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TAKING COMPUTER FOR GRANTED

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Учебное пособие

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Учебное пособие предназначено для обучающихся по направлению подготовки 09.03.03, изучающих дисциплину «Английский язык» и специализирующихся в области компьютерных технологий. Целью пособия является отработка навыков чтения и понимания специального текста, усвоение терминологической лексики данной предметной области, а также грамматической структуры специального текста.

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ВВЕДЕНИЕ

Основной целью обучения студентов является приобретение обучающимися коммуникативной компетенции, необходимой для квалифицированной информационной и творческой деятельности в различных сферах и ситуациях делового партнерства, совместной производственной и научной работы. Тексты данного учебного пособия содержат полезную и интересную информацию, знакомят с лексической, грамматической и стилистической структурой, типичной для текстов данной предметной области.

Предлагаемое учебное пособие построено с учетом преемственности обучения и состоит из самостоятельных блоков. Цель каждого блока - развитие умения чтения и адекватного перевода текстов по направлению подготовки и написания тезисов, докладов, рефератов и аннотаций. Работа с данным пособием способствует формированию у студентов компетенции УК-4.

Учебные тексты служат для первичного введения языковых явлений и иллюстрацией их употребления в иноязычной речи. При подборе текстов учитывалась их актуальность, информативность, частотность представленной в них лексики и уровень языковой подготовки студентов.

Перед каждым текстом даётся список лексики, предназначенный для активного изучения и закрепления в ходе выполнения послетекстовых заданий. Упражнения направлены на активизацию лексического материала и развитие навыков устной речи.

Грамматический материал охватывает основные явления грамматики английского языка и направлен на закрепление знаний.

WILLIAM HENRY GATES, BYNAME BILL GATES

1. Essential vocabulary

to be born somewhere – родиться где-либо

programmer - программист

chief executive officer – президент (компании, холдинга)

to be involved with – был связан с…

to drop out of – бросать, оставлять

application - применение

to be founded on – быть основанным на…

ability - возможность

creativity – творчество, творческая деятельность

to accumulate – накапливать, собирать

one's contribution to – чей-либо вклад в …

charity organization – благотворительная организация

willingness – готовность, желание

hardware – аппаратное обеспечение; физические устройства, из которых состоит компьютерная система, или устройства, с которыми компьютер работает

software – программное обеспечение.

2. Translate the following international words:

Version, personal computer, evolution, operating system.

3. Read and translate the text

Bill Gates was born in 1955 in Seattle, Washington.

B. Gates is an American computer programmer and chief executive officer of the Microsoft Corporation. Gates grew interested in computers at the age of 12 and was involved with various programming projects throughout high school. While attending Harvard in 1975, Gates teamed with Paul Allen to develop a version of the BASIC computer-programming language for the Altair, the first personal computer.

As a result of this work on BASIC, Gates decided to drop out of Harvard in 1977 to work at Microsoft full-time. His idea was "a computer on every desk and in every home".

In the early 1980's, Gates led Microsoft's evolution from a developer of programming languages to a software company producing operating systems and applications software as well as programming tools. This transition began in 1981 with Microsoft's introduction of MS-DOS, the operating system for International Business Machines Corporation's new Personal computer (IBM PC).

Gates also made Microsoft introduce application software, such as Microsoft Word word-processing software for the IBM PC. This and his other activities created strong position for Microsoft in applications for the graphical used interface.

Much of Gate's success is founded on his ability to change technical visions into market strategy, and to use creativity mixed with technical developments.

Gates has accumulated great wealth from his holdings of Microsoft stock and is known for his personal and corporate contributions to charity and educational organizations. Gates continues to be personally involved in product development at Microsoft. His willingness to back new technologies such as Microsoft Windows, Windows NT, and workgroup applications has kept Microsoft at the vanguard of computer hardware and software evolution.

4. Make up questions about Gate's biography.

5. Ask your group-mate these questions.

6. Make up 5 sentences of your own with the international words (ex. 2).

7. Give a brief summary of the text.

8. Copy out all the verbs in the past tenses; mind the voice (active or passive).

9. Translate into English:

Он заинтересовался компьютерами в возрасте 7 лет. В начале восьмидесятых Билл Гейтс возглавил компанию Майкрософт. Эта компания производит операционные системы и программное обеспечение. Гейтс получает огромную прибыль от деятельности холдинга.

