easier» и «Computer Security: your Computer is Under Attack». Структура разделов унифицирована: аутентичные тексты по изучаемой теме, тематический словарь с набором упражнений, задания для аудирования, материалы для групповой и индивидуальной работы.

Приложение представляет собой набор аутентичных научно-публицистических текстов, отобранных в соответствии с общей тематикой пособия. Данные тексты предназначены для самостоятельного чтения, интерпретирования и комментирования студентами.

Данный вид деятельности позволяет студентам существенно расширить словарный запас, а также выработать умение четко и последовательно высказывать свою точку зрения по обсуждаемой проблеме.

Расположение разделов пособия внутри каждой темы не обязывает к жесткой последовательности изучения изложенного в них материала. Пособие содержит достаточный объем языкового материала, что позволяет варьировать его в зависимости от уровня подготовки студентов и количества часов, выделяемых на дисциплину в рамках учебной программы.

Таким образом, данное пособие направлено на овладение различными видами речевой деятельности: на обучение языка в конкретных сферах общения и на развитие коммуникативных компетенций, включающих в себя собственно лингвистический, социолингвистический и прагматический компоненты.

PART 1

Computers and IT in the modern world: problems and perspectives

UNIT 1

Functions of computers

Text

Computer is one of the inventions of the 20th century that changed the world greatly. The first computers of the 1940th were enormous. But now they are almost in every family and in every office building.

Some machines do only one job, some of them are multifunctional, but no device is as multifunctional as computer. The parts of the computer (or its hardware) remain the same, you change only the program (software) and your computer immediately learns to do various things. A browser program is designed to look at pages on the Internet (you can also say «to browse», this accounts for the word «browser»). A word processor program lets you print texts and then change styles of fonts and sizes of pages. A database program is used for searching and sorting records. Such programs are used at shops, libraries, hospitals, accountant offices and many other places. They make work with great amounts of data much quicker.

Computers are found everywhere and used in every sphere of life. At a plant one can make a computer model of a car or plane and check its resistance to stress. Such calculations without a computer could have taken several months. Computer is also used at school: children watch presentations, films and web pages. This help them to study effectively.

Computers also have some disadvantages. there is a famous joke that computers are designed to solve problems but half of the time they are the problem. As computer is a complicated device, one small breakage may stop its work. Moreover, the equipment is soon out of date.

Besides, there is a problem of compatibility. First of all, there are hardware devices which can't work with the old operating system, such as a processor, a hard disk drive, a video card, etc. Then, there are programs which need more resources than computer actually has.

Thirdly, computers become more and more complicated, and much effort is required to learn how to work with them. Fourthly, computer viruses cause a lot of trouble – they can spoil, remove or steal computer data, and every user knows it well from his personal experience.

And on top of all, computer is a multifunctional device, as we already know, so it can be used both to do work and to entertain oneself. Children often fall prey to computer and Internet: they play computer games, spend their free time chatting with friends on the Internet and doing practically nothing. This aspect can't be denied.

To crown it all, computer is a useful device like many others, designed to help people. But it's our own free will that lets us use it in order not to waste time but to get best results (from www.livinginternet.com).

Active Vocabulary

accountant [ə'kauntənt] бухгалтер
amount [ə'maunt] количество

breakage ['breikɪdʒ] поломка
(to) browse ['brauz] просматривать
browser [brauzə] браузер, программа для просмотра

calculation [kælkju'leiʃən] вычисление

(to) check ['ʧek] проверять

compatibility [kəmpætɪ'bɪlɪtɪ] совместимость
(to) crown it all ['kraun] в заключении

data ['deɪtə] данные

database ['deɪitəbeɪs] база данных

(to) design [dɪ'zain] проектировать

disk drive ['dɪsk 'draɪv] дисковод

effort ['efət] усилие

enormous [ɪ'nɔ:məs] огромный

(to) entertain [entə'teɪn] развлекать

equipment [ɪ'kwipmənt] оборудование

experience [ɪ'kwɪpmənt] опыт

hardware ['ha:dwɛə] аппаратное обеспечение

machine [mə'ʃi:n] машина

multifunctional ['mʌltɪ'fʌnkʃənl] многофункциональный

operating system ['ɒpəreɪtɪŋ 'sɪstəm] операционная система

page ['peɪdʒ] страница

(to) fall prey ['fɔ:l 'prei] пасть жертвой

(to) print ['prɪnt] печатать

processor ['prəusesə] процессор

resistance [rɪ'zɪstəns] сопротивление

resource [rɪ'sɔ:s] ресурс

search ['sɜ:ʧ] искать

software ['sɒftwɛə] программное обеспечение

(to) solve ['sɒlv] решать

sphere ['sfɪə] сфера

user ['ju:zə] пользователь

virus ['vaɪərəs] вирус

(to) waste ['weɪst] тратить

web ['web] сеть

Exercises

I. *Answer the following questions after reading the text:*

1. When was computer invented?
2. Is computer a multifunctional device?

3. What types of programs for computer can you name?
4. In what spheres of life can computers be used?
5. Computers have many disadvantages, don't they?
6. What is the main disadvantage?
7. What are the relations between children and computer? Is there any danger?
8. Can you name other things that can be misused, like computer?

II. *Fill in the blanks:*

1. The ____ of one computer stopped the work of the whole company.
2. Yesterday we bought a ___ device: it's a printer, a scanner and a fax.
3. If you want to look at the library collection, open this ___ program.
4. To install the driver, insert the CD into the ___ and follow the instructions of the computer.
5. If you have a problem with you hardware or ___ , find an expert to ___ your problem.
6. The hottest place in your computer is a ___ .
7. Check your computer for ___ . They can spoil your ___ .
8. He uses the Internet only to ___ himself: he listens to music and watches films.
9. Computer can make ___ quicker than any calculator.

III. *Continue the following statements by using the expressions from the active vocabulary:*

1. The first computers of the 1940ths were ...
2. A browser program is designed to ...
3. A processor lets you ...
4. Database programs are used to ...
5. Computer is also used at school: children can ...
6. There is a problem of compatibility ...
7. Computers become more and more complicated, and much effort ...
8. Computer viruses cause ...
9. It's our own free will that lets us use the computer in order ...

IV. *Discuss the following topics in groups:*

1. Multifunctional devices around us.
2. Different types of computer programs.
3. Spheres of life where computers are used nowadays.
4. The problem of compatibility and its solution.
5. Computer viruses and their influence on our lives.

UNIT 2

Information technologies in Russia and the world

Text

Internet and computer growth in Russia has been the envy of every European and North American country during the past few years. But growth in all IT areas is expected to slow by a considerable amount. Cell-phone growth in Moscow and St. Petersburg is limited to subscribers exchanging models. Mobile communication companies had hoped that 3G technology would prove to be a boom, but the lack of equipment capable of handing such a technology is holding back development.

Internet usage has nearly reached the limit that current technological equipment can provide. There is not enough money to increase capacity. The largest computer and Internet service providers in Russia will reach yearly turnover of $500 million, which is far too small of a sum to begin improving communication structures on their own without the support of the government.

The government launched the Electronic Russian program which was designed to create an electronic government that would increase interaction between citizens and their leaders. Different ministries and agencies couldn't reach the agreement concerning the ways of implementation of the program, so it came to nothing. The government has developed a new plan. This time a single ministry will be responsible for «informatization», and its decisions will be carried out by all ministries and agencies. The newly created IT office will have not only the necessary resources but also a fair share of political leverage. Until

this is not done, Russia will have to wait many years for IT business to become large enough to put pressure on the government to invest heavily in Internet services.

The most popular Internet service is e-mail. Most of the people, who have access to the Internet, use the network only for sending and receiving e-mail messages. However, other popular services are available on the Internet: reading USENET News, using the World-Wide Web, telnet, FTP and Skype. In many developing countries the Internet may provide businessmen with a reliable alternative to the expensive and unreliable telecommunication systems of these countries. Commercial users can communicate over the Internet with the rest of the world and can do it very cheaply. When they send e-mail messages, they only have to pay for phone calls to their local providers, not for calls across the countries or around the world. But who actually pays for sending e-mail messages over the Internet long distances, around the world? The answer is obvious: users pays their service provider a monthly or hourly fee. Part of this fee goes towards its cost to connect to a larger service provider. Part of the fee got by the larger provider goes to cover its cost of running a worldwide network of wires and wireless stations (from www.ideafinder.com/history/internet.html).

Active Vocabulary

agreement [ə'gri:mənt] соглашение

boom ['bu:m] резкий подъем, бум

cell-phone ['sel 'fɜun] сотовый телефон, мобильный телефон

(to) connect [kə'nekt] соединять(ся), связывать(ся)

considerable [kən'sidərəb(ə)l] существенный, значительный, весомый

current ['kʌrənt] текущий, действительный

development [dɪ'veləpmənt] развитие, рост

fair share ['fɛə 'ʃɛə] справедливая доля, достаточная доля

fee ['fi:] плата за услугу

implementation [ˌɪmplɪmən'teɪʃən] реализация, исполнение

informatization [ˌɪnfɒmətɪ'zeɪʃ(ə)n] информатизация

interaction [ˌɪntə'rækʃ(ə)n] взаимодействие

(to) launch ['lɔ:nʧ] запускать

leverage ['li:vərɪdʒ] рычаги влияния, воздействие

message ['mesɪdʒ] сообщение

network ['netwɜk] вычислительная сеть, информационная сеть

obvious ['ɒbvɪəs] явный, очевидный, заметный

pressure ['preʃə] давление, воздействие

(to) provide [prə'vaɪd] снабжать, предоставлять

reliable [rɪ'laɪəbəl] надежный

subscriber [səb'skraɪbə] подписчик, абонент

support [sə'pɔ:t] обеспечение, поддержание

usage ['ju:zɪdʒ] употребление, потребление

wireless ['waɪəlɪs]
беспроводной

Exercises

I. *Match the phrases from the text and their definitions*

• Internet growth • a considerable amount • current technological equipment • increasing Internet usage • mobile communication companies • communication structures • Internet access • computer growth • an electronic program	• рост использования компьютеров • электронная программа • компании мобильных коммуникаций • структуры связи • доступ в Интернет • рост Интернет обращений • текущее технологическое оборудование • значительное количество • расширение сети Интернет

II. *Find in the text and translate the sentences containing the following phrases*

1. a mobile communication
2. e-mail messages
3. a service provider
4. a worldwide network
5. the World-Wide Web
6. a local service provider
7. a wireless station

III. *Mark the following statements as True (T) or False (F). Explain your choice in the case the statement is false:*

1. Internet growth in European countries has been the envy of every North American country.
2. The growth in all IT spheres is expected to slow considerably.
3. The most popular computer service is e-mail.
4. The government launched the Electronic USA program.
5. Parts of the subscribers' fee goes towards the cost to connect to a larger service providers.
6. Internet is a local net service.
7. The development of information technologies in Russia knows no problems.
8. The government did not give up and is developing a new plan of IT development.

IV. *Transform the following statements into questions*

1. Internet and computer growth in Russia has been the envy of every European and North American country during the past few years.
2. Mobile communication companies had hoped that 3G technology would prove to be a boom.
3. Internet usage has nearly reached its limit.
4. The largest computer and Internet service providers in Russia will reach yearly turnover of $500 million.
5. The government launched the Electronic Russian program.

6. Different ministries and agencies couldn't reach the agreement concerning the ways of implementation of the program.

7. This time a single ministry will be responsible for «informatization».

UNIT 3

Is there an end to the computer race?

Text

Today the word «electronics» is in general usage. Millions of people have electron watches. In factories and plants we are surrounded with electronically controlled machines and instruments, we are carried by airplanes, ships, trains and cars with built-in electronic devices, and satellites circle the globe. In other words, we are living in an electronic world.

And the center of this world is a silicon plate of a few square millimeters, an integrated circuit, or a chip, as it is more commonly known. The integrated circuit is undoubtedly one of the most sophisticated inventions of man, science and technology. It is in the heart of every electronic device and the more Computers and TV sets we need, the more integrated circuits are required.

When we speak about future development of computers we mean not only quantity, but also high technology and high speed. As the operation of an integrated circuit depends on microscopic components the purity of all materials and the cleanness at the plant they are produced must be of the highest quality. A continuous search is going on in laboratories throughout the world for more perfect. reliable and high speed electronic circuits.

In the past it took scientists and researchers a whole lifetime to make a few thousand calculation, whereas for a modern computer this task is a matter of a few seconds. At present computers capable of performing billions of operations a second are required. Supercomputers are different from ordinary computers. The ordinary computer does the computations

operation by operation, while the supercomputer operates like a brain: all operations are being done simultaneously.

In the next few years engineers will complete the work on computers of above 2 billion operations a second. It will take a few more years to produce a 10-billion operations computer. The fifth-generation computers performing 100 billion operations a second will become available in the near future. Is there an end to this race?

According to some researchers, we are close to what can be regarded as a true physical limit. But other specialists think that photons will make the operation a thousand times faster. This means that in the future it will be possible to expect appearance of photon computers and that computations will be done by means of light. Light has several advantages over electronics: light beams are faster, travel in parallel lines and can pass through one another without interference. Already, the optical equivalent of a transistor has been produced, and intensive research on optical-electronic computer is being carried out in a number of countries around the world. In a few decades a new age of light may replace the still youthful electronic age. The race is going on (from www.compnews.com/first.html).

Active Vocabulary

advantage [əd'va:ntɪdʒ] преимущество, превосходство

beam ['bi:m] луч

built-in [ˌbɪlt'ɪn] встроенный

calculation [ˌkælkju'leɪʃ(ə)n] вычисление, расчет

computation [ˌkɒmpju'teɪʃ(ə)n] вычисление, вычислительные операции, вычислительная техника

device [dɪ'vaɪs] устройство, прибор, машина

generation [ˌdʒenə'reɪʃ(ə)n] поколение

integrated circuit ['ɪntɪgreɪtɪd 'sɜ:kɪt] интегральная схема

interference [ˌɪntə'fɪərəns] вмешательство, препятствие, интерференция

ordinary ['ɔ:d(ə)nrɪ] обыкновенный, распространенный

photon ['fɜutən] фотон, квант света

purity ['pju(ə)rɪtɪ] чистота, отсутствие примесей

quantity ['kwɒntɪtɪ] количество, величинв

search ['sɜ:ʧ] поиск, исследование

simultaneously [sɪm(ə)l'teɪnɪəslɪ] одновременно, синхронно

silicon plate ['sɪlɪkən 'pleɪt] кремниевая пластина

sophisticated [sə'fɪstɪkeɪtəd] высокой сложности

Exercises

I. *Answer the following questions after reading the text:*

1. What new things appeared in people's life in the end of the XXth century?
2. What applications of computer do you know?
3. Where else the computer may be used?
4. How does an ordinary computer (supercomputer) operate?
5. What is the speed of a new supercomputer?
6. What is the task of engineers in the field of computer development?
7. What types of computers do you know?
8. What are the prospects in the development of computers?

II. *Make all types of questions to the following sentence:*

The integrated circuit is undoubtedly one of the most sophisticated inventions of man, science and technology.

III. *Match the following elements to produce phrases:*

• general	• speed
• electronically controlled	• beams
• integrated	• computers
• high	• search
• continuous	• usage
• photon	• circuit
• light	• machines

IV. *Put the words in the correct order:*

1. but/we/mean/also/computer/we/quantity/and/high speed/when/a further development of /high technology/speak about not only

2. electronic circuit/and/in laboratories/reliable/for more perfect/throughout the world/is going on/high speed/a continuous search

3. operates/the ordinary computer/all/operation by operation/are being done/the supercomputer/does/simultaneously/the computations/ operations/while/like a brain

V. *Fill in the gaps by using the words from the list below*

true physical limit, high technology and high speed, a continuous search, computations, the integrated circuit

1. _____ is in the heart of every electronic device we use at present.
2. When speaking about further development of computers we first of all speak about _____.
3. _____ is going on laboratories to work out more perfect, reliable and high speed electronic circuits.
4. The ordinary computer does the ____ operation by operation.
5. Some researchers think that with the invention of the fifth generation computers we approach what is called _____.

VI. *Translate the following sentences into English by using the expressions from the text you have read:*

1. В центре мира электроники находится маленькая кремниевая пластина, интегральная схема, более известная как чип.
2. Изобретение интегральной схемы является одним из самых значительных изобретений за всю историю человечества.
3. Всего несколько десятков лет назад ученым требовалось очень много времени, чтобы сделать все необходимые расчеты.
4. Суперкомпьютер отличается от обычного тем, что может выполнять вычислительные операции одновременно.
5. Появление фотонных компьютеров обусловлено тем, что они смогут производить операции в тысячу раз быстрее, чем сегодняшние компьютеры.

6. Преимущество света заключается в том, что его лучи движутся быстрее и могут проходить друг через друга без помех.

UNIT 4

Information technologies is my future profession

Text

Young people choose their own careers according to their personal abilities and interests. Career opportunities are open to all young people who have the ability and will to study.

We know that computers are getting deeper and deeper into our life. They keep the outer world open to us. With them we can use the Internet, send messages to friends, customers and partners, get information from them through electronic mail. Through the Internet we can make use of archives, university or company databases, library catalogues, and millions of photographs, documents, sound clips, video or whatever else put into digital form.

Computers also help to carry out complex work easily and save a lot of time. The computers do calculations, process information and perform many other clever operations. They are also being used in business to collect and analyze data. Every business needs accurate, complete, and timely information to make decisions and survive in today's competitive business environment.

Computers are used in manufacturing too. Computer control of automated production opens up new horizons for cheap and quality production of goods. Special programs have been developed for controlling advanced machine functions. Electronic technologies are extensively used to improve productivity and efficiency in forestry sector. Geographic information technologies are improving forest management providing foresters with spatial data, digital maps and other information. In fact, geomatics can help computer professionals to find a wider application of their knowledge and skills.

No doubt, we can't do without computers any more, but, however, the people – both professionals and users – are the most important component of the computer system. Computer professionals design computer hardware and related equipment, they design, crate, and develop computer software and professional computer operators run the computer systems and monitor their activities during processing.

As it is, a computer professional is a person in the field of computers who has had formal education in the technical aspects of computer use – a programmer or system analyst or computer operator who is concerned only with supporting the computer's physical functions in producing information for the user.

The employment picture for computer professionals looks good and is getting better. Several million people are employed as computer programmers, computer operators, information managers, system analysts, data entry clerks and other technical workers. The growth of the microcomputer hardware and software industries in recent years has created a number of new jobs in the retail sales and marketing of computers as well. Many jobs have also been created by companies that manufacture various computer components and by companies that specialize in computer repair.

As form me I have made up my mind. I want to be a computer professional. I am sure that information technologies are among the most important in today's world and computer technologists will be able to solve many problems of modern times (from www.cnet.com).

Active Vocabulary

advanced [əd'va:nst] передовой, продвинутый, новейший

archive ['a:kaɪv] архив

competitive [kəm'petɪtɪv] конкурентный

customer ['kʌstəmə] покупатель, заказчик, клиент

data entry clerk ['deɪtə 'entrɪ 'kla:k] оператор ввода данных

(to) design [dɪ'zaɪn] проектировать, разрабатывать

employment [ɪm'plɔɪmənt] проектировать, разрабатывать

forestry ['fɒrɪstrɪ] лесоводство, лесное хозяйство

geomatics ['dʒɪɒmætɪks] геоинформатика

horizon [hə'raɪz(ə)n] горизонт

information manager [ˌɪnfə'meɪʃ(ə)n 'mænɪdʒə] информационный менеджер, администратор системы информационного обслуживания

opportunity [ˌɒpə'tju:nɪtɪ] возможность, удобный момент

processing ['prəusesɪŋ] обработка

repair [rɪ'peə] ремонт

retail sales ['ri:taɪl 'seɪlz] розничные продажи

spatial ['speɪʃ(ə)l] пространственный

system analyst ['sɪstəm 'ænəlɪst] системный аналитик, специалист по системному анализу

(to) survive [sə'vaɪv] выжить, пережить

Exercises

I. *Translate the following words and phrases from the text into Russian:*

To choose careers; personal abilities and interests; ability and will to study; to keep the outer world open; to send messages; to get information through electronic mail; to make use of archives; company databases; digital form; to carry out complex work easily; to do calculations; accurate, complete and timely information; competitive business environment; computer control; cheap and quality production; to develop programs; advanced machine functions; to provide with spatial data; to find application; related equipment; to run the computer system; to have formal education; technical aspects of the computer use; to support the computer's physical functions; growth of industries; to create new jobs; to manufacture computer components; to make up one's mind; to solve problems.

II. *Insert the missing words and word combinations:*

1. Young people choose _____ according to their personal abilities and interests.

2. Computer are getting deeper and deeper into our lives and they keep _____ open to us.

3. We can send messages to friends, customers and partners, get information from them through _____ .

4. The Internet provides access to everything available in _____ .

5. The computer do calculations, process information and _____ many clever operations.

6. Every business needs accurate, complete and timely information to _____ .

7. Special programs have been developed for controlling _____ machine functions.

8. Geographic information technologies are improving forest management providing foresters with _____ .

9. _____ can help computer professionals to find a wider application of their knowledge and skills.

10. The people are _____ in the computer system.

11. Computer operators run the computer system and monitor their activities _____ .

12. A computer professionals should have ____ in the technical aspects of computer use.

13. A computer operator is concerned only with supporting the _____ in producing information for the user.

14. Several million people _____ as computer programmers, computer operators, information managers and system analysts.

15. A large number of new jobs have been created in the _____ and marketing of computers.

16. Information technologies are among _____ in today's world.

17. Computer technologists will be able _____ many problems of modern times.

III. *Translate the following sentences into English by using the expressions from the text you have read:*

1. Карьерные возможности открыты для всех молодых людей, кто имеет способности и желание учиться.

2. Компьютеры упрощают сложную работу и экономят много времени.

3. Бизнесмены нуждаются в точной, полной и своевременной информации, чтобы выжить в современной конкурентной деловой среде.

4. Компьютерное управление автоматизированным производством открывает новые перспективы для производства недорогих и качественных товаров.

5. Геоинформатика может помочь профессионалам-компьютерщикам найти более широкое применение своим знаниям и навыкам.

6. Профессиональные компьютерщики разрабатывают аппаратное обеспечение компьютера и связанное с ним оборудование, они проектируют и создают программное обеспечение.

7. Операторы компьютера управляют компьютерными системами и контролируют их действия во время обработки данных.

8. Ситуация с занятостью на рынке профессионалов-компьютерщиков представляется хорошей и продолжает улучшаться.

9. Несколько миллионов человек работают программистами, операторами, менеджерами по информации и системными аналитиками.

10. Развивающиеся отрасли по производству микрокомпьютерных аппаратных средств и программного обеспечения в последние годы создали большое количество новых рабочих мест.

UNIT 5

Social implications of computerization

Text

Everything is connected to everything else. A change in one area will cause changes in other areas, even if they aren't readily apparent to us. This means that with opportunities also come problems. We are learning this lesson, for example, in the area of ecology. Are we also learning it in relation to the computer's growing role in business and society?

This question is becoming more important as information technology replaces energy as society's main resources. Many people are concerned that too much emphasis has been put on what the computer can do to streamline business and too little on how it may be affecting the quality of our lives. For example, is it distorting the meaning of thought? That is, is it absurd and dangerous to attribute the capabilities of thinking and creativity to a computer? People have experience, convictions and cultural traditions. Are these qualities being devalued? If so, perhaps we are heading into an era in which machinelike qualities of speed and problem solving will be values more than what used to be called human qualities.

Many people believe that the computer's level of «thinking» can be compared simply to a muscle spasm and that too many computer enthusiasts are confusing data with ideas. After all, nothing is information until a person interprets it. And information is not the same as knowledge, which is gained by thinking. Knowledge can be gained without new information being received by the thinker. Can a machine do that? Do you want the equivalent of a muscle spasm control of a weapon system? Society must guard against the creation on inhuman projects thought up only because a computer made it possible, and it must develop standard checking systems to ensure the integrity of data used to make strategic decisions in government as well as business.

In addition to the problems of computer-controlled nuclear weapons, the potential for abuse of power concerns many people. On the one hand, the computer could lead to equalization – that is, a democratic situation in which all people have access to the same information. On the other hand, this possibility could lead to the opposite situation, the existence of huge banks of data and information, electronic communications and inexpensive portable computers has lead some totalitarian countries to outlaw personal possession of computers to avoid he free dissemination of information. Also, the existence of huge central data banks that contain essentially all data related to everyone's public and private life can be frightening to consider.

Many people focus on the freedom from routine and boring work that computers give. This is certainly welcome in many situations, but we

must remember that what is boring and routine work to one person may be life-saving employment to another. Traditionally, in the United States, many low-level jobs are held by young people and immigrants with language problems. Therefore, what at first seems like an advantage of computerization may really be a disadvantage. McDonald's restaurants came to this conclusion not long ago when they decided not to eliminate the order-cashier positions at the front counters staffed by people and replace them with machines that customers would use to key in their own orders. And maintaining human contact is still better for business.

One more problem to consider is the potential for computer-based systems in business to be used to monitor employees. What if terminals were programmed to check your speed, the pauses you make, the breaks you take, the rate of keying errors? Would it be fair for the company to do this to make sure it retains only the most efficient workers and thus increase the value of goods and services to sell? Or would this detract from your dignity as a human being – your right to do some things better than you do others? And would this type of company get high-quality decisions from its employees – or would the employees be too dissatisfied and afraid to work creatively?

These are only a few of many computer-related social issues that are being discussed. Keep in mind, however, that although these problems certainly deserve everyone's attention, they should not obscure the opportunities that will be opened up to you if you know how to use the computer in your chosen occupation (from www.unf.edu).

Active Vocabulary

abuse [ə'bju:s] неправильное употребление, некорректное использование

(to) attribute ['ætrɪbju:t] приписывать

(to) detract [dɪ'trækt] преуменьшать, умалять

dissemination

(to) distort [dɪs'tɔ:t] искажать

(to) eliminate [ɪ'lɪmɪneɪt] устранять, ликвидировать

emphasis ['emfəsɪs] выделение, акцент

employment [ɪm'plɔimənt] занятосьь

(to) ensure [ɪn'ʃuə] обеспечивать, гарантировать

equalization [ˌi:kwəlaɪ'zeɪʃən] выравнивание, уравнивание

integrity [in'tegrɪtɪ] целостность, полнота

machinelike [mə'ʃi:nlaɪk] механический

(to) maintain ['meɪnteɪn] сохранять, удерживать

(to) monitor ['mɒnitə] наблюдать, контролировать

(to) obscure [əb'skjuə] затмевать, затруднять понимание

(to) outlaw ['autlɔ:] объявлять вне закона

(to) streamline ['stri:mlaɪn] упростить, упорядочить, рационализировать

Exercises

I. *Translate the following expressions into Russian:*

to cause changes, to learn a lesson, to replace, society's main resource, to put emphasis on, to streamline business, quality of life, to distort the meaning, to attribute capabilities of thinking to a computer, convictions, to devalue, machinelike qualities, to confuse data with ideas, to gain knowledge, human qualities, equivalent of a muscle spasm, to guard against, to develop checking systems, integrity of data, computer-controlled nuclear weapons, abuse of power, to lead to equalization, to outlaw possession of computers, to avoid, public and private life, frightening to consider, boring work, low-level jobs, disadvantage, to come to conclusion, to consider a problem, to monitor employees, to key errors, value of goods, dissatisfied, computer-related social issues, to deserve attention, chosen occupation.

II. *Translate the following words and word combinations into English by using expressions from the text:*

явный, возможность, возрастающая роль, главный ресурс общества, быть обеспокоенным, оказывать влияние, искажать, способность

мышления, мышечное сокращение, получать знания, принимать меры предосторожности, целостность данных, принимать стратегические решения, злоупотребление властью, привести к уравниванию, банки данных и информации, распространение информации, делать акцент на, неквалифицированная работа, преимущество компьютеризации, вести наблюдение за сотрудниками, делать перерыв, социальные проблемы компьютеризации, заслуживать внимания.

III. *Fill in the blanks by using words and phrases from the text:*

1. A change in one area will cause changes in other areas, even if they aren't _____ to us.
2. We are learning _____ in the area of ecology.
3. This question is becoming more important as information technologies replace energy as society's _____.
4. Many people are concerned that _____ has been put on what the computer can do to streamline business and too little on how it may be affecting the quality _____.
5. Is it absurd and dangerous to attribute the _____ to a computer?
6. People have experience, _____ and cultural traditions.
7. perhaps we are heading into an era in which _____ of speed and problem solving will be valued more than what used to be called _____.
8. Many people believe that the computer's level of «thinking» can be compared simply to _____.
9. Too many computer enthusiasts are confusing _____ .
10. Nothing is information until a person _____ it.
11. And information is not the same as knowledge, which is _____.
12. Knowledge can be gained without new information being received by _____.
13. Do you want the equivalent of a muscle spasm control of a ___?
14. Society must develop standard checking systems to ensure ___ used to make strategic decisions in government as well as business.
15. The potential for _____ concerns many people.
16. The existence of huge central data banks that contain essentially all data related to everyone's _____ can be frightening to consider.
17. There are only a few of the many _____ that are being discussed.

IV. *Read the text from which some participles, gerunds or constructions with them have been removed. Choose the expressions from the list below the text to complete the sentences:*

It had been thought for more than two decades that the first electronic digital computers were the Colossus (1) _____ in England in 1943 and the Electronic Numerical Integrator (2) _____ in the United States in 1945. However, the first electronic digital computer was actually built by John Atanasoff, an American theoretical physicist at Iowa State College (now Iowa State University). During the period 1937-1942 Atanasoff built two small-scale, special-purpose electronic computers, (3) _____ that was the prototype for the second larger machine (4) _____ as the Atanasoff-Berry Computers, ABC. The ABC was named after Atanasoff and his graduate assistant Clifford Berry (5) _____ with him.

The prototype was built in a couple of months (6) _____ by October 1939, for the purpose of (7) _____ two ideas central to Atanasoff's design: capacities to store (8) _____addition and substraction. The ABC computer itself was partly constructed from 1939 to 1942, (9) _____ . It featured about 300 vacuum tubes for control and arithmetic calculations; use of binary numbers; logic operations (instead of direct counting); memory capacitors; and punched cards as input/output units.

Atanasoff's digital computer was capable of (10) _____ accuracy that was 1,000 times greater than was possible with Bush's differential analyzer, the (11) _____ scientific computer at this time.

Atanasoff's computer greatly influenced the future of electronic technology. It was the first machine to use electronic means to manipulate binary numbers. Several concepts (12) _____ by Atanasoff remain important in today's computers, (13) _____. The recognition of V's achievement, (14) _____ quietly compared with the introduction of the ENIAC (Electronic Numerical Integrator and Computer), resulted from a lawsuit filed in 1967 by the Sperry Rand Corporation against Honeywell, Inc., to protect the patent on ENIAC (15) _____ at that time by Sperry. Portions of the patent (which covered essentially all aspects of electronic digital computers) were shown to be derived from the ABC and from

information (16) _____ to John Mauchly by Atanasoff in the early 1940ths. In 1973 the ENIAC patent was ruled to be invalid by federal court.

- imparted
- most advanced
- testing
- the separation of memory and processing being the most significant ones
- built
- held
- introduced
- performing
- computing
- done
- the first being the central computing apparatus
- achieving
- known
- being operational
- Atanasoff and Berry discontinuing work
- working

V. ***Listening***. *You will hear two interviews between a market researcher and visitors to a computer exhibition. As you listen to them, fill in the missing information in the table:*

	Interview 1	**Interview 2**
Name		
Occupation		
Type of PC used		
Reasons for choice		

VI. ***Listening***. *Read the extract from the Interview 2 and fill in the gaps. To help you, the first letter of each missing word is given:*

INTERVIEWER: Do you own a PC?

ENRIQUE: Yes. I have an Apple Macintosh.

INTERVIEWER: Why did you (1) c_____ a Mac as opposed to an IBM or an IBM (2) c_____ ?

ENRIQUE: I think Macs are (3) e_____ to use than IBM PCs. I use the (4) m_____ feature a lot, which is (5) s_____ on all Macs. Then there's the graphical user interface and the windows.

INTERVIEWER: Graphical user interface? Could you explain that?

ENRIQUE: Well, put simply, it means that you click on (6) i_____ instead of typing in (7) c_____.

INTERVIEWER: I see. You mentioned windows. Doesn't IBM also use windows?

ENRIQUE: Yes, but I think their windows are harder to (8) s_____ (9) u_____. In any case, I'm (10) u_____ (11) t_____ the Mac.

PART 2

Hardware. Inside the computer: how it works

Before reading the text discuss the following questions in groups:

1. What type of computer is most suitable for home use?
2. What are the functions of main memory, input device, storage device?
3. What are the functions of processor, output device, monitor?

UNIT 1

The main parts of the computer system

Text

There are many pieces in a computer system. The most important of them are the case, system board, power supply, keyboard, mouse, hard drive, monitor and the video card with its drivers.

The large metal box that is the main part of the computer is called the case. The case and its contents (power supply, system board, etc.) are called the system unit. The case has several functions:

- protects the delicate electronics inside;
- keeps electromagnetic emissions inside;
- can also hold the monitor.

Don't remove the case's cover unless you need to do something inside the unit and always replace the cover when it is done.

You communicate with your computer with the keyboard. With it, you type instructions and commands for the computer, and information to be processed and stored. Many of the keys on the keyboard are like those on a typewriter: letter keys, punctuation keys, shift keys, tab and the spacebar. Your keyboard also has many specialized keys. The instruction

manuals for most software applications contain a section describing the functions of each key or combination of keys.

The mouse works by sliding it around on a flat surface. The mouse does not work if you hold it in the air like a remote control. The desktop is fine, but a ready-made mouse pad is the best surface to roll the mouse on. Its surface is flat and sometimes textured. If a surface is too smooth or rough, the ball inside can slip. As you glide the mouse, the ball inside moves in the direction of your movement. You will see the arrow on your screen moving in unison. The arrow is called a pointer, and the most important part is the very tip of its point. That's the only part the computer pays attention to. Ti use the mouse, slide it on the mouse pad until the pointer is on something, like a button or an icon. Then you may:

- click, or position the mouse pointer over an element and press and release the button one time;
- double-click, or press the mouse button twice in quick succession without moving a mouse between clicks;
- drag, or position the mouse pointer over an element, press and hold the left mouse button, and drag the mouse across the screen. The pointer moves, dragging the element. At the desired location, release the mouse button. The pointer lets go of whatever it was dragging.