COMMUNICATION

1. Essential vocabulary

To communicate – сообщать, передавать

To exchange – обменивать(ся)

To use - употреблять, использовать

To invent - изобретать

To serve – служить, годиться

To transmit - передавать

To receive – принимать, получать

Current - ток

Means – ресурсы, средства

Message – сообщение, послание

Purpose - цель

Wire – проволока, провод

Tube – электронная лампа

Possible – возможный, возможно

Wide - широкий

Century – век, столетие.

2. Read the words and put down their Russian equivalents.

Cable, continent, information, history, mass, patent, process, radio, telephone, vacuum.

3. Translate the combinations in writing.

Early radio, great progress, electric revolution, modern radio receivers

4. Read and translate the text.

Communication is the process of exchanging information. People exchange information using communication means. Communication has always some purpose. Mass communication, for example, sends messages for masses of people.

The history of communication means is a long and interesting one.

Communication through electric media. At the beginning of the 19th century the electric revolution made great progress. By 1832 the telegraph had been invented. Wires crossed the continents and cables were put under the Atlantic Ocean. Some 40 years later (in 1876) the telephone was patented. Messages began to be transmitted over electrical currents carried by wires.

"Early radio". At the beginning f the 20th century it became possible to transmit messages without wires. Messages were sent by wireless telegraph tat is now called "early radio". But modern radio became possible only when a vacuum tube had been invented (1906). Soon after the invention of tubes, radio receivers began to be widely used in the world.

5. Translate the following word combinations:

Messages transmitted over electrical current, wires crossing the continents, newly patented means of communication, transmitter and receiver forming radio system.

6.Translate into English.

Люди обмениваются информацией, используя средства связи. История средств связи – долгая и интересная. В начале 19 века произошла революция в области электричества. В начале 20 века стала возможной беспроводная связь.

7.Answer the following questions.

- What is the purpose of mass communication?

- In what century were the telegraph and the telephone invented?
- What means made it possible to change "early radio" into modern one?

8.Summarize the text.

9.Fill in the proper prepositions: by, over, under, without.

… the end … the 19th century the telegraph and telephone had been patented. Cables are being put … the oceans. Electrical currents are being carried … wires. Today messages can be transmitted … wires all … the world.

10.Find out the verbs used in the passive voice, translate them.

11.Find out the qualitative adjectives, write down their degrees of comparison. Use them in the sentences of your own.

HIGH-TECHNOLOGY REVOLUTION

1.Essential vocabulary.

To change – менять(ся), обменивать(ся)

Change of means – перемена средств

To explore – исследовать, обследовать

To influence – оказывать влияние, влиять

Influence sphere – сфера влияния

Influence line – линия влияния

To process - обрабатывать

To record – записывать, регистрировать

Recorder – регистрирующий прибор

Record diagram – диаграмма записей

Space – пространство, безвоздушное пространство (космос)

Tape – телеграфная лента, лента

Number – число, количество

Both … and – как…, так и…

Satellite – спутник

2.Translate and transcribe the following international words:

Audio, colleague, dominant, diagram, processor, program, system, technology, photography, television.

3.Fill in the English equivalents in place of the Russian ones.

Is it (возможно) _____(послать по почте)_____ the record diagrams? (Сферы влияния)_____ were changed in the 19th century. (Поместите)_____ (регистрирующий прибор)_____on that desk.

4. Read and translate the text.

Television. Television was used experimentally as far as 1930. But its popular use began only some ten years later. And in about twenty years color television became dominant over black-and-white.

Audio and video recordings are most popular means of communication today. Also popular are filming and photography.

High-technology revolution in electronics influenced the sphere of communication and greatly changed it. The new technology used for space exploration influenced modern communication both in offices and home. It became possible for business people to communicate with their colleagues in faraway places.

Computers and word processors serve this purpose and are being widely used in many offices all over the world.

The new technology has also influenced communication in everyday life. For example, it became possible for people to receive television programs through cables. Modern cable is a complex wire system that makes it possible to transmit a number of television signals at the same time.

People today also widely use videotape recorders to record television programs. One of the most interesting inventions of today is also the usage of satellites for video and audio communication. People can receive programs through using satellites.

5. Put these questions to your group-mate.

- For how long has television been used by people?

- What is the influence of the new technologies on communication?

- What are computers and word-processors used for?

- What are satellites used for?

6. Translate the sentences: a) into Russian; b) into English.

a) Both audio and video recordings serve as popular means of communication.

Both computers and recorders are widely used in business sphere.

People can watch both colour and black-and-white television

b) Как телеграф, так и телефон были запатентованы в XIX столетии.

Новые средства коммуникации широко используются как в учреждениях, так и дома.

COMPUTER AS A MEAN OF MODERN COMMUNICATION

1. Essential vocabulary

To accept - принимать

To broadcast – вещать, транслировать, вести передачу

To educate – давать образование

To perform – выполнять, совершать

To supply – снабжать, поставлять, питать током.

2. Translate and transcribe the following international words:

To coordinate, logical, manipulate, special.

3. Read and translate the text.

The invention of a computer has made all modern communication possible. Modern computer is an electronic device that accepts data or information, performs logical operations, and supplies the results of these operations to the users as information.

Nowadays computers are used practically in all the spheres of modern communication. They operate telephone systems, control the operation of the television and radio broadcasts, and coordinate satellite launches and operations.

4. Answer the following questions.

- What operations can a modern computer perform?
- In what spheres are computers used?
- What do they operate? Control? Coordinate?

5. Retell the text.

6. Essential vocabulary.

To prevent – предохранять, предупреждать

To utilize - использовать

Necessary - необходимый

Science - наука

Scientist - ученый

Scientific - научный

Television broadcasts - телепередачи

Satellite launch – запуск спутника

Scientific experiments

Educational means

7. Give the Russian equivalents of the following words

To analyze, journalist, theory, to present

8. Choose the proper prepositions and fill them in: of, through, to, for, by, on. Translate the sentences into Russian.

- Computers are widely used … scientists and businessmen to exchange information and analyze new projects.

- Educational means are presented … magnetic discs.

- Personal computer users get the necessary information … various networks.

- Modems transmit data … telephone lines.

- Word processors are used … journalists and writers … their activity.

- Computers belong … the most useful inventions … mankind.

9. Read and translate the text.

Computers are used by scientists to exchange ideas, to collect, manipulate, and analyze new theories and designs. Computers are also widely used in education. Personal computer users use educational means on magnetic and optical disks or get the necessary information through various telecommunication networks.

Local area networks link the computers in different offices and educational instructions.

Modems are telecommunication devices that transmit data through telephone lines. Modems link individual computers to other computers anywhere in the country or anywhere in the world.

Word processors are used by journalists and writers for their literary activity, for writing books and articles.

Invention of computers belongs to the greatest developments of mankind. It can be compared with the invention of steam-engine at the end of the 18th century.

10.Answer the following questions:

- What purposes do scientists use computers for?

- In what ways are computers used in the sphere of education?

- Through what devices do modems transmit data?

11.Make up a composition on the topic "The role of computer in my life"

COMPUTER SYSTEMS. HARDWARE AND SOFTWARE

1. Essential vocabulary

To process – подвергать (процессу)

To refer (to) – ссылаться (на)

Reference book - справочник

To solve - решать

Solvable problem – разрешимая задача

To store – запасать, хранить

Storage battery – аккумуляторная батарея

Storage – запоминающее устройство, память

Physical component – физический компонент

Bus – канал (информации)

Term - термин

Unit – единица, устройство, блок, элемент

Unit of current – единица тока

Computer hardware – вычислительная техника

External (internal) memory – внешняя (внутренняя, оперативная) память

In order to… - для того чтобы…

2. Translate and transcribe the following international words:

Component, elementary, central, digital, hybrid, physical, problem.

3. Change the words according to the model. What parts of speech are they? Translate them.

Model: to solve – solution (решение)

To direct, to reflect, to connect

Model: to refer – reference (ссылка)

To depend, to differ

Model: volt – voltage (напряжение, вольтаж)

To store, to link, to use.

4. Read and translate the text.

There exist two fundamentally different types of computers: analog and digital ones. There exist also hybrid types of computers that combine some of the properties of both analog and digital computers. In analog computers problems are solved by considering continuously changing data (electric current, voltage, resistance, pressure). But in practical usage the term "computer" usually refers to digital computers.

A digital computer is a complex system of four fundamentally different elements. What are they? In order to be able to use computers for practice, it is necessary to have elementary knowledge of its construction. Thus, the four main parts of a computer are: a central processing unit, input devices, memory-storage devices, and output devices. These four parts are linked by a communication network, or bus. These physical parts and all their physical components are called hardware.