Your computer is not complete without the monitor, a TV-like device that usually sits on top of the computer. The monitor displays text characters and graphics. It allows you to see the results of the work going on inside your system unit. The image that you see is made up of tiny dots called pixels. The sharpness of the picture depends on the number and size of these pixels. The more pixels, the sharper the image. this is called the resolution.

A display adapter card is actually what builds the video images; the monitor simply displays them. The display adapter for your system is either built onto the system board or is an expansion card plugged into your system board. You can set a screen saver to appear on your monitor screen if the computer sits idle for a period of time. Screen savers can reduce wear on your screen. Windows includes a number of screen savers.

The CD or DVD drive installed in your computer is similar to the one(s) you might have in your home or car. It can play music CDs and DVDs as well as read software program CDs and DVDs. To operate the drive press the Eject button to open the tray. Put a CD or DVD in the tray and gently start to push the tray in. the motor takes over and pulls the tray the rest of the way in.

Unlike the CD and DVD drive, the hard disk is inside the computer's case and you cannot see it. Usually it is referred to as drive C:. Hard drives hold a lot of data. The size of a hard drive is measured in gigabytes, or GB for short (from www.projects.uk).

Active Vocabulary

arrow ['ærʒu] стрелка, указатель

button ['bʌtn] кнопка

character ['kærɪktə] символ

display adapter card ['dɪsplaɪ ə'dæptə 'ka:d] видеоадаптер

(to) eject [ɪ'dʒekt] выталкивать, извлекать

emission [ɪ'mɪʃ(ə)n] излучение

idle ['aɪdl] неактивный, неработающий
manual ['mænjuəl] руководство
mouse pad ['maus 'pæd] коврик для мыши
pixel ['piksəl] пиксель, растровая точка

(to) plug ['plʌg] вставлять, устанавливать

pointer ['pɔɪntə] курсор мыши, указатель

power supply ['pauə sə'plaɪ] блок питания

(to) release [rɪ'li:s] отпускать, освобождать

remote control [rɪ'məut kɒn'trəul] дистанционное управление

resolution [ˌrezə'lu:ʃ(ə)n] разрешение, разрешающая способность

screen saver ['skri:n 'seɪvə] экранная заставка, хранитель экрана

sharpness ['ʃa:pnəs] четкость изображения, резкость изображения

succession [sək'seʃ(ə)n] последовательность

system board ['sɪstəm 'bɔ:d] материнская плата, системная плата

Exercises

I. *Answer the following questions after reading the text:*

1. What are the elements of hardware?
2. What is called the system unit?
3. What are the functions of the case?
4. What is the keyboard use for?
5. How does the keyboard functions?
6. How does the mouse work?
7. What do you have to do with the mouse if you want to start the program?
8. What is dragging for?
9. What is the monitor for?
10. What does the sharpness depend on?
11. What is used to reduce wear on the screen?
12. Where is hard drive situated and how is it referred to?
13. What is the CD/DVD drive for?

II. *Make all types of questions to the following sentence:*

You communicate with your computer with the keyboard.

III. *Give English equivalents of the following expressions:*

технические средства («железо»), корпус, обрабатывать информацию, клавиша «пробел», дистанционное управление, перетаскивание, состоять из, хранитель экрана, устанавливать

IV. *Give Russian equivalents of the following expressions:*

power supply, specialized key, mouse pad, pointer, text character, to reduce wear, hard disk drive, software, to save, tray

V. *Match the following elements to produce phrases:*

• power	• guidelines
• system	• the computer
• to power up	• attention to
• information to be	• device
• instruction	• in gigabytes
• ready-made	• unit
• to pay	• processed and stored
• TV-like	• supply
• to follow	• manuals
• to be measured	• mouse pad

VI. *Put the verbs into the correct form to complete the following sentences:*

1. One of the functions of the case (to be) to keep electromagnetic emissions inside when you power up the computer.
2. The function of each key (to be) described in the instruction manuals.
3. Text characters and graphics (to be) displayed on the monitor.
4. Number and size of pixels (to affect) the sharpness of the picture.
5. Why it (to be) better to use a mouse pad?
6. Screen saver 9to help) to reduce wear on the screen.
7. Quite often the hard drive (to be) called drive C:.
8. You (can) read from DVD-ROM, but you (not can) save anything to it.

VII. *Translate the following sentences into Russian:*

1. Don't remove the case's cover unless you need to do something inside the unit and always replace the cover when it is done.
2. With a keyboard, you type instructions and commands for the computer, and information to be processed and stored.
3. You will see the arrow on your screen moving in unison.
4. The pointer moves, dragging the element.
5. The image that you is made up of tiny dots called pixels.

UNIT 2
Optical technology

Text

One of the most interesting developments in telecommunication is the rapid progress of optical communication where optical fibers are replacing conventional telephone wires and cables. Just as digital technology greatly improved the telephone system, optical communication promises a considerable increase in capacity, quality, performance and reliability of the global telecommunication network. New technologies such as optical fibers will increase the speed of telecommunication and provide new, specialized information service. Voice, computer data, even video images will be increasingly integrated into a single digital communication network capable of processing and transmitting virtually any kind of information.

It is a result of combining to technologies: the laser, first demonstrated in 1960, and the fabrication 10 years later of ultra-thin silicon fibers which can serve as lightwave conductors. With the further development of very efficient lasers plus continually improved techniques to produce thin silica fibers of incredible transparency, optical systems can transmit pulses of light as far as 135 kilometers without the need for amplification or regeneration.

At present high-capacity optical transmission system are being installed between many major US cities at a rapid rate. The system most widely used now operates at 147 megabits per second and accommodates 6,000 circuits over a single pair of glass fibers (one for each direction of transmission). This system will soon be improved to operate at 1,7 gigabits per second and handle 24,000 telephone channels simultaneously.

A revolution in information storage is underway with optical disk technology.

The first digital optical disks were produced in 1982 as compact disks for music. They were further developed as a storage medium for computers. The disks are mode of plastics coated with aluminum. The information is

recorded by using a powerful laser to imprint bubbles on the surface of the disk. A less powerful laser reads back the pictures, sound or information. An optical disk is almost indestructible and can store about 1000 times more information than a plastic disk of the same size.

One CD-ROM disk (650 MB) can replace 300,000 pages of the text (about 500 floppies), which represents a lot of savings in databases.

The further development of optical storage is called DVD (digital versatile disk). A DVD-ROM can hold up to 17 GB, about 25 times an ordinary CD-ROM. For this reason, it can store a large amount of multimedia software and complete full-screen Hollywood movies in different languages. However, DVD-ROMs are «read-only» devices. To avoid this limitation, companies also produce DVD rewritable drives.

Besides, it is reported that an optical equivalent of a transistor has been produced and intensive research on optical electronic computers is underway at a number of US companies as well as in countries around the world.

It is found that optical technology is cost-effective and versatile. It finds new applications every day – from connecting communication equipment or computers within the same building or room to long-distance transcontinental, transoceanic and space communications (from www.webopedia.com).

Active Vocabulary

amplification [ˌæmplɪfɪ'keɪʃ(ə)n] усиление

conductor [kən'dʌktə] проводник

conventional [kən'venʃən(ə)l] общепринятый, обычный, традиционный

cost-effective [ˌkɒstɪ'fektɪv] экономный, экономичный, рентабельный

digital ['dɪdʒɪt(ə)l] цифровой, дискретный

(to) imprint ['ɪmprɪnt] запечатлевать, оставлять след

indestructible [ˌɪndɪ'strʌtəb(ə)l] неразрушимый, неразрушаемый

medium ['mi:dɪəm] средство

optical fibers [ˌɒptɪkəl'faɪbə] оптоволокно

read-only [ˌrɪ:d'əunlɪ] доступный только для чтения

regeneration [rɪˌdʒenə'reɪʃ(ə)n] обновление, восстановление

rewritable [rɪ'raɪtəbl] перезаписываемый

(to) transmit [trænz'mɪt] передавать, отправлять, посылать

transparency [træn'spærənsɪ] прозрачность

versatile ['vɜ:sətaɪl] подвижный, гибкий, легко приспособляемый, универсальный

Exercises

I. *Answer the following questions after reading the text:*

1. Which is one of the most interesting development in telecommunication nowadays?
2. What does optical communication promise?
3. What are the capabilities of optical fibers?
4. What are the perspectives of optical fibers?
5. Why is this system developing rapidly now?
6. What are the advantages of using compact discs?
7. How much information can a DVD disc hold?
8. Where can optical technology be used?

II. *Make all types of questions to the following sentence:*

The first digital optical discs were produced in 1982 as compact discs for music.

III. *Give English equivalents of the following expressions:*

обычные провода и кабели, цифровые технологии, надежность, объединять в одно целое, проводник световых волн, усиление, устанавливать, развивать, представлять собой оптико-электронный компьютер, рентабельный

IV. *Give Russian equivalents of the following expressions:*

capacity, computer date, transmitting information, ultra-thin silicon fibers, incredible transparency, regeneration, optical disk technology,

coated, database, multimedia software, rewritable drive, cost-effective, application.

V. *Match the components of the phrases*

• optical	• conductors
• conventional	• the bubbles
• to power silicon	• medium
• information to lightwave	• communication
• storage	• software
• to imprint	• telephone wires and cables
• multimedia	• fibers

VI. *Put the verbs into the correct form:*

1. In the nearest future digital communication network (to allow) to process and transmit voice, computer data and video images.
2. Invention of the laser and thin silicon fibers (to make) it possible to transmit pulses of light without amplification and regeneration.
3. New high-capacity optical transmission systems (to operate) between many major US cities.
4. Another revolution (to concern) optical disc technology.
5. An optical disk (to be) capable of storing about 1000 times more information than a plastic disc of the same size.

VII. *Fill in the gaps by using the words from the list below*

1,7 gigabits, digital communication network, cost-effective and versatile, high capacity optical transmission system, transistor, digital technologies, coated, information storage.

1. Just as _____ greatly improved the telephone system, optical communication promises a considerable increase in capacity, quality, performance and reliability of the global telecommunication network.
2. Voice, computer data, even video images will be increasingly integrated into a single _____.
3. At present _____ are being installed between many major US cities at a rapid rate.
4. This system will soon be improved to operate at _____ per second.

5. A revolution in _____ is underway with optical disk technology.

6. The disks are mode of plastics _____ with aluminum.

7. It is reported that an optical equivalent of a _____ has been produced.

8. It is found that optical technology is _____.

VIII. *Put in the correct preposition:*

1. You communicate with your computer _____ the keyboard.

2. The instruction manuals _____ most software applications contain a section describing the functions _____ each key.

3. The mouse works _____ sliding it around _____ a flat surface.

4. You will see the arrow _____ your screen moving _____ unison.

5. That's the only part the computer pays attention _____.

6. Your computer is not complete _____ the monitor.

7. The sharpness _____ the picture depends _____ the number and size _____ these pixels.

8. Windows includes a number of _____ screen savers.

9. The amount and variety _____ material you can access _____ CD-ROM is amazing.

10. Optical communication promises a considerable increase _____ capacity, quality, performance and reliability _____ the global telecommunication network.

11. The first digital optical disks were produced _____ 1982 as compact disks _____ music.

12. The information is recorded _____ using a powerful laser to imprint bubbles _____ the surface _____ the disk.

IX. *Translate the following sentences into English by using the expressions from the text:*

1. Новые технологии, такие как оптические волокна, увеличат скорость связи и предоставят новые услуги.

2. Последующее развитие высоко эффективных лазеров позволит передавать пучки света на расстояние 135 километров без необходимости усиления или восстановления.

3. Технология оптических дисков представляет собой переворот в области хранения информации.

4. Информация записывается при помощи мощного лазера, оставляющего пузырьки на поверхности диска.

5. Каждый день оптическая технология находит все новые применения от связывания в сеть нескольких компьютеров, находящихся в одном здании или комнате до межконтинентальной, трансокеанской и космической связи.

UNIT 3

Delete keys – clipboard technology

Text

For the last generation, Silicon Valley and Tokyo have been working to design computers that are ever easier to use. There is one thing, however, that has prevented machines from becoming their user-friendliest: you still have to input data with a keyboard. That can require you to do a lot of typing and memorize a lot of elaborate commands.

Enter the clipboard computer, a technology that has been in development for the last 20 years but took hold in the mass market only this year. Clipboard PCs – which, as their name suggests, are not much bigger than an actual clipboard – replace the keyboard with a liquid crystal display (LCD) screen and an electronic stylus. Users input data by printing individual letters directly on the screen.

There are two technologies at work in a clipboard PC: one allows raw data to get into the computer and the other allows the computer to figure out what that data means. The first technology relies principally on hardware and varies depending on the particular computer. In one system, marketed under the name GRIDPad, the computer's LCD screen is

covered with a sheet of glass with a transparent conductive coating. Voltage is sent across the glass in horizontal and vertical lines forming a fine grid; at any point of grid the voltage is slightly different. When the stylus – which is essentially a voltmeter – touches the screen, it informs the computer of the voltage at the point. The computer uses this information to determine where the stylus is and causes a liquid crystal pixel to appear at those coordinates. The position of the stylus is monitored several hundred times a second, so as the stylus moves across the glass, whole strings of pixels are activated.

«What we do is a sort of connecting the dots,» says Jeff Hawkins, the creator of GRIDPad. «Users can then write whatever they want on the screen with a kind of electronic ink.»

Making that writing comprehensible to the computer, however, requires the help of some powerful software. When the stylus is being used, the computer is program med to look for a moment when tip does not touch the screen for a third of a second or more. Every time this happens – and it happens a lot when somebody is printing – the software assumes that one letter or number has been written. The pixel positions of this fresh character are then passed to the computer's pattern recognition software, which instantly identifies the letter or number written.

The software does this by first cleaning up the character – smoothing out crooked lines and removing errant dots. The remaining lines and curves are then compared with a series of templates in the computer's memory that represents hundreds of thousands of different versions of every letter in the English alphabet and all ten numerals. When the computer finds the closest match, it encodes the character in memory and displays it on the screen as if it had been typed. The entire process takes just a fraction of a second. To delete a word, you simply draw a line through it. To move to the next page, you flick the stylus at the bottom of the screen as if you're flicking the page of a book.

There are a handful of clipboard computers now on the market, including GRIDPad, which is sold in the US; Penvision, manufactured by NCR and sold around the world; and Sony's Palmtop and Canon's AI

Note, both sold only in Japan. IBM and Apple are also pouring millions of dollars into this technology.

In addition to this hardware, a variety of software is also making its way to the market. Depending on the power of the computer and the sophistication of the software, clipboard systems can be programmed to understand the particular quirks of a particular user's printing; this is an especially useful feature in Japan, where elaborate kanji characters make up most of the written language. Improvements in software may soon allow machines sold in the US to understand not only printing but continuous script as well. Given such flexibility, the designers of clipboard computers are predicting big things – and a big market – for their products (from www.library.org).

Active Vocabulary

coating ['kəutɪŋ] покрытие

comprehensible [ˌkɒmprɪ'hensəb(ə)l] понятный, доступный

grid ['grɪd] сетка, шкала

elaborate [ɪ'læb(ə)rət] сложный, замысловатый

(to) encode [ɪn'kəud] шифровать, кодировать

(to) figure out ['fɪgə(r)aut] вычислять, рассчитывать

ink ['iŋk] чернила

(to) input ['ɪnput] вводить данные

liquid crystal display ['lɪkwɪd 'krɪstl dɪs'pleɪ] жидкокристаллический дисплей

pattern ['pætn] образец, шаблон, модель

(to) predict [prɪ'dɪkt] предсказывать, прогнозировать

raw ['rɔ:] необработанный

recognition ['rekəg'nɪʃ(ə)n] распознавание

sophistication [səˌfɪstɪ'keɪʃ(ə)n] изощренность

string ['strɪŋ] ряд, строка, цепочка

stylus ['staɪləs] стилус, сенсорный карандаш

voltage ['vəultɪdʒ] электрическое напряжение

Exercises

I. *Match the words with their definitions*

• clipboard • stylus • screen • grid • voltage • pixel • template	• surface on which pictures or data are shown • electrical force • pattern used as a guide for creating letters and characters • individual dot on a computer screen • network of lines crossing at right angles • pointing implement for drawing and writing • portable board with a clip at the top for holding papers

II. *Identify the following statements as true or false. If you think the statement is false, change it to make it true:*

1. The Americans and Japanese are working together to produce user-friendlier computer.
2. The clipboard computer was first sold twenty years ago.
3. On a clipboard, an electronic pen replaces the traditional keyboard.
4. In the GRIDPad system, when the pen touches the screen, it informs the computer and a liquid crystal pixel appears at the point.
5. The software decides that one character or number is complete if the tip of the stylus is not in contact with the screen for more than half a second.
6. The whole process of recognizing letters or numbers and printing them on the screen takes very little time.
7. There are many clipboard computers sold today which are all available everywhere in the world.
8. Clipboard systems can be made to understand any kind of writing.

III. *Use the information from the text to complete the following dialogue:*

A. How big is a clipboard computer?

B. _____.

A. Does it have a keyboard?

B. _____.

A. How does the stylus work?

B. _____.

A. How does the computer know when one letter or number is complete?

B. _____.

A. And how does the computer recognize different letters?

B. _____.

A. Can you delete a word after you have written it?

B. Yes. _____.

A. Are these systems capable of recognizing joined writing?

B. _____.

IV. *Look back in the text and find the reference for the words in italics:*

1. from becoming *their* user-friendliest.
2. *one* allows raw data to get.
3. *it* informs the computer.
4. Every time *this* happens.
5. *which* instantly identifies.
6. *it* encodes the character in memory.
7. for *their* products.