As for the problem of hardware development, specialists believe that radically new computer designs are absolutely necessary. Almost all of today's computers process information one element at a time. But the problem could be solved much more quickly by the use of a great number of computers simultaneously working on the given task. And there already exists one such design called Thinking Machine By using several thousand microprocessors the Thinking Machine outperforms many of today's supercomputers.

5. Summarize the text.

6. Translate the sentences: a) into Russian; b) into English.

a) The data referred to in the article are not quite reliable.

The table (таблица) the author refers to was published in several journals.

One can find the necessary terms in any reference book.

b) На какие данные ссылается этот ученый?

Можно ссылаться на таблицу, опубликованную в журнале.

Вы можете найти новые специальные термины в справочнике.

7. Essential vocabulary

To load – нагружать, загружать

Load circuit – цепь нагрузки

Load coefficient – коэффициент нагрузки

Game - игра

Interface – интерфейс (устройство сопряжения)

Team - команда

Total – полный, общий, тотальный

Total output – полная мощность

Total load – полная загрузка

Total cost – общая стоимость

Total losses – общие потери

But – кроме, но

It should be noted… - следует заметить…

8. Give the Russian equivalents for the following words.

Focus, corporation, opponent, potential

9. Make up the sentences of your own with the given word combinations. Translate them into Russian.

Game program, playing teams, user-friendly programs, data-storage device, cost-dependent project.

10.Read and translate the text.

Without a program computer is nothing but potential. A computer's operating system is the software. Without software a computer does not operate.

The hardware and the software systems of a computer work together. Software is often stored in a computer's memory. Most often programs exist independently of a computer. When software is loaded into computer it automatically programs the computer to perform a special task. It may word processing, managing accounts and others.

Programming of a computer is performed by specialists. Software is written by professionals known as computer programmers. Often programmers in large corporations work in teams, each programmer focusing on a specific problem of a total project.

It should be noted that the hardware developments are dependent on well-written and well-formed software. Software controls hardware, uses it, and forms tan interface between the computer and its user. Nowadays software is becoming more and more user- friendly and easy to use even by non-computer professional users. Some word-programs are becoming more difficult opponents the more they are played. Thus, the term "personal computer" is taking quite a new meaning.

11.Answer the following questions.

• In what part of computer is software often stored?

• What do programs depend on?

• Would you like to become a computer programmer?

• What are the functions of software?

• Do hardware and software work together or independently of each other?

• Why is the term "personal computer" taking a new meaning?

OPTICAL COMPUTING USED FOR COMMUNICATION

1. Essential vocabulary

To add – добавить, прибавить

Net – сеть, сетка

To observe - наблюдать

To pass – проходить, пропускать

Switch – переключатель, тумблер

To switch on/off – включать/выключать

Zero нуль

Zero temperature – температура абсолютного нуля

Point – точка, пункт

Point lamp – точечная лампа

Rest – покой, отдых

Fast – быстрый, быстро

Tiny – крошечный

2. Translate and transcribe the following international words:

Laboratory, laser, packet, photon, quantum.

3. What parts of speech are the words given below?

Addition, unnecessary, impossible, add, additional, switch, restful, traditionally, numberless, observation, observe, passable, historically, pass.

4. Translate the given sentences into Russian.

According to the accepted theory, the velocity of light is absolute that is independent of the velocity of the observer.

According to the definition, wave mechanics is a development of quantum mechanics.

According to the definition, zero point energy is the energy of the atoms of a substance at the absolute zero of temperature.

5. Read and translate the text.

Optical computing used for communication is a method of computing that use photons. Photons are packets of light that process information. According to the definition, a photon is a quantum of electromagnetic radiation, whose main characteristic is that it has a zero rest mass.

Traditional microprocessors include tiny electronic switches, or logic circuits, for processing. Theoretically, an unlimited number of electronic switches can be added to a microprocessor. But it is only theoretically, since practically the number of electronic switches is limited to the millions because of space limitations in wiring.

As to photons, they unlike electrons are able to pass through one another unchanged, which makes wiring unnecessary. Besides, photons travel faster than electrons.

What is the history of designing optical computers? In 1989 a Bell Laboratory team produced a device consisting of lasers, lenses, and mirrors. A few years later a general-purpose device was produced in which data was not stored but circulated as light pulse. Thus, optical computers, thousands of time faster than the most powerful electronic computers, are believed to be constructed. The biggest difficulty in designing them is that of miniaturization.