V. *Choose the correct word to complete each sentence. You may have to change some words slightly.*

1. electron, electronic, electronics, electronically.

a) An _____ pen is an example of an input device.

b) A computer solve problems _____ .

c) Many _____ students go on to work as engineers.

2. technology, technological, technologically, technologist .

a) The computer is the greatest _____ invention of the twentieth century.

b) There are two _____ involved in a clipboard PC.

c) Today's computers are _____ far superior to those used a few years ago.

3. identify, indentifying, identifiable, identity.

a) The clipboard's pattern recognition software immediately _____ the letters and numbers written by the stylus.

b) Most computer companies will not allow people without an _____ card to enter their premises.

c) A password is a mechanism for _____ the computer-user and allowing access.

4. a compute, computing, computation, computerize, computerization.

a) The _____ of the manufacturing division will be expensive on the short term, but cost effective in the long term.

b) We should be able to _____ our profit for next year fairly accurately with the new program.

c) I could tell from all the _____ on the board that a maths lesson was in progress.

VI. *Discuss the following topics in groups*

1. What are the limitations of portable computers?

2. Do you think students should be allowed to use portable computers in class?

VII. ***Listening***. *Listen to the following extract from a radio talk show called COMPUTERWORKS in which the host talks with Sandra Cavanah, a writer with a computer magazine. As you listen to it, fill in the missing information in the table about various types of portable computers:*

Type of computer	**Power**	**Weight**	**Screen size**	**Input device**
Portable	runs on (1) _____	between 15 and (2)_____ pounds	about ten inches diagonally	keyboard

(3) _____	runs on rechargeable (4) _____	generally between 8 and 15 pounds	about (5)_____ diagonally	keyboard
Notebook	batteries	as little as (6)_____ pounds	as small as (7)_____ ___inches	keyboard
Clipboard	(8)_____ batteries	Between (9)_____and 6 pounds	Similar to notebook and laptop	(10)_____
(11)_____	can operate on (12)____ batteries	less than (13)_____	very small	keys

PART 3

The Internet and online services

UNIT 1

Introduction to the WWW

Before reading the text discuss the following questions in groups:

1. Do you agree with the statement that modern world can't live without computers and the Internet? Why?
2. Has the invention of the Internet had a great impact on the society?
3. Could you give a definition of the Internet? Do you know how the Internet started?
4. If you use the Internet, what do you usually use it for?
5. How do you think the Internet will develop in the future?

Text

Millions of people around the world use the Internet to search for and retrieve information in a wide variety of arts, business, politics, government, new, humanities, recreation. People communicate through electronic mail (e-mail), discussion groups, chat channels and other means of information exchange. They share information and make commercial transactions. All these activities are possible because of thousands of networks which are connected to the Internet.

The World Wide Web (WWW) is a part of the Internet, but it's not a collection of networks. Rather, it's information that is connected or linked together like a web. You access this information through the interface or tool called a Web browser. The number of resources and services that are part of the World Wide Web is growing extremely fast. More than and a half of the information that is transferred across the internet is accessed through the WWW. By using a computer terminal (hardware) connected

to a network that is a part of the Internet, and by using a program (software) to browse or retrieve information that is a part of the World Wide Web, the people connected to the internet and World Wide Web through the local providers have access to a variety of information.

Each browser provides a graphical interface. You move from place to place, from site to site on the Web by using a mouse to click on a portion of text, icon, or region of a map. These items are called hyperlinks. Each link you select represent a document, an image, a video clip or an audio file somewhere in the Internet. The user doesn't need to know where it is, the browser follows the link.

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

Just a little bit of exploring the World Wide Web will show you what a lot of use and fun it is (from www.ielts-exams.net).

Active Vocabulary

(to) broadcast ['brɔ:dka:st] вещать, транслировать

(to) compete [kəm'pi:t] соревеноваться, состязаться

digital ['dɪdʒɪt(ə)l] цифровой, дискретный

(to) explore [ɪk'splɔ:] исследовать, выяснять

graphical ['græfɪk(ə)l] графический, наглядный

hyperlink ['haɪpəlɪnk] гиперссылка, гипертекстовая ссылка

icon ['aɪkɒn] пиктограмма, значок

interface [ˌɪntə'feɪs] интерфейс, связующее звено (устройство)

(to) link ['lɪŋk] соединять, связывать

provider [prə'vaɪdə] провайдер (компания, предоставляющая доступ к WWW через местные сети)

recreation [ˌrəkrɪ'eɪʃ(ə)n] развлечения, отдых

(to) retrieve [rɪ'tri:v] находить, доставать

(to) select [sɪ'lekt] выбирать, отбирать, подбирать

site ['saɪt] сайт, узел
throughout [θru:'out] через, по всему
tool ['tu:l] инструмент, средство

transaction [træn'zækʃ(ə)n] операция, транзакция

transfer ['trænsfɜ:] перемещать, переводить, переносить

World Wide Web ['wɜ:ld 'waɪd 'web] Всемирная паутина

Exercises

I. *Answer the following questions after reading the text*

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

II. *Mark the following statements as true or false. Explain your choice in the case the statement is false*

1. There are still not so many users of the Internet.
2. People can communicate through e-mail and chat programs only.
3. You can access the information available in the World Wide Web through a Web browser.
4. You need a computer (hardware) and a special program (software) to be a WWW user.
5. You move from site to site by clicking on a portion of text only.

6. Every time the user wants to move from somewhere in the web he/she needs to step by step enter links and addresses.

7. Films and pictures are not available in the Internet.

8. Radio and TV-broadcasting is the future of the Internet.

III. *Give the definitions of the following phenomena by using the expressions from the active vocabulary*

- the Internet
- World Wide Web
- Web browser
- Internet provider
- hyperlinks

IV. *Fill in the gaps by using the words from the list below(нет знаков препинания ни в одном задании)*

web browser, providers, link, WWW, the Internet, network

1. You access the information through one interface or tool called a _____ .

2. People connected to the WWW through the local _____ have access to a variety of information.

3. The user doesn't need to know where the site is, the _____ follows the _____ .

4. In 1996 there were approximately 20 million users of ____ .

5. Each _____ provides a graphical interface.

6. Local _____ charge money for their services to access _____ resources.

V. *Discuss the following topics in groups*

1. Some people think that the Internet is very harmful, especially for young people, because it carries a lot of information about drugs, violence and terrorism. Do you think that some kind of censorship is necessary in the Internet.

2. World famous authors and publishers say that the Internet violates their copyright because Web-programmers put all kind of books, pictures, music, films and programs free in the Internet and this reduces their sales and profits.

3. Has anyone in your group experience working in the Internet? Ask them about the difficulties they had / useful information retrieved / fun they got.

VI. *Five sentences have been removed from the text. Choose from the sentences A-F the one which fits each gap 1–5. There is one extra sentence which you do need to use*

From the user's point of view, the page is the basic unit of the web. (1) _____ . A web page has a similar format to a page from a book or magazine, with text and graphics displayed in a layout, and is displayed in a normal computer application window. Scroll bars are displayed if the page is too long or too wide, and you can perform the usual windowing functions such as minimize, maximize, change size or close.

There are billions of web pages in existence on the Internet. Web pages have been published on almost every subject imaginable by almost every type or person and organization. (2) _____ Although most word processors now let you save documents in HTML format making basic creation quite straightforward.

You can sometimes tell from the name of the page whether it is an organization or a personal home page, because individual's home pages sometimes include «~», such as in «http:/www.twenty.net/~jsmith/ home.html».

Graphics are displayed in web pages if they haven't been turned off in your configuration settings to increase the download speed. With most browsers you can right-click on a picture and select «View Image» to view it by itself, or «save Image As» to save the file to your computer for later viewing with another application. Graphics come in a wide range of formats. (3) _____ .

Personal web pages are often used solely for informative or entertainment purposes. Defining personal web page is difficult, because many domains or combinations of web pages that are under the control of a single individual can be used by the individual for commercial purposes, ranging from just the presentation or advertising, to electronic commerce: the sale of goods, services or information.

(4) _____ . Personal web pages may be as simple as a single page or may be as elaborate as an online database with gigabytes of data. Many Internet service providers offer a few megabytes of space for customers to host their own personal web pages.

The content of personal web pages varies and can, depending on the hosting server, contain anything that any other websites do. (5) _____ . Many can contain biographical information. resumes and blogs. Many personal pages will include information about the author's hobbies and pastimes and information of interest to friends and family of the author.

A. However, typical personal web pages contain images, text and a collection of hyperlinks.

B. There are many different techniques you can use to draw people to your site.

C. In fact eBay began as the personal web page of Pierre Omidyar.

D. There are a wide range of applications available that enable the construction of web pages.

E. Web pages are written in the HTML language and sent to web browsers by a web server using the HTTP protocol.

F. At one time GIF's were the most popular, but lately they are going out of style.

UNIT 2

The Internet as the global information system

Before reading the text discuss in pairs the things that annoy you about websites. The list given below is supposed to help you:

1. **Frames.** Don't you hate those silly boxes in Web page? Sometimes the text doesn't fit in the frame and you have to use horizontal scroll br. This make it very hard to read.?

2. **Downloading plug-ins.** The little programs you have to download to get an audio or video message before you can enter the site.

3. **Pop-up ads.** The horrible advertisements that suddenly appear and drive everyone crazy.

4. **Bad design.** Too many buttons and links on different parts of the page are confusing.

5. **Blinking fonts.** Brightly-colored texts are difficult to read, but fonts that blink on and off are really awful.

6. **Counters.** It's wonderful to know that you are the visitor number 356, 562, 603, but you may feel terrible finding out you are the visitor number 9. Why not put counters in a separate link?

7. **Flash.** These animations are good if they download quickly, but please make them relevant to the website, and not just there to make the site look pretty.

8. **No Privacy Policy.** Never give your e-mail address to a website that does not have a privacy policy. Everyone wants to be sure that they won't sell or send it to another site.

9. **Silly sound files.** Sound files that start with a bang, or a dog barking are really annoying, especially if you can't turn it off.

10. **Why only English?** Doesn't anyone realize that we live in a multilingual world?

Text

The Internet is the computer-based global information system. It is composed of many interconnected computer networks. Each network may link tens, hundreds, or even thousands of computers, enabling them to share information with one another and to share computational resources such as powerful supercomputers and databases of information. The Internet has made it possible for people all over the world to effectively and inexpensively communicate with one another.

From its inception in the 1970ths until the late 1980ths the Internet was a US government-funded communication and research tool restricted almost exclusively to academic and military uses. As government restrictions were lifted in the early 1990ths, the Internet became commercial. In 1995 the World Wide Web (WWW) replaced file transfer as the application used for most Internet traffic. The Web consists of

programs running on many computers that allow a user to find and display multimedia documents (documents that contain a combination of text, photographs, graphics, audio and video). Many analysts attribute the explosion in use and popularity of the Internet to the visual nature of Web documents.

Companies, individuals, and institutions use the Internet in many ways. Companies use the Internet for electronic commerce, also called e-commerce, including advertising, selling, buying, distributing products and providing customer service. In addition, companies use the Internet for business-to-business transaction, such as exchanging financial information and accessing complex databases. Businesses and institutions use the Internet for voice and video conferencing and other forms of communication that enable people to telecommute (work away from the office using a computer). The use of electronic mail (e-mail) speeds communication between companies, among coworkers and among other individuals. Media and entertainment companies use the Internet for online news and weather services and to broadcast audio and video, including live radio and television programs. Online chat allows people to carry on discussion using written text. Scientists and scholars use the Internet to communicate with colleagues, perform research, distribute lecture notes and course materials to students, and publish papers and articles. Individuals use the Internet for communication, entertainment, finding information and buying and selling goods and services.

E-mail is widely used Internet application that enables individuals or groups of individuals to quickly exchange messages, even if the users are geographically separated by large distances. A user creates an e-mail message and specifies a recipient using an e-mail address, which is a string consisting of the recipient's login name followed by @ sign and then a domain name. Because e-mail is a convenient and inexpensive form of communication, it has dramatically improved personal and business communication.

Several technical challenges must be overcome if the Internet is to continue growing at the current rate. The primary challenge is to create enough capacity to accommodate increases in traffic. Internet traffic is

increasing as more people become Internet users and existing users send ever greater amounts of data. If the volume of traffic increases faster than the capacity of the network increases, congestion will occur, similar to the congestion that occurs when too many cars attempt to use a highway. To avoid congestion, researchers have developed technologies such as Dense Wave Division Multiplexing (DWDM) that transfer more bits per second across the optical fiber. The speed of routers and other packet handling equipment must also increase to accommodate growth. In the short term, researchers are developing faster electronic processors; in the long term, new technologies will be required (from www.webopedia.com).

Active Vocabulary

(to) accommodate [ə'kɒmədeɪt] обеспечивать, создавать условия

advertising ['ædvətaɪzɪŋ] реклама

challenge ['ʧælɪnʤ] вызов, задача, сложная проблема

congestion [kən'dʒesʧən] перегруженность, затор, «пробка»

coworker [ˌkəu'wɜ:kə] коллега, сослуживец

domain [də'meɪn] домен; группа ресурсов сети, управляемых одним узлом

(to) enable [ɪ'neɪb(ə)l] позволять, давать возможность, давать право

exclusively [ɪk'sklu:sɪvlɪ] исключительно, единственно, всецело

explosion [ik'spləuʒən] взрыв, вспышка, стремительный рост

inception [ɪn'sepʃ(ə)n] начало, становление, зарожение

multimedia [ˌmʌltɪ'mi:dɪə] мультмиедиа, система комплексного представления разнородной информации

(to) overcome [ˌəuvə'kʌm] преодолевать

recipient [rɪ'sɪpɪənt] получатель (информации)

router ['ru:tə] роутер, маршрутизатор

(to) specify ['spesɪfaɪ] устанавливать, подробно обозначать

string [strɪŋ] строка, последовательность, цепочка

(to) telecommute [ˌtələkɒ'mju:t] работать дистанционно, осуществлять дистанционный доступ

Exercises

I. *Translate the following words and phrases from the text into Russian:*

Global information system; to be composed of; to link thousands of computers; to share information; powerful supercomputer; from the inception; government-funded; academic and military uses; to lift restrictions; to became commercial; file transfer; Internet traffic; the explosion in the use; electronic commerce; to distribute products; to provide customer service; business-to-business transactions; to access complex databases; businesses and institutions; voice and video conferencing; to enable people to telecommute; to speed communication; online chat; to use written text; to perform research; to exchange messages; to be geographically separated; to specify a recipient; a domain name; convenient form of communication; to improve communication; technical challenge; primary challenge; to create enough capacity; increase in traffic; existing users; the volume of traffic; to avoid congestion; to transfer bits per second; to transfer across an optical fiber; packet handling equipment; to accommodate growth; in the short term; faster electronic processor.

II. *Insert the missing words and word combinations*

1. The Internet is _____ global communication system.
2. Each network links thousands of computers, enabling them to _____ with one another.
3. From the inception the Internet was a US government-funded _____ tool.
4. As _____ were lifted in the early 1990ths, the Internet became commercial.
5. Companies use the Internet for _____ including advertising, selling, buying, distributing products and providing customer service.

6. Companies use the Internet for _____ transactions.

7. Businesses and institutions use the Internet for _____ and other forms of communication.

8. The use of _____ speeds communication between companies, among coworkers and other individuals.

9. Media and entertainment companies use the Internet for _____ and weather services.

10. Online chat allows people to carry on discussion using _____ .

11. Several technical challenges must _____ if the Internet is to continue growing at the current rate.

12. The primary challenge is to create _____ to accommodate increases in traffic.

13. The speed of routers and other packet handling equipment must increase to _____ .

III. *Translate the sentences and name each infinitive construction:*

1. It is considered to be very good netiquette to share your knowledge and help the others who ask questions by e-mail, in news groups, on mailing lists and in chat rooms.

2. As a result, network application developers will find it easier to develop and deploy emerging applications for data communication using VoIP.

3. Anytime you visit a web page that includes more than simple HTML content, you are likely to need at least one plug-in.

4. VoIP is said to be cheap, but most people use for free.

5. The main reason for people to turn massively to this new technology is the cost.

6. If a page seems to be taking a long time to load, don't hesitate to stop the connection and then select the link again.

7. You don't have to wait for a page to load to click a link, press the back button, or select a new link from your bookmarks.

8. Mosaic was the first popular Web browser, the knowledge of the Web to be spread quickly across the world.

IV. *Fill in the blanks by using the expressions from the list:*

Broadband, Wi-Fi, ASDL, gopher, routers, bandwidth, gateway, hosts, archie, server.

1. America Online has a _____ that translates between its internal, proprietary e-mail format and Internet e-mail format.
2. _____ was designed to be much easier to use than FTP, while still using a text-only interface.
3. The grater the _____ , the greater the amount of data that can travel in a given time period.
4. _____ create or maintain a table of the available routes and use this information to determine the best route for a given data packet.
5. By 1999 _____ had been almost completely replaced by web-based search engines.
6. Our mail _____ is down today, that's why e-mail isn't getting out.
7. The _____ signal cannot travel long distances without loss of integrity.
8. Web _____ are companies that provide space on a server they own for use by their clients as well as providing Internet connectivity.
9. _____ is called «asymmetric» because download speeds to the subscriber are faster than upload speeds from the subscriber.
10. Fiber optic cable, in particular, has a very high bandwidth, and is referred to as _____ .

V. *Use the words in brackets to form one word that fits the best in the text:*

There is no doubt that one of the (big) black clouds hanging over e-mail is spam. Spam can be (consider) any electronic junk mail (generally e-mail advertising for some product) that is sent out to thousands, if not millions, of people with an e-mail address. In addition to (waste) people's time with (want) e-mail, spam also eats up a lot of network bandwidth.

Many individuals are able to use spam filters in their e-mail clients to help filter some of the (annoy) out of their inbox, but for some corporations more strict (spam) measures are needed because of the sheer volumes of junk mail. Microsoft, for example, receives about 10 million e-mails pr day via the Internet. Of those 85 to 90 percent is (filter) out as spam. Having an e-mail client download this huge number of spam mail

would simply take too long. For this reason many corporations and companies will use spam filters at the server level (instead of the client) to help keep the spam e-mails from ever (reach) an employee's computer.

UNIT 3
Computer networks

Text

Computer networks link computers by communication lines and software protocols, allowing data to be exchanged rapidly and reliably. Traditionally, networks have been split between wide area network (WANs) and local area network (LAN). AWAN is a network connected over long-distance telephone lines, and a LAN is a localized network usually in one building or a group of buildings close together. The distinction, however, is becoming blurred. It is now possible to connect up LANs remotely over telephone links so that they look as though they are a single LAN.

Originally, networks were used to provide terminal access to another computer and to transfer files between computers. Today, networks carry e-mail, provide access to public databases and bulletin boards, and are beginning to be used for distributed systems. Networks also allow users in one locality to share expensive resources, such as printers and disk-systems.

Distributed computer systems are built using networked computers that co-operate to perform tasks. In this environment each part of the networked system does what it is best at. The high-quality bit-mapped graphics screen of a personal computer or workstation provides a good user interface. The mainframe, on the other hand, can handle large numbers of queries and return the results to the users. In a distributed environment, a user might use his PC to make a query against a central database. The PC passes the query, written in a special language (SQL – Structured Query Language), to the mainframe, which then parses the query, returning to the user only the data requested. The user might then

use his PC to draw graphs based on the data. By passing back to the user's PC only the specific information requested, network traffic is reduced. If the whole file is transmitted, the PC would then perform the query itself, reducing the efficiency of both network and PC.

In the 1980s, at least 100.000 LANs were set up in laboratories and offices around the world. During the early part of this decade, synchronous orbit satellites lowered the price of long distance telephone calls, enabling computer data and television signals to be distributed more cheaply around the world. Since then, fibre optic cable has been installed on a large scale, enabling vast amount of date to be transmitted at a very high speed using light signals.

Global communication and computer networks become a part of professional and personal lives as the price of microcomputers and network access drops. At the same time, distributed computer networks should improve our work environment and technical abilities (from www.idsafinder.com).

Active Vocabulary

bit-mapped ['bɪt'mæpt] с побитным отображением, растровый

(to) blur ['blɜ:] размывать, делать неясным

distinction [dɪs'tɪŋkʃən] разница, различение, разграничеие

distributed system [dɪs'trɪbju:tɪd 'sɪstəm] система с распределенными функциями

(to) drop ['drɒp] падать, опускаться

efficiency [ɪ'fɪʃənsɪ] эффективность, действенность

(to) enable [ɪ'neɪb(ə)l] позволять, давать возможность

fibre optic ['faɪbə 'ɒptɪk] оптоволокно

(to) handle ['hændl] управлять, регулировать

localized ['ləukəlaɪzd] локализованный, локальный

(to) parse ['pa:z] анализировать, преобразовывать

public database ['pʌblɪk 'deɪtəbeɪz] база данных общего пользования

query ['kwɪ(ə)rɪ] запрос

(to) reduce [rɪ'dju:s] уменьшать, сокращать

remotely [rɪ'mɜutlɪ] удаленно, на расстоянии

satellite ['sætɪlaɪt] спутник

screen ['skri:n] экран

synchronous ['sɪŋkrənəs] синхронный, одновременный

traffic ['træfɪk] трафик, движение, поток

vast ['va:st] обширный, многочисленный

workstation ['wɜ:ksteɪʃ(ə)n] рабочая станция, рабочее место, терминал

Exercises

I. *Match the paragraphs from the text with the appropriate summary from the list below*

1. Network uses, past and present.
2. How distributes systems work.
3. Networks and future.
4. What networks are and how they operate.
5. The growth of networks, past and present.

II. *Read the summary of the text and fill in the gaps using the list of words below the text:*

Computer networks link computers locally or by external communication lines and software (1) _____ , allowing data to be exchanged rapidly and reliably. The (2) _____ between local area and wide area network is, however< becoming unclear. Networks are being used to perform increasingly diverse tasks, such as carrying e-mail, providing access to public data bases, and for (3) _____ . Networks also allow users in one locality to share resources.

Distributed systems use networked computers. PCs or (4) _____ provide the user (5) _____ . Mainframes process (6) _____ and return the results to the users. A user at his PC might make a query against a central database. The RC passes the query, written

in a special language, to the mainframe, which then (7) _____ the query, returning to the user only the data requested. This allow both the network and the individual PC to operate efficiently.

In the 1980s, at least 100.000 (8) _____ were set up world-wide. As (9) _____ orbit satellites have lowered the price of long-distance telephone calls, data can be transmitted more cheaply. In addition, (10) _____ cable has been installed on a large scale, enabling vast amounts of data to be transmitted at a very high speed using light signals. This will considerably reduce the price of network access, making global networks more and more a part of our professional and personal lives. Networks should also improve our work (11) _____ and technical abilities.

distinction, distributed system, environments, fibre optic, LANs, parses, protocols, queries, screen handling, synchronous, workstations

III. *Look back in the text and find words that have a similar meaning to:*

- unclear
- place
- to carry out
- cost
- world-wide

IV. *Look back in the text and find words that have an opposite meaning to:*

- disparate
- conflict
- preventing
- tiny
- increase

V. *Translate the following text into Russian:*

The Internet is formed by connecting local networks through special computers in each network known as gateways. Gateway interconnections are made through various communication paths, including telephone lines, optical fibers and radio links. Additional networks can be added by linking to new gateways. Information to be

delivered to a remote machine is tagged with the computerized address of that particular machine. Once addressed, the information leaves its home network through a gateway. It is routed from gateway to gateway until it reaches the local network containing the destination machine. Internets have no central control, that is, no single computer direct the flow of information. This differentiates the Internet from other types of online computer services, such as America Online and the Microsoft Network.

UNIT 4

Online payment systems

Before you read the text, answer the following questions:

1. Have you ever heard of e-shopping? What do you know about it?
2. Do you know anyone who has bought anything online?
3. What are the advantages and disadvantages of e-shopping?
4. What online payment systems do you know?
5. What do you know about online fraud?

Text

In the age of the Internet and busy schedules, more people are finding it more convenient to do their shopping and banking online. Nowadays, people are working longer hours and are too busy with other activities to be able to fit time to travel to the local shopping center. Instead they can go straight home from work and with a few clicks of the mouse, have a package ready to ship to their front door. The Internet now comes first before the importance of the television and telephone. Playing an important part in people's lives, the computer is the fastest way to communicate, bank and shop. Many online consumers are using debit and credit cards to pay for their purchases, while other methods such as e-wallets, Paypal, mobile and other wireless transactions are following close behind.

The Federal Trade Commission (FTC) wants all online consumers to be well informed about the new payment technologies and how the consumers can make their online transactions as secure and safe as possible. Although it's impossible to control the fraud and deception on the Internet, the FTC encourages all online consumers to the necessary steps to ensure the security of your personal information and all other online transactions.

As an online consumer, it's up to you, and only you, to protect yourself from theft. Here are three ways to make sure that your online credit card transactions are safe.

Use a secure web browser. Using software that encrypts online purchase information will help to secure your transactions. Make sure that your web browser is updated on its encryption capabilities. You can ensure this update by using the latest version of encryption software from the manufacturers. Some web browsers offer free downloads over the Internet. While submitting your information, be sure to look for the icon «lock» in the web browsers status bar. This will ensure your information is secure during the transmission.

Read before you write. Never provide any personal information to any website before first checking with the website's privacy policy. This way you can be aware if your information will be shared or used in a way with other online merchants. You will also want to know exactly what security features are established so your personal information cannot be acquired fraudulently. You should be able to understand the privacy, shipping and refund policy before you provide any information or make a purchase. if after reading the privacy policy, you are not comfortable, then you may want to consider taking your business elsewhere.

Review all the financial statements. Always review your bank and credit card statements and look for any unauthorized purchases or errors. Statements can be fairly confusing to look over, but take your time and be thorough, if you notice anything questionable, contact your bank or credit card company immediately. You should also contact these financial institutions if your purse or wallet is lost or stolen, or even if you think there are unauthorized uses of your accounts. Always keep records of

your online transactions and read all your e-mails from those merchants you have made purchases from. Those merchants may be sending you important information about your purchase or account (from www. money.howsuffworks.com).

Active Vocabulary

account [ə'kaunt] счет, учетная запись
consumer [kən'sju:mə] потребитель, заказчик, клиент

deception [dɪ'sepʃ(ə)n] обман, уловка, хитрость

(to) encrypt [ɪn'krɪpt] шифровать, кодировать

(to) ensure [ɪn'ʃue] обеспечивать, гарантировать
error ['erə] ошибка, отклонение

fraud ['frɔ:d] обман, мошенничество, подделка

purse ['pɜ:s] кошелек

schedule ['ʃedju:l] расписание, список, каталог

(to) submit [səb'mɪt] предлагать, представлять на рассмотрение
theft ['θeft] воровство, кража

thorough ['θʌrə] тщательный, основательный

transmission [trænz'mɪʃ(ə)n] передача, пересылка

(to) update [ˌʌp'deɪt] усовершенствовать, поддерживать в актуальном состоянии, пополнять последними данными

wallet ['wɒlɪt] бумажник, кошелек

wireless ['waɪəlɪs] беспроводной

Exercises

I. *Read the text about electronic payment. Choose the most suitable heading from the list for each part of the article. There is one extra heading which you do not need to use:*

A. Benefits of electronic payment
B. Effects on businesses
C. The increasing popularity of electronic payment

D. Online security

E. Types of transactions

F. Account types

G. Concerns about electronic payment

H. Methods of electronic payment

When it comes to payment options, nothing is more convenient than electronic payment. You don't have to write a check, swipe a credit card or handle any paper money; all you have to do is to enter some information into your Web browser and click your mouse. It's no wonder that more and more people are turning to electronic payment – or e-payment – as an alternative to sending checks through the mail.

An electronic payment is any kind of non-cash payment that doesn't involve a paper check. Methods of electronic payments include credit cards, debit cards and the ACH (Automated Clearing House) network. The ACH system comprises direct deposit, direct debit and electronic checks (e-checks).

For all these methods of electronic payment, there are three main types of transactions. The first is a one-time customer-to-vendor payment, commonly used at e-commerce sites, such as Amazon. You click on the shopping cart icon, type in your credit card information and click on the checkout button. The site processes your credit card information and sends you an e-mail notifying you that your payment was received. The second is a recurring customer-to-vendor payment when you pay a bill through a regularly scheduled direct debit from your checking account or an automatic charge to your credit card. this type of payment plan is commonly offered by car insurance companies, phone companies and loan management companies. The third way is to use automatic bank-to-vendor payment. You log on to your bank's Web site, enter the vendor's information and authorize your bank to electronically transfer money from your account to pay your bill.

Electronic payment is very convenient for the customer. In most cases, you only need to enter your account information – such as your credit card number and shipping address once. The information is then stored in a database on the retailer's Web server. When you come back to

the Web site, you just log in with your username and password. Completing a transaction is as simple as clicking your mouse: all you have to do is to confirm your purchase.

Electronic payment lowers costs for businesses. The more payments they can process electronically, the less they spend on paper and postage. Offering electronic payment can also help businesses improve customer retention. A customer is more likely to return to the same e-commerce site where his or her information has already been entered and stored.

The main drawback to electronic payments are concerns over privacy and the possibility of identity theft. Fortunately, there are many safeguards available to protect your sensitive personal information from falling into the wrong hands.

You can defend yourself against identity theft by using virus protection software and a firewall on your computer. You should also make sure that you send your credit card information over a secure server. Your Internet browser will notify you when a server is secure by showing a lock or key icon. in addition, the URL on a secure site is usually designated by the prefix «https» instead of «http». Retailers do their part by using data encryption, which codes your information in such a way that only the key holder can decode it.

II. *Fill in the blanks by using the expressions from the list. There is one extra word:*

sender, scheduled, protocol, traffic, delayed, confirmation, service, guarantees.

Best effort delivery describes a network service in which the network does not provide any _____ that data is delivered. In a best effort network all users obtain best effort _____ , meaning that they obtain unspecified variable bit rate and delivery time, depending on the current _____ load. The postal service delivers letters using a best effort delivery approach. The delivery of a certain letter is not _____ in advance – no resources are preallocated in the post office. The mailman will make «the best effort» to try to deliver a message, but the delivery may be _____ if too many letters all of a sudden arrive to a postal office. The _____ is not informed if a letter has been delivered successfully.

however, it is possible to pay extra for a delivery _____ receipt, which requires that the carrier get a signature from the recipient to prove the successful delivery.

III. *Join the following sentences into one by using Participial Constructions:*

1. The wireless industry turned its back on many potential customers. Many potential customers did not qualify for service because of bad or nonexistent credit histories.

2. Prepaid technology has been available for several years. Providers lacked a realtime billing engine.

3. Prepaid services are positioned as a way for subscribers to control costs. They involve purchasing airtime in advance and tying a user to a certain amount of usage.

4. developing countries are rapidly expanding the reach of their telephone systems in underserved and unserved areas. Cellular and personal communication services are quickly penetrating developing countries.

IV. *Read the text and decide which word fits each space:*

How Anonymizers Work

Anonymizer site access the Internet on your bahalf, protecting your personal information from (1) _____ . An anonymizer (2) _____ all of your computer's identifying information while it surfs for you, enabling you to remain at least one step removed from the sites you visit. There are two basic types of Internet anonymizers – networked and single-point.

Network anonymizers (3) _____ your communications through a network of Internet computers between you and the destination. The main advantage of the networked anonymizer (4) _____ is that it makes traffic analysis much more difficult.

Single-point anonymizers pass your surfing through a single web site to protect your identity and often offers an encrypted (5) _____ channel for passage of results back to the user. Single-point anonymizers offer less (6) _____ to sophisticated traffic analysis than do networked designs.

Both networked and single-point anonymizers share a range of design (7) _____. Most importantly, once you access a web page through an anonymizer, the page is (8) _____ so that all of its links are also anonymized. Therefore, you can just continue to click on links and stay in the anonymizer mode.

1. A) find	B) disclosure	C) discovery	D) identity
2. A) protects	B) helps	C) holds	D) grasps
3. A) put	B) accompany	C) relate	D) transfer
4. A) volume	B) design	C) size	D) capacity
5. A) coordination	B) frequency	C) communications	D) cooperation
6. A) help	B) modification	C) resistance	D) opposition
7. A) qualities	B) kinds	C) sorts	D) features
8. A) sorted	B) reflected	C) formulated	D) filtered

V. ***Listening***. *Listen to Jean-Yves Martin, a sales representative of France Telecom, explaining the Minitel online service to Paul Burgess, an English reporter. Complete pail's notes:*

DESCRIPTION

Online service linking terminals in homes to the telephone network – a telephone you can write with.

EXAMPLES OF MINITEL ACTIVITIES

1. weather forecasts
2. _____
3. home-shopping services
4. _____
5. «Minitel rose»

ADVANTAGES OF SYSTEM

1. cheap
2. _____
3. _____

ORIGINAL DISADVANTAGES

1. primitive graphics
2. _____
3. _____

POSSIBLE FUTURE DEVELOPMENTS

1. addition of _____ to the system (for bank and stock-market transactions from the home)

2. _____ linked on broadcast radio channels

VI. ***Listening***. *Answer these questions about the interviews:*

1. What is «Minitel rose»?
2. When did the system start?
3. How many Minitel terminals did the PTT install originally?
4. Did the first users have to pay?

PART 4

Software: programs to make your life easier

UNIT 1

Operating systems

Before you read the text, answer the following questions:

1. What is an operating system and what is it purpose?
2. Where is an operating system stored and how is it transferred to internal memory?
3. What typical tasks are performed by an operating system?

Text

An operating system is a master program which controls the functions of the computer system as a whole and the running of application programs. All computers do not use the same operating system. Mainframe computers, which usually process several application programs, require a powerful operating system allowing to switch between programs.

In multi-user environment an operating system is required to control terminal operations on a shared access basis as only one user can access the system at any moment of time. The operating system allocates control to each terminal in turn. Such system also require a system for record locking and unlocking, to prevent one user attempting to read a record when another user is updating it. So the user is denied access until the record is updated and unlocked.