6. Answer the following questions.

What is the definition of optical computing?

What is the main characteristics of a quantum of electromagnetic radiation?

For what purposes are tiny electronic switches used?

Can an unlimited number of electronic switches be added to a microprocessor?

What elements did the device invented at the Bell Laboratory include?

NETWORK – A NEW ERA IN COMMUNICATION

1. Essential vocabulary

To announce – объявлять, заявлять

To entertain - развлекать

To increase – возрастать, увеличиваться

Increase – рост, увеличение

Increasing productivity – возрастающая производительность

To decrease - уменьшаться

Decreased power – пониженная мощность

To provide – снабжать, обеспечивать

Database – база данных

Available – доступный, имеющийся в наличии

Available means – доступные средства

Certain – некий, определенный

On-line – зависимый, подключенный к

Off-line - независимый

That is why – вот почему

And so on – и так далее.

2. Translate and transcribe the following international words:

Encyclopedia, conference, file, original, portion, site.

3. Translate the following word combinations into Russian.

Military network, certain portions of data, commercial on-line services, the only way to come on-line.

4. Read and translate the text.

Internet is the linking of thousands of educational institutions, businesses, and public organizations with millions of referred to as the in formation superhighway.

What is now known as the Internet was originally formed in 1970 as a military network. A few years later the Internet opened to nonmilitary users. But most popular it became some ten years later when many educational institutions and a lot of businesses around the world came on-line.

When in 1993 Internet connections were first made available to individuals, usage of the network greatly increased. Many million of new users came on-line within a short period. A new era of computer communication was announced to begin. Most networks on the Internet made their files available to other networks. These common files can be databases, programs, or electronic mail from the individuals on the network. Each of thousands of international sites provides thousands of portions of data available to users.

It should be noted that the Internet is not the only way for computer users to communicate with each other. A number of commercial services also provide connections to those who pay for it.

5. Choose and fill in the proper prepositions: without, in, on-, as, through, because of, to, by, for, on, with, according to.

Invention … computers belongs …one … the most important inventions… mankind.

The number … switches to be added … a microprocessor is limited … the space limitations.

… a software a computer does not operate.

The Internet is not the only way … people to communicate … each other.

The term "computer" usually refers … digital computers.

A lot … institutions … different kinds come … line.

The Internet was formed … military network.

Modems transmit data … telephone lines.

The four main parts … computer are connected … bus.

The operation … a computer depends … software.

… … the definition, a photon is a quantum … radiation.

6. Answer the following questions.

- In what spheres of life are computers used nowadays?
- What are the functions of computers and word processors?
- What are the four main parts of a digital computer?
- What is a computer's hardware? Software?
- What specialists are called programmers?
- What can you say about optical computing?
- Why may the Internet be called the information superhighway?
- What do you use a computer for?

INTERNET. ITS ORIGIN

1. Essential vocabulary

Advanced - передовой

To advance – продвигаться вперед, развиваться

Advanced ideas – передовые идеи

Amateur - любительский

Defence - защита

Defence zone – оборонительная полоса

Department – отдел, отделение, ведомство

Fibre – волокно, фибра, нить

Fibre covered cable – кабель с волокнистым покрытием

Research – исследовательская работа

Research Bureau- исследовательское бюро

Web – паутина, сеть

To expand – расширяться, увеличиваться

To originate – давать начало, возникать.

2. Translate and transcribe the following international words:

Agency, idea, museum, optics, program, virtual.

3.Translate the following word combinations: a) into English, b) into Russian.

a) передовая технология, научные исследования, начальное применение, отдел научных исследований;

b) file transfer, Internet services, network games, network and data services, satellite and fiber optics, defense-related research.

4. Make up the sentences of your own using the word combinations from the previous exercise.

5.Read and translate the text

The Internet has its origin in the US Department of Defense program called Advanced Research Projects Agency ю Network. The program was created in order to provide a defense research.

From its creation in 1983 the Internet has been growing into increasingly popular mass media.

Nowadays it connects millions of computers throughout the world. The sphere of its usage has also been extended by the connecting of many other computer networks and the communication services. The original uses of the Internet were electronic mail, file transfer, newsgroups and computer access telnet.

By 1990 the World-Wide Web had also extended greatly and became the most important component of the Internet. Among other means used to provide Internet services there are amateur radio, cable television wires, satellite