Some environments operate in concurrent batch and real-time mode. This means that a «background» job deals with routine batch processing while the «foreground» job deals with real-time operations, such as airline seat reservation, on-line booking of hotel accommodation, or control of warehouse sticks, etc. The real-time operation has priority and the operating system interrupts batch processing operations to deal with real-

time enquires or file updates. The stage of batch processing attained at the time of the interrupt is temporarily transferred to backing storage.

After the real-time operation has been dealt with, the interrupted program is transferred back to internal memory from backing storage and processing begins from a «restart» point. The operating system also copies to disk backing storage the state of the real-time system every few minutes (periodic check point) to provide a means of recovering the system in the event of a malfunction.

An operating system is stored on disk and has to be booted into the internal memory where it must reside throughout processing so that commands are instantly available. The operating system commands may exceed the internal memory capacity of the computer in which case only the portion of the operating system which is frequently used is retained internally, other modules being read in from disk as required. Many computers nowadays function under the control of the operating system known as Windows (from www.consultants-online.com).

Active Vocabulary

access ['æksəs] доступ, допуск
(to) access ['æksəs] иметь доступ, обращаться

(to) allocate ['æləkeɪt] распределять

application [ˌæplɪ'keiʃən] программное приложение

available [ə'veɪləbəl] доступный. имеющийся в распоряжении
background ['bækgraund] фон, фоновая работа

batch ['bætʃ] пакет
(to) boot ['bu:t] загружать

capacity [kə'pæsɪtɪ] емкость

concurrent [kən'kʌrənt] параллельный. многопоточный

(to) deny [dɪ'naɪ] отказывать (в доступе)

enquiry [ɪn'kwaɪərɪ] запрос

environment [ɪn'vaɪərənmənt] среда

foreground ['fɔ:graund] приоритетный. высокоприоритетный

internal memory [in'tɜnl 'meməгɪ] оперативная память, внутренняя память, собственная память

(to) interrupt [ˌintə'rʌpt] прерывать

(to) lock ['lɒk] блокировать

mainframe computer ['meɪnfreɪm kəm'pjutə] центральный компьютер, мэйнфрейм

malfunction [mæl'fʌnkʃən] отказ, неисправность, неправильное срабатывание

multi-user ['mʌltɪ 'ju:zə] многопользовательский

(to) prevent [prɪ'vent] предотвращать, предупреждать, предохранять

processing [preusesɪŋ] обработка

priority [praɪ'ɒrɪtɪ] приоритет,порядок очередности

real-time mode ['rɪəl 'taɪm 'mɜud] режим реального времени

record ['rekɔ:d] запись

recovering [rɪ'kʌvəriŋ] восстановление

shared ['ʃɛəd] коллективно используемый, совместного пользования

storage ['stɔ:rɪdʒ] память, запоминающее устройство

(to) store ['stɔ:r] сохранять, запоминать

(to) switch ['swɪʧ] переключать

terminal ['tɜ:mɪnəl] терминал, устройство

(to) transfer ['trænsfɜ:] перемещать

(to) unlock [ʌт'lɒk] разблокировать

(to) update [ˌʌp'deɪt] обновлять, вносить изменения в соответствии с новыми данными

Exercises

I. *Answer the following questions after reading the text:*

1. Why is it so important to assess the operating system on a computer before buying it?
2. Is computer multi-user environment?
3. What operating systems for computers can you name?
4. Can you think of some examples of batch-processing?
5. The operating system commands sometimes exceed the internal memory capacity of the computer, don't they?
6. In what spheres of life can real-time mode be used?

II. *Here is a list of typical tasks performed by an operating system. In each case the main verb has been omitted. Fill in the blanks from the words given. Sometimes more than one verb may be used.*

A typical operating system will:

1. _____ input and output devices.
2. _____ the status of hardware devices.
3. _____ hardware interrupts.
4. _____ new disks.
5. _____ disk directories.
6. _____ disk reading and writing operations.
7. _____ disk errors,
8. _____ disk commands relating to the deletion, copying, renaming and dumping of files.

(to) execute, (to) monitor, (to) format, (to) diagnose

III. *Complete the following text using «used to», «to be/get used to» and «would do»:*

Computerized systems _____ to play such a vital role in the world as they play now. You _____ seeing keyboard electronic equipment almost everywhere you go: in banks, schools, colleges etc. A few tears ago one _____ think it impossible to process information so quickly. And now we _____ to the fact that the information can also be displayed, updated or printed out at any time. State-of-the-art computers reflect the latest technology. They can be used to run sophisticated word-processing

programs along with any number of other applications: databases. spreadsheets, stock control, book=keeping, payroll, graphics and desktop publishing. We _____ to operating state-of-the-art computers using the popular MS-DOS system. This means that we can use the same application software for all the computers. An operating system is a group of procedures which manages the overall operation of the computer. We _____ to carrying out specific tasks, such as word processing, financial analysis and record keeping, by means of application programs.

UNIT 2
Microsoft Windows

Text

Microsoft Windows (or simply Windows) is a software program that makes your PC easy to use. It does this by simplifying the computer's user interface. The word interface refers to the way you give your computer commands, the way you interact with it.

Usually the interface between you and the computer consists of the screen and the keyboard, you interact with the computer by responding to what's on the screen, typing in commands at the DOS command line to you work. DOS often isn't very intelligent at interpreting your commands and most people consider it awkward or intimidating as a user interface. These commands can be confusing and difficult to remember. Who wants to learn a lot of computer commands just to see what's on your disk, copy a file, or format a disk?

Windows changes much of these. With Windows, you can run programs, enter and move data around, and perform DOS-related tasks simply by using the mouse to point at objects on the screen. Of course, you also use the keyboard to type in letters and numbers. Years of research went into developing the prototype of today's popular graphical user interface. It was shown in the early 1980s that the graphical user interface, in conjunction with a hand-held pointing device (now called the

mouse), was much easier to operate and understand than the older-style keyboard-command approach to controlling a computer. Windows interprets your actions and tells DOS and your computer what to do. In addition to making DOS housekeeping tasks such as creating directories, copying files, deleting files, formatting disks, and so forth, easier, Windows makes running your favorite applications easier, too.

Windows owes its name to the fact that it runs each program o document in its own separate window (a box or frame on the screen). You can have numerous windows in the screen at a time, each containing its own program and/or document. You can then easily switch between programs without having to close one down and open the next.

Another feature is that Windows has a facility – called the Clipboard – that lets you coy material between dissimilar document types, making it easier to *cut* and *paste* information from a spreadsheet into a company report or put a scanned photograph into a real estate brochure. In essence, Windows provides the means for seamlessly joining the capabilities of very different application programs. Not only can you paste portions of one document into another, but by utilizing more advanced document-linking features those pasted elements remain «live» That is, if the source document (such as some spreadsheet data) changes, the results will also be reflected in the secondary document containing the pasted data.

As more and more application programs are written to run with Windows, it'll be easier for anyone to learn how to use new programs. This is because all application programs that run in Windows use similar commands and procedures. Windows comes supplied with a few of its own handy programs. There's a word-processing program called Write, a drawing program called Paintbrush, a communication program called Terminal for connecting to outside information services over phone lines, small utility programs that are helpful for keeping track of appointments and notes, a couple of games to help you escape from your work, and a few others (from www.webopedia.com).

Active Vocabulary

approach [ə'prʒuʧ] подход

awkward ['ɔ:kwəd] неловкий, затруднительный

clipboard ['klɪpbɔ:d] буфер информационного обмена, буфер промежуточного хранения

conjunction [kən'dʒʌŋkʃ(ə)n] соединение, сочетание

dissimilar [dɪ'sɪmɪlə] несходный, разнородный

facility [fə'sɪlɪtɪ] устройство, техническое средство

frame ['freɪm] рамка, кадр, фрейм

(to) interact [ˌintə'rækt] взаимодействовать

intimidating [ɪn'tɪmɪdeɪtɪŋ] устрашающий, пугающий

keyboard ['ki:bɔ:d] клавиатура

(to) point ['pɔɪnt] показывать, указывать, выделять

procedure [prə'si:dʒə] процедура, способ

seamlessly ['si:mlɪslɪ] органично, без стыков, без «швов»

similar ['sɪmələ] похожий, подобный

(to) simplify ['sɪmplɪfaɪ] упрощать, рационализировать

(to) switch ['swɪʧ] переключать, менять местами

utility [ju:'tɪlɪtɪ] утилита, служебная программа

(to) utilize ['ju:tɪlaɪz] использовать, задействовать

Exercises

I. *Answer the following questions after reading the text:*

1. What are the advantages of Windows?
2. Why is this program called Windows?
3. What is the main feature of Windows?
4. Why do you think the graphical user interface is very convenient?
5. What are the most common programs supplied with Windows?

II. *Make all types of questions to the following sentence:*

Windows interprets the user's actions and tells DOS and the computer what to do.

III. *Give English equivalents of the following expressions:*

программное обеспечение, пользовательский интерфейс, набирать на клавиатуре команды, быть легким в использовании, выполнять программу, приложение, закрыть программу, вставить информацию, служебная программа

IV. *Match the components of the phrases*

• software	• with computer
• user	• information
• to interact	• program
• to make the computer	• disk
• to delete	• easy to use
• to format	• program
• to paste	• interface
• utility	• files

V. *Pick out the right definition:*

1. User interface	a) a software package b) commands given to computer c) document-linking features
2. Application	a) pasted data b) a device name c) a software package for a specific task
3. To paste	a) to copy dissimilar document types b) to run a command c) to create a directory
4. A window	a) a command line b) a box or frame on the screen c) a seamless joining of different programs
5. Paintbrush	a) a word processing program b) a communication program c) a drawing program

VI. *Finish answering the questions:*

1. What is the user interface for? – I's meant for _____ .
2. How do the user and computer interact? – They interact with _____.
3. What is the mouse for? – It's meant for _____ .
4. What does Windows owe its name to? – It owes _____ .
5. What do words «cut» and «paste» mean? – They mean _____ .
6. What handy programs supplied with Windows do you know? – They are _____ .

VII. *Put the words in the correct order:*

1. supplied with / its own / programs / a few of / comes / handy / Windows.
2. open the next / one down / between / programs / switch / without having to close / then / easily / can / and / you.
3. document / runs / that / its name / separate / it / owes / each program / or / Windows / in its own / to the fact / window

VIII. *Fill in the blanks by using the expressions from the list:*

Write, on the screen, handy programs, seamlessly joining, applications, user interface, interprets.

1. _____ is an instrument to simplify the usage of your computer.
2. Windows _____ your actions and tells DOS and your computer what to do.
3. Windows makes running your favorite _____ easier.
4. You can have numerous windows _____ at a time, each containing its own program.
5. Windows provides the means for _____ the capabilities of very different application programs.
6. Windows comes supplied with a few of its own _____ .
7. Windows has got a word processing program called _____ .

IX. *Translate the following sentences into Russian:*

1. Microsoft Windows (or simply Windows) is a software program that makes your PC easy to use by simplifying the computer's user interface.

2. DOS often isn't very intelligent at interpreting your commands and most people consider it awkward or intimidating as a user interface.

3. You can then easily switch between programs without having to close one down and open the next.

4. As more and more application programs are written to run with Windows, it'll be easier for anyone to learn how to use new programs.

X. *Translate the following sentences into English:*

1. Термин «интерфейс» относится к тому, каким образом Вы отдаете команды компьютеру и как Вы взаимодействуете с ним.

2. При помощи Windows пользователь запускает программы, вносит и редактирует данные, выполняет операции при помощи мыши, указывая ею объекта на мониторе.

3. Операционная система названа Windows, потому что каждая программа или документ открываются в собственном окне.

4. Windows обеспечивает совместимость возможностей различных прикладных программ.

UNIT 3
Programming languages

Text

The only language computers can understand directly is called machine code. It is known to consist of the 1s and 0s (binary code) that are processed by the CPU. However, machine code as a means of communication is very difficult to write. That is why it is necessary to use symbolic languages that are easier to understand. Then, by using a special program, these languages can be translated into machine code.

Basic languages, in high the program is similar to the machine code version, are known as low-level languages. In these languages each instruction is equivalent to a single machine code instruction and the program is converted into machine code by a special program called an

assembler. These languages are considered to be still quite complex and restricted to particular computers.

To make the program easier to write and to overcome the problem of intercommunication between different types of machines, higher-level languages were developed such as BASIC, Pascal, C and others. A higher-level language is a problem oriented programming language, whereas a low-level language is machine oriented. This means that a high-level language is a convenient and simple means of describing the information structures and sequences of actions to be performed for a particular task.

A high-level language is independent of the architecture of the computer which supports it. This has two advantages. Firstly, the person writing the program does not have to know anything about the computer the program will be run on. Secondly, programs are portable, that is, the same program can (in theory) be run on different types of computers. Programs written in one of these languages should be converted by means of a compiler into a lower-level language or machine code so that the CPU could understand it.

C, a high-level programming language, seems to be very popular today because it is small, so it is not too hard to learn, it is very efficient and portable so one can use it with all kinds of computers. A lot of software engineers use C to write commercial applications programs for mini, micro and personal computers. There are also various versions of C, such as C++ and Objective C, which represent a new style of programming.

At present there is a tendency towards an even higher level of programming languages, which might be called specification languages, and an increasing use of software development tools.

People communicate instructions to the computer in symbolic languages and the easier this communication can be made, the wider the application of computers will be. Scientists are reported to be already working on. Artificial intelligence and the next generation of computers may be able to understand human languages (from www.unf.edu).

Active Vocabulary

artificial intelligence [ˌa:tɪ'fɪʃəl ɪn'telɪdʒəns] искусственный интеллект

assembler [ə'semblə] программа-ассемблер, транслятор языков программирования

compiler [kəm'paɪlə] компилирующая программа, транслятор

(to) convert [kɒn'vɜ:t] преобразовывать, конвертировать

efficient [ɪ'fɪʃənt] действенный, эффективный

higher-level ['haɪə 'levəl] высокого уровня, высокоуровневый

independent [ˌɪndɪ'pendənt] независимый, самостоятельный

intercommunication [ɪntəkəˌmju:nɪ'keɪʃn] двухсторонняя связь, интеркоммуникация

low-level ['leu 'levəl] низкого уровня, низкоуровневый

machine code [mə'ʃi:n 'keud] машинный код

portable ['pɔ:təb(ə)l] переносимый (с одного компьютера на другой), портируемый

sequence ['sɪkwəns] последовательность, цепочка

Exercises

I. *Answer the following questions after reading the text:*

1. How is the language that computers understand called?
2. Why is it necessary to use symbolic languages?
3. What is a low-level language?
4. Why aren't they suitable for all the computers?
5. How is the program that converts instructions into machine code called?
6. What are high-level languages called?
7. What is the difference between a low-level language and a high-level language?
8. What are the advantages of a high-level language?
9. What is a high-level language converted into machine code with?

10. Why is C, a high-level programming language, most popular nowadays?

11. What are scientists working at nowadays?

II. *Make all types of questions to the following sentence:*

There are also various versions of C, such as C++ and Objective C, which represent a new style of programming.

III. *Give English equivalents of the following expressions:*

компилирующая программа, машинонезависимый, язык высокого уровня, искусственный интеллект, ассемблер, язык низкого уровня, средство коммуникации

IV. *Give Russian equivalents of the following expressions:*

specification languages, commercial application programs, efficient and portable, a problem oriented language, to be converted, CPU, machine code

V. *Match the components of the phrases*

• means of	• into
• a low-level	• development tools
• to be converted	• communications
• machine	• language
• to be run	• intelligence
• software	• oriented
• artificial	• on

VI. *Put the verbs in brackets into the correct grammatical form:*

1. The only language computers understand (to be) machine code.

2. Low-level languages (to correspond) to the machine code version.

3. Which language (to be considered) to be complex and restricted to personal computers?

4. A computer (to serve) to convert a high-level language into a lower-level one.

5. Usually engineers (to use) C to write commercial applications programs for mini, micro and personal computers.

VII. *Fill in the gaps by using the words from the list below*

compiler, programmed, program, assembler, language, programmers, portable, low-level

1. A computer _____ is a set of instructions that tells the computer what to do.
2. Most computer _____ make a plan of the program before writing it.
3. Coding is the translation of the logical steps into a programming _____ .
4. In the next century computers will be _____ in natural languages like English or French.
5. A _____ is a special program that converts a program written in a high-level language into a program written in a lower level language.
6. A special program called _____ converts a program written in a low-level language into machine code.
7. If the same program can be used for different computers, it is called _____ .
8. In a _____ language each instruction has a corresponding machine code equivalent.

VIII. *Translate the following sentences into English by using words and expressions from the text:*

1. Люди передают компьютеру команды на языке символов, поэтому, чем легче такое взаимодействие, тем шире могут быть применены компьютеры.
2. В настоящее время существует тенденция к переходы к языкам более высокого уровня, называемым языком спецификаций, а также к использованию инструментов программного обеспечения.
3. Многие программисты используют язык С для написания коммерческих прикладных программ для мини-, макро- и персональных компьютеров.
4. Это означает, что язык высокого уровня удобен и прост в описании информационных структур и порядка действий необходимых для выполнения определенного задания.

IX. ***Listening***. *Listen to the interview with David Wendt, an expert on C. Mark the following sentences as true (T) or false (F). Change the sentences that are false to make them true:*

1. C was written to support the development of the MS DOS operating system.
2. C was based directly on a language called BCPL.
3. UNIX was rewritten in C in 1973.
4. C is rarely used for system programming now.
5. C's main disadvantage is that it has a small set of operators.
6. C is more powerful than Assembler.
7. C can be used to access memory addresses directly.
8. Pascal and C produce equally fast and efficient code.
9. C is the ideal language for everyone.
10. A language called D is expected to replace C.

X. ***Listening***. *Listen to the interview again and fill in the gaps in the script below:*

INTERVIEWER: Could you give some examples of how it does that?

DAVID WENDT: Yes. With C, the programmer can access the underlying hardware. He can access memory addresses directly, he can perform operations on values stored as (1) _____, and he can store variables in registers, just as in Assembler. This produces faster and more (2) _____ code than is produced by high-level languages like Pascal. At the same time it provides the fundamental (3) _____ constructs required for well-structured programs: decision-making, loops and (5) _____. These features combined together provide a very powerful tool for the programmer.

INTERVIEWER: You make it sound like the ideal language for everyone.

DAVID WENDT: Well, no. I'm not saying that. But if you need to write programs that are (6) _____, fast in execution and yet (7) _____ from one computer to another, than C is the language you should be using.

PART 5

Computer security: your computer is under attack

UNIT 1

Computer viruses

Before you read the text, answer the following questions:

1. What is a computer virus?
2. How many types of computer viruses do you know? What are they?
3. What are computer viruses supposed to do?
4. All the computer viruses are destructive, aren't there?

Text

A virus is a piece of software designed and written to adversely affect your computer. It works without your knowledge or permission. To be more precise, a virus is a segment of program code that implants itself to one of your executable files and spread systematically from one file to another. Computer viruses do not spontaneously generate. They must be written and have a special purpose such as to erase your disk or corrupt your programs.

A benign virus is one that is designed to do no real damage to your computer. For example, a virus that conceals itself until some predetermined date or time and then does nothing more than display some sort of message. A malignant virus is one that attempts to inflict damage to your computer, although the damage may not be intentional. There is a great number of viruses that cause damage due to poor programming and outright bugs in the code. Some of them may even erase your hard disk or delete your files. A malicious virus may alter your programs so that

they do not work as they should. The infected program may terminate abnormally or write incorrect information into your documents. The virus may also alter the directory information in one of your system areas that may prevent the partition from mounting, or you may not be able to launch your programs, or programs may not be able to locate the documents you want to open.

Computer viruses do not infect files on write-protected disks and do not infect documents, except in the case of Word macro viruses, which can infect documents and templates written in Word 6.0 or higher. They don't infect compressed files either. However, the applications within a compressed file could have been infected before they were compressed. Viruses also do not infect computer hardware, such as monitors or computer chips. They only infect software.

In addition, Macintosh viruses do not infect Windows-based computer software and vice versa. Exceptions to this rule are the Word and Excel macro viruses, which infect spreadsheets, documents and templates, which can be opened by either Windows or Macintosh computers. Finally, viruses do not necessarily let you know that they are there – even after they do something destructive.

Nowadays number of viruses is about 55.000 and it constantly increases. New unknown types of viruses appear every day. Generally speaking, they can be divided on the basis of three criteria: a place of situating, used operation system and work algorithm. For example, file infector viruses attach themselves to (or replace) COM and EXE files. With that type of virus, uninfected programs usually become infected when they are executed with the virus in memory. Companion viruses, in the turn, do not change files. They make double of infected file so when an infected file is being started a double file becomes managing (from www.internet-security-abc.com).

Active Vocabulary

abnormally [æb'nɔ:məlɪ] неправильно, аномально

adversely [æd'vɜ:slɪ] отрицательно, неблагоприятно

(to) affect ['æfekt] воздействовать, поражать

algorithm ['ælgərɪðəm] алгоритм

(to) attach [ə'tætʃ] присоединять, прикреплять

benign [bɪ'naɪn] неопасный, безвредный

bug ['bʌg] неисправность, сбой, ошибка в программе

(to) conceal [kən'si:l] прятать. скрывать

(to) corrupt [kə'rʌpt] повреждать, искажать

destructive [dɪs'trʌktɪv] разрушительный, деструктивный

(to) erase [ɪ'raɪz] стирать

executable [ɪg'zekjutəb(ə)l] исполняемый, выполняемый (файл, программа)

(to) implant [ɪmpl'a:nt] внедрять

(to) infect [ɪn'fekt] заражать, инфицировать

(to) inflict [ɪn'flɪkt] причинять, наносить

malicious [mə'lɪʃəs] вредоносный, умышленный, преднамеренный

malignant [mə'lɪgnənt] опасный, зловредный

(to) mount ['maunt] монтировать

partition [pa:'tɪʃən] сегмент, сектор

permission [pə'mɪʃən] допуск, полномочия

spontaneously [spɒn'teɪnɪəslɪ] самопроизвольно, по собственной инициативе

(to) spread ['spred] распространять(ся)

spreadsheet ['spred'ʃi:t] электронная таблица

template ['templɪt] шаблон, основа для создания

vice versa [ˌvais(ɪ)'vɜ:sə] наоборот, напротив

write-protected ['raɪt'prɒ'tektɪd] защищенный от записи, с защитой от записи

Exercises

I. *Answer the following questions after reading the text*

1. What do not viruses do?
2. Computer viruses do spontaneously generate, don't they?
3. What viruses may erase your hard disk?
4. How are viruses divided?
5. What do companion viruses do?
6. Viruses don't necessarily let you know that they are there – even after they do something destructive, do they?

II. *Match the words and phrases from the text and their definitions*

• software	• повреждать
• a monitor	• жесткий диск
• a bug	• опасный вирус
• a hard disk	• монитор
• destructive	• программная ошибка
• (to) damage	• неопасный вирус
• executable files	• программное обеспечение
• a malignant virus	• макровирус
• compressed files	• место расположения
• a benign virus	• сжатые файлы
• macro virus	• исполняемый файлы
• erasing contents	• разрушительный
• a work algorithm	• стирающий содержание
• an application	• алгоритм работы
• a place of situating	• приложение

III. *Mark the following statements as true or false. Explain your choice in the case the statement is false*

1. Some of the malignant viruses can erase your hard disk or delete files.
2. Viruses can also infect computer hardware such as monitors or computer chips.
3. Viruses is a software designed and written to adversely affect your computer.
4. Computer viruses do not spontaneously generate.

5. A malignant virus is one that never does real damage to your computer.

6. A benign virus may alter one of your programs so that it won't work, as it should.

7. Macintosh viruses do not infect Windows-based computer software and vice versa.

IV. *Transform the following statements into questions*

1. A virus is a piece of software.
2. There is a great number of viruses.
3. A malicious virus may alter one of your programs.
4. Computer viruses do not infect files on write-protected disks.
5. The number of viruses is about 55.000.
6. A virus copies itself in an executable file.

VI. *Discuss the following topics in groups*

1. What is a computer virus?
2. The number of viruses known nowadays.
3. The subdivision of viruses.
4. The tricky nature of companion viruses.
5. Antivirus software: all pro and contra.

UNIT 2

Command.com – the target of attack

Before reading the text, match the words and definitions listed below:

1. a detonator	a. a protective device
2. an infector	b. to remove all traces of something
3. to boot	c. a device used to set off an explosion or other
4. to trigger	destructive process
5. to erase	d. to discover or recognize that something is present
6. pirated	e. to set a process in motion
7. a shield	f. something which transmits a disease or virus
8. to detect	g. stolen, obtained without the owner's content
	h. to load the operating system into memory

Text

A computer virus is an unwanted program that has entered your system without you knowing about it – has two parts, which are traditionally called the infector and the detonator. They have two very different tasks. One of the features of a computer virus that separates it from other kinds of computer programs is that it replicates itself, so that it can spread to other computers.

After the infector has copied the virus elsewhere, the detonator performs the virus's main work. Generally speaking, that work is either damaging data on your disk, altering what you see on your computer display, or doing something else that interferes with the normal use of your computer.

Here's an example of a simple virus, the Lehigh virus. The infector portion of Lehigh replicates by attaching a copy of itself to Command.com (an important part of the operating system), enlarging it by about 1000 bytes. So let's imagine that you put a floppy containing Command.com into an infected PC at your office – that is, a PC that is running the Lehigh program. The infector portion of Lehigh looks over DOS's shoulder, monitoring all floppy accesses. The first time you tell the infected PC to access your floppy drive, the Lehigh infector notices the copy of Command.com on the floppy and adds a copy of itself to that file.

Then you take the floppy home at your PC and boot from the floppy. Now the virus has silently and instantly been installed in your PC's memory. Every time you access a hard disk subdirectory or floppy disk containing Command.com the virus sees that file and infects it, in the hope that this particular Command.com will be used on a boot disk on some computer some day.

Meanwhile, Lehigh keeps a count of infections. Once it has infected four copies of Command.com, the detonator is triggered. It erases a vital part of your disk making the files on that part of the disk no longer accessible. You grumble and set about rebuilding your work, unaware that Lehigh is waiting to infect other unsuspecting computers if you boot from one of those four infected floppies.

Don't worry too much about viruses. You may never see one. There are just a few ways to become infected that you should be aware of. The sources seem to be pirated software, putting floppies in publicly available PCs and software distributed through the Internet. If you use a shared PC or a PC that has public access, be very careful about putting floppies into that PC's drives. Carry a virus-checking program and scan the PC before letting it write data onto floppies. There are actually two kinds of antivirus programs: virus shields, which detect viruses as they are infecting your PC, and virus scanners, which detect viruses once they have infected you. A little common sense and the occasional virus scan will keep you virus-free (from www.internet-security-abc.com).

Active Vocabulary

accessible [ək'sesəb(ə)l] доступный, имеющийся в распоряжении

aware [ə'wɛə] знающий, осведомленный
count ['kaunt] счетчик

(to) detect [dɪ'tekt] обнаруживать, отслеживать
detonator ['detəneitə] детонатор

(to) enlarge [ɪn'la:dʒ] увеличивать, расширять

floppy ['flɒpɪ] дискета, накопитель на гибких дисках

(to) install [in'stɔ:l] устанавливать, инсталлировать

(to) interfere [ˌɪntə'fɪɜ] вмешиваться, препятствовать, причинять вред

(to) monitor ['mɒnɪtə] наблюдать, контролировать

occasional [ə'keɪʒ(ə)nəl] нерегулярный, случающийся время от времени

(to) replicate ['replɪkeɪt] дублировать, воспроизводить
(to) scan ['skæn] сканировать, подробно изучать

shield ['ʃi:ld] щит, защита, защитное устройство

subdirectory [ˌsʌbdaɪ'rekt(ə)rɪ] подкаталог, поддиректория

(to) trigger ['trɪgə] переключать, приводить в действие

Exercises

I. *Decide whether the following statements are true or false in relation to the information given in the text. If you think the statement to be false, transform it to make it true*

1. Viruses cannot be spread through a computer network, only via floppies transported from computer to computer.
2. The virus will spread as soon as you put the infected floppy in your PC.
3. The infector works by interfering in some way the normal use of your computer.
4. The detonator in Lehigh works by altering what you see on your screen.
5. Most viruses spread through pirated games.
6. You should run an antivirus program every time you use your computer.
7. There are not very many viruses in circulation.
8. Virus shields are more effective than virus scanners.

II. *These are answers to questions about the text. Write the questions*

1. Two, one that infects and one that does the damage.
2. By interfering in some way with the normal use of the computer.
3. After it has infected four copies of Command.com.
4. Every time you access a hard disk subdirectory or a floppy disk containing Command.com.
5. Yes, by using your common sense and by occasionally scanning for them.

III. *Look back in the text and find the reference for the words in italics*

1. *They* have two very ...
2. ... is that *it* replicates *itself*.
3. ... enlarging *it* by about.
4. ... of *itself* to that file.
5. ... and infects *it*.
6. *This* is easy to ...
7. ... *which* detect viruses.
8. ...only *they* have infected

IV. *Look back in the text and find words that have a similar meaning to:*

- reproduces
- infect
- changing
- immediately
- complain

V. *Look back in the text and find words that have an opposite meaning to:*

- educing
- removed from
- records
- ignorant
- frequently

UNIT 3
Firewalls

Text

As traffic increases dramatically on the Internet, so do the risks that some data may be stolen. As a result, network firewalls have become a hot topic. Relatively new creations, Internet firewalls, barriers placed between a network and the outside world to prevent potentially damaging instructions, have their roots in control mechanisms and security measures that have long been standard practice in the mainframe community. But today's networked world has grown from the bottom up rather than from the top down, with millions of new connections originating from personal computers and small networks. It's no longer possible to know who or what is on the other end of a network connection unless extraordinary measures are taken.

Just as no physical fire wall is perfect protection against a fire, no digital firewall can make a network 100 percent secure against outside intrusion. But they can come remarkably close if there is a comprehensive

security policy. Firewalls can be built in several ways, using a variety of mechanisms. The most common are the following: 1) router-based filters; 2) host computer gateways', or bastions; 3) a separate, isolation network.

Perhaps the simplest approach to creating a firewall involves using a programmable router – the type of device normally used to create a permanent Internet connection to the outside world. Routers work by controlling traffic oat the IP, i.e. the Internet Provider level, selectively passing or blocking data packets based on source/destination address or port information. While reasonably good firewalls can be created with routers alone, it may prove difficult to program router to exclude everything that you want to keep out. Unfortunately, most routers come configured with a minimum of built in protection, and many organizations simply install them this way without customizing them.

Another approach to firewall construction is to use a computer rather than a router. This system, also called a bastion host, offers more capabilities, including the ability to log all the activity over gateway. While a router-based firewall monitors data packets at the IP level, hosts exert their control at an application level, where traffic can be examined more thoroughly. However, host-based firewalls must use specialized software applications gateways and service proxies to plug existing security holes. These are, in essence, stripped down versions of the original programs; they are less flexible and pass along mail messages only after verifying that they fit within the programmed restrictions.

The third way to establish a firewall, similar to the host-based systems just described, is to create another network, i.e., an isolated subnetwork that sits between the external and internal networks. Typically, this network is configured so that both the Internet and the private network can access it, but traffic across the isolation network is blocked.

Sometimes, simply foiling an outside attack isn't enough. One high-powered deterrent is Sidewinder, a complete turnkey firewall system advertised as «security that strikes back». Its operating system is secure in and of itself, requiring no proxy or gateway applications. The parented mechanism wherein the operating system and its applications stay secure

is called Type Enforcement. Data and process are assigned to class types and interaction between them is strictly regulated.

It provides defense in depth, that is, even if a determined hacker were able to break into the Sidewinder platform itself, he or she would be left stranded in one domain without access to any other application or process. And breaking in is made more difficult because Sidewinder can filter any data that passes the network boundary.

One of Sidewinder's most interesting features is that it can strike back. When Sidewinder detects a hacker, it immediately sends a silent alarm to the system administration for a decision. The system can let the intruder in and permit certain activities up to the point, all the while collecting information on the source of the probe and what types of actions the hacker takes. The system can also provide dummy password files, dead-end traps and other stealthy defenses – a veritable «hall of mirrors», where nothing is quite the way it appears. Moreover, Sidewinder can also force a disconnection from any outside network (from www.mcafee.com).

Active Vocabulary

(to) customize ['kʌstəmaɪz] настраивать, адаптировать к требованиям пользователя, кастомизировать

comprehensive [ˌkɒmprɪ'hensɪv] полный, всесторонний, всеобъемлющий

deterrent [dɪ'terənt] сдерживающее средство

dummy ['dʌmɪ] поддельный, фиктивный, подставной

external [ɪk'stɜ:n(ə)l] внешний

firewall ['faɪəwɔ:l] сисетма сетевой защиты, файервол

gateway ['geɪtweɪ] межсетевой интерфейс, шлюз

host ['həust] хост-компьютер, главный компьютер узла сети

internal [ɪn'tɜ:nl] внутренний

intruder [ɪn'tru:də] нарушитель, злоумышленник

intrusion [ɪn'tru:ʒən] вторжение, несанкционированное проникновение

(to) log ['lɒg] записывать, протоколировать, регистрировать (информацию)

programmable ['prəugræməbəl] программируемый, с программным управлением

proxy ['prɒksɪ] компьютер-посредник, сервер-посредник

security [sɪ'kju:rɪtɪ] безопасность, защита

stealthy ['stelθɪ] тайный, скрытый, незаметный

(to) verify ['verɪfaɪ] проверять, удостоверять подлинность

Exercises

I. *Decide whether the following statements are true or false in relation to the information given in the text. If you think the statement to be false, transform it to make it true*

1. Internet firewalls are derived from the mainframe procedures.
2. Most of the router-based filters are adjusted to the needs of the customers using them.
3. Host-based firewalls offer more reliable verification of the message traffic than that given at IP level.
4. Service proxies are more limited in function than the original programs.
5. Sidewinder can filter both incoming and outgoing messages.
6. Sidewinder is described as a completely turnkey firewall system because it provides multi-level reaction, a retaliatory capacity and built-in traffic control.
7. Sidewinder strikes back by isolating the hacker before he accesses network domain.

II. *Basing on the information from the text, give one-sentence definitions for the following terms:*

Firewall, type enforcement, isolation network, Sidewinder.

III. *Complete the following sentences by using the logical connectors given below. There are 2 extra words:*

while, similarly, so, i.e., possibly, despite, therefore, because

The walls of medieval cities were useless unless they had gateways 1) _____ , private computer networks have gateways to the outside world. Firewalls2) _____ sets of computers using filters to allow only authorized messages o pass through, are used as fortified gateways. Large systems with complex firewalls use an inner and outer gateways. The «outside» gateway connected to the Internet, can only reach one machine inside the firewall, 3) _____ the «inside» gateway doesn't trust the outside one, and 4) _____ only provides it with certain limited services. 5) _____ messages from outside such a system may pass first to a firewall router, it takes no messages itself, and 6) _____ cannot be compromised.

IV. *Fill in the correct form of the verb given in brackets. Use Gerund, to+Infinitive or bare Infinitive.*

1. Once the malware appears on your machine, it can be very challenging (get) rid of it.
2. With VoIP you can speak to someone while (send) the files or even showing yourself by using a web camera.
3. I'm tired of pop-up web advertisements, they just keep (appear).
4. Employees who are about (lose) their jobs can sometimes leave malware behind on the company system to do damage to their former employer.
5. The primary purpose of the firewall is (prevent) unauthorized users from gaining access to your web server through packer filtering and user authentication.
6. You can't block pop-up ads by (turn) off a feature or service in the operating system.
7. Regular Internet users with an eye to privacy may succeed in (achieve) a desirable level of privacy through careful disclosure of personal information and by avoiding spyware.

8. The Internet is the most robust communications network ever designed, able (adapt) itself almost instantaneously to damage to individual sections.

9. Meta-search engines allow you (submit) a search query to several engines at once.

10. Many phishing scams actually take real URLs and change them ever so slightly to make them (look) like real ones.

V. *Read the text and decide which word fits each space:*

Digital signature

A digital signature is different from a handwritten one. It is unique and different every time it is (1) _____ , and is related to the thing or things it is singing (an electronic document, picture, program and so on). It is created by doing a mathematical calculation on the thing that is being signed that produces a unique numerical (2) _____ . That value is (3) _____ using a private cryptographic key and the result linked to the things that were signed. So to make a digital signature you have to generate or buy a private cryptographic key and a (4) _____ public key and certificate.

There are basically two kinds of cryptography in use. Secret key (symmetric), and public/private key (asymmetric). With secret key, the same key is used to encrypt and decrypt information. (5) _____ the operation is symmetric. With public/private key, the two keys are of different values. Encryption is done using one of them, and (6) _____ can then only be done using the other. Hence the operation is asymmetric. You can give your (7) _____ key to everyone. Then, if they want to send something to you they encrypt it with the public key and they know that only you can (8) _____ it. By the same terms, if you encrypt something using your private key, than anyone who has your public key can check to see if they can (9) _____ it, and if they can, they know it must have come from you.

(1) A proposed	B requested	C generated	D uploaded
(2) A value	B answer	C key	D message
(3) A increased	B checked	C encrypted	D decrypted
(4) A signed	B verified	C separate	D corresponding

(5) A But	B Hence	C Then	D Nevertheless
(6) A decryption	B checking	C transferring	D signing
(7) A symmetric	B signing	C private	D public
(8) A see	B read	C receive	D encrypt
(9) A encrypt	B decrypt	C generate	D read

VI. ***Listening***. *Listen to Steve, a computer technician, and Richard, the office manager at a language institute, talking about computer security. After listening to it, answer the following questions:*

1. What is the problem with the computer system at the language institute?
2. What would someone need to connect his/her PC to the office network?
3. What are the disadvantages of security passwords, according to Steve and Richard?
4. How does the «smart» card work? Is it safe?
5. How much do you think Steve and Richard know about security systems?

ADDITIONAL TEXTS

Text 1. Internet Protocol Suite

The Internet protocol suite is the set of communications protocols that implements the protocol stack on which the Internet and many commercial networks run. It is the part of the TCP/IP protocol suite, which is named after two of the most important protocols in it: the Transmission Control Protocol (TCP) and the Internet Protocol (IP), which were also the first two networking protocols defined. Note that today's TCP/IP networking represents a synthesis of two developments that began in the 1970's namely LAN's (Local Area Networks) and the Internet, that revolutionalised computing.

The Internet protocol suite – like many protocol suites – can be viewed as a set of layers. Each layer solves a set of problems involving the transmission of data and provides a well-defined service to the upper layer protocol based on using services from some lower layers. Upper layers are logically closer to the user and deal with more abstract data, relying on lower layer protocols to translate data into forms that can eventually be physically transmitted. The original TCP/IP reference model consisted of four layers, but has also evolved into a five-layer model.

The application layer is used by most programs for network communication. data sent over the network is passed into the application layer where it is encapsulated into the application layer protocol. From there, the data is passed down into the lower layer protocol of the transport layer.

The transport layer's responsibilities include end-to-end message transfer capabilities independent of the underlying network, along with error control, fragmentation and flow control. End-to-end message transmission or connecting applications at the transport layer can be categorized as either connection-oriented (TCP) or connectionless (UDP). The transport layer provides this service of connecting applications together through the use of ports.

On the network layer Internet Protocol (IP) provides a connectionless, unreliable, best-effort packet delivery service. Its service

is called connectionless because it resembles the Postal Service more than it does the telephone system. IP packets, like telegrams or mail messages, are treated independently. Each packet is stamped with the addresses of the receiver and the sender. Routing decisions are made on a packet-by-packet basis.

The data link is all about getting information from one place to a selection of other places. At this layer one does not need to be able to go everywhere, just able to go somewhere else. It is analogous to social interaction in that one needs to know at least one other person, but not necessarily know Fred, Bob or James.

The physical layer is responsible for encoding and transmission of data over network communications media. It operates with data in the form of bits and sent from the physical layer of the sending (source) device and received at the physical layer of the destination device.

Today, most commercial operating systems include and install the TCP/IP stack by default. For most users, there is no need to look for implementations. TCP/IP is included in all commercial Unix systems, Mac OS X and all free-software Unix-like systems such as Linux distributions and BSD systems, as well as Microsoft Windows (from www.livinginternet.com).

Text 2. Virtual Reality

Computers are about to take people to places they have never been able to visit before, including the surface of other planets. Such a trip will be an illusion, but one that comes closer to real life than anything on stage or screen. Artificial worlds are being built up in a computer memory so that people can walk through at will, look around and even touch objects.

The system is called virtual reality, so called from the mathematical concept of an image that has the virtues of a real object without the substance.

Virtual reality systems are being developed throughout the world for a range of uses including enabling people to walk «inside» nuclear power stations, while controlling a robot that actually goes into the area in which

no human could live, and conducting architects through a computer-generated building before it is constructed.

British scientists have a world lead in virtual reality, despite the fortunes being poured into research by Japanese and American companies, which see it as a technology for the next century.

In Britain, Robert Stone, of the National Advanced Robotics Research Center at Manchester University, is developing systems that could put men on Mars without shooting them into space and could plunge divers under the North Sea without taking them out of the office.

The problem with guiding a robot by looking at a picture from a video camera mounted on it and twiddling the controls is that it is not a natural system, Mr. Stone says. The operator spends all his time controlling the robot and none solving the problem. The time lag between seeing the image and sending a corrective control signal is another difficulty.

A virtual reality system consists of a helmet with a color display in front of each eye and wide-angle lenses to cover the entire field of view and give the stereoscopic effect. The helmet contains sensors, rather like electronic compasses, to record where it is pointing. A computer calculates what the wearer should be seeing in that direction and displays it on the screen.

In more advanced systems, the operator wears an electronic glove that detects exactly what the fingers are doing and transmits the information to the computer. If the user tries to pick up something, the computer will make the object follow the hand to give the illusion of carrying it.

Pads in the latest type of gloves press into the insides of the fingers and palm when the object is encountered, to create the illusion of feeling it. Complete «exoskeletons» covering the user and allowing the computer to simulate almost anything possible in the real life are still in the laboratory.

A fire-fighter un a nuclear-power plant, for example, would move through a computer model wearing an exoskeleton, while a robot would

move through the real thing. The computer program will be derived from the data used to design the plant in the first place.

Mr. Stone has developed a data glove with air pockets that are inflated to give a sensation of touch in collaboration with Air-muscle, the supplier of the pneumatic systems that made the Spitting Image puppets really spit.

The biggest initial market is likely to be for a new generation of video games. W Industries, of Leicester, recently launched a virtual reality system for video arcades. The system, called Virtuality, consists of a cockpit in which a player sits, wearing the helmet, at a set of controls that can mimic a bobsleigh, a spaceship, or whatever the imagination of the games programmer can devise.

The helmet has a pair of liquid-crystal displays with wide-angle lenses giving a stereoscopic image and a magnetic sensors to tell the computer what the helmet is looking at as it moves.

The first game is a fighter simulation. Another is based on a sequence on the film, *Return of the Jedi*, in which flying motor-cycles race through a forest. The computer can link and control several helmets at once for a group game (from www.savetheInternet.com).

Text 3. Lost in the machine translation

You can go out right now and buy a machine translation system for anything between $100 and $100,000. But how do you know if it's going to be any good? The big problem with MT systems is that they don't actually translate: they merely help translators to translate. If you get something like Metal (very expensive) or GTS (quite cheap) to work on your latest brochure, they will churn out something in French or whatever, but it will be pretty laughable stuff.

All machine-translated texts have to be extensively post-edited (and often pre-edited) by experienced translators. To offer a useful saving, the machine must make the time the translator spends significantly less than he or she would have taken by hand.

Inevitably, the MT manufacturers' glossies talk blithely of «a 100 per cent increase in throughput», but skepticism remains. Potential users

want to make their own evaluation and that can tie up key members of the corporate language center for months.

A few week ago, translators, system developers, academics and other from Europe, the US, Canada, China and Japan met for the first time in a Swiss hotel to mull over MT matters. A surprisingly large number of European governmental and corporate organizations are conducting expensive and elaborate evaluations of MT, but they may not produce «buy or don't buy» results.

Take error analysis, a fancy name for counting the various types of errors the MT system produces. You might spend five months working out a suitable scoring scheme – is correct gender agreement more important than correct number? – and totting up figures for a suitably large sample of text, but what do those figures mean? If one system produces vastly more errors than another, it is obviously inferior. But suppose they produce different types of errors in the same overall numbers: which type of error is worse? Some errors are bound to cost translators more efforts to correct, but it requires a lot more work to find out which.

It isn't just users who have trouble with evaluation. Elliott Macklovitch, of Canada, described an evaluation of a large commercial MT system, in which he analyzed the error performance of a series of software updates only to find – as the system's suspicious development manager had feared – that not only had there been no significant improvement, but the latest release was worse.

And bugs are still common. Using a «test suite» of sentences designed to see linguistic weaknesses, researchers in Stuttgart found that although one large system could cope happily with various complex verb-translation problems in a relative clause, it fell apart when trying to do exactly the same thing in a main clause. Developers are looking for bigger, better test suites to help to keep such bugs under control.

Good human translators produce good translations; all MT systems produce bad translations. But just what is a good translation? One traditional assessment technique involves a bunch of people scoring translations on various scales for intelligibility («Does this translation into English make sense as a piece of English?»); accuracy («Does this piece

of English give the same information as the French original?»); style and so on. However, such assessment is expensive and designing the scales is something of a black art.

Properly designed and integrated MT systems really ought to enhance the translator's life, but few takes this on trust. Of course they do things differently in Japan. While Europeans are dabbling their toes and most Americans deal only in English, the Japanese have gone in at the deep end. The Tokyo area already sports two or three independent MT training schools where, as the eminent Professor Nagao casually noted in his presentation, activities are functioning with the efficiency of the Toyota production line. We're lucky they're only doing it in Japanese (from www.webopedia.com).

Text 4. Secure Operational systems

One use of the term computer security refers to technology to implement a secure operating system. Much of this technology is based on science developed in the 1980ths and used to produce what may be some of the most impenetrable operating system ever. Though still valid, the technology is almost inactive today, perhaps it is complex and not widely understood. Such ultra-strong secure operating systems are based on operating system kernel technology that can guarantee that certain security policies are absolutely enforced in an operating environment.

An example of such a Computer security policy is the Bell-LaPadula model. The strategy is based on a coupling of special microprocessor hardware features, often involving the memory management unit, to a special correctly implemented operating system kernel. This forms the foundation for a secure operating system which, if certain critical parts are designed and implemented correctly, can ensure the absolute impossibility of penetration by hostile element. This capability is enabled because the configuration not only imposes a security policy, but in theory completely protects itself from corruption. Ordinary operating systems, on the other hand, lack the features that assure the maximal level of security. the design methodology to produce such secure systems is precise, deterministic and logical.

Systems designed with such methodology represent the state of the art of computer security and capability to produce them is not widely known. In sharp contrast to most types of software, they meet specifications with verifiable certainty comparable to specifications for size, weight and power. Secure operating systems designed this way are used primarily to protect national security information and military secrets. These are very powerful security tools and very few secure operating systems have been certified at the highest level (Orange Book A-1) to operate over the range of «Top Secret» to «unclassified» (including Honeywell SCOMP, USAF SACDIN, NSA Blacker and Boeing MLS LAN). The assurance of security depends not only on the soundness of the design strategy, but also on the assurance of correctness of the implementation, and therefore there are degrees of security strength defined for COMPUSC. The Common Criteria quantifies security strength of products in terms of two components, security capability (as Protection Profile) and assurance levels (as EAL levels). None of these ultra-high assurance secure general purpose operating systems have been produced for decades or certified under the Common Criteria (from www.internet-security-abc.com).

Text 5. Computer Literacy for all

Fortunately, fewer and fewer people are suffering from computer anxiety. The availability of inexpensive, powerful and easy-to-use personal computers is reducing the intimidating factor. As new generation grow up in the Information Age, they are perfectly at home with computers.

Why are you studying about computers? In addition to curiosity, you probably recognize that it will not be easy to get through the rest of your life without knowing about computers. Let us begin with a definition of computer literacy that encompasses three aspects of the computer's universal appeal:

Awareness. Studying about computers will make you more aware of the importance, their versatility, their pervasiveness and their potential for fostering good and (unfortunately) evil.

Knowledge. Learning what computers are and how they work requires coming to terms with some technical jargon. In the end, you will benefit from such knowledge, but at first it may be frustrating.

Interaction. There are no better way to understand computers than through interaction with one. So being computer literate also means being able to use a computer for some simple applications.

Note that no part of this definition suggests that you must be able to create the instructions that tell a computer what to do. Someone else can write the instructions for the computer4 you simply use the instructions to get your work done. For example, a bank teller might use a computer to make sure the customers really have as much money in their account as they wish to withdraw. Or an accountant might use on to prepare a report, a farmer to check on market prices, a store manager to analyze sales trends and a teenager to play video games. We cannot guarantee that these people are computer literate, but they have at least grasped the «hands-on» component of the definition – they can interact with a computer. Is it possible for everyone to be computer literate? Computer literacy is not a question of human abilities. Just about anyone can become computer literate. In the near future, people who do not understand computers will have the same status as people today who cannot read.

If this is your first computer class, you might wonder whether using a computer is really as easy as the commercials say. Some students think so, but many do not. In fact, some novice computer users can be confused and frustrated at first. Indeed, a few are so frustrated in the early going they think they will never learn. To their surprise, however, after a couple of lessons they not only are using computers but enjoying the experience.

Some students may be taken aback when the subject matter turns out to be more difficult than they expected – especially if their only computer experience involved the fun of video games. They are confused by the special terms used in computer classes, as if they had stumbled into some foreign language course by mistake. A few students may be frustrated by the hands-on nature of the experience, in which they have a one-to-one relationship with the computer. Their previous learning experience, in contrast, have been shared and sheltered – they have been shared with

peers in a classroom and sheltered by the guiding hand of an experienced person. Now they are one-to-one with a machine, at least part of the time. The experience is different, and nay be slightly scary. But keep in mind that others have survived and even triumphed. so can you.

And don't be surprised to find that some of your fellow students already seem to know quite a bit about computers. Computer literacy courses are required by many schools and colleges and include students with varying degrees of understanding. That mix often allows students to learn from one another – and provides a few with the opportunity to teach others what they know (from www.livinginternet.com).

ЗАКЛЮЧЕНИЕ

Представленные в настоящем пособии материалы обеспечивают овладение специальной терминологической лексикой и повышение профессиональной речевой культуры будущих специалистов по направлениям «Информатика и математика», «Информатика» и «Прикладная математика». Пройденный курс предполагает совершенствование приобретенных навыков посредством профессионально-ориентированного образования и самостоятельной работы.

Владение английским языком, являющимся языком международного общения, значительно расширяет профессиональные возможности специалиста, его карьерный потенциал и перспективы. Уверенное знание иностранного языка означает доступ к актуальной информации и ее успешное применение для достижения успеха в современной конкурентной профессиональной среде.

Глобализация современной науки и образования, технологий и бизнеса требует постоянного совершенствования языковых умений и навыков. При этом результативность данного процесса обеспечивается регулярной работой языковой личности над собой в процессе обучения иностранному языку.

В условиях инновационного развития экономики происходит коренное изменение образовательной парадигмы, ориентированной на саморазвитие личности, ее жизненную и профессиональную самоориентацию. В профессиональном обучении важнейшим является формирование личности будущего профессионала, что предполагает не только предоставление студентам возможности получить профессиональные знания, умения и навыки, но и формирование у будущего специалиста профессионально значимых и социально необходимых качеств личности, которые в своей совокупности являются залогом как профессионального саморазвития, так и профессиональной мобильности.

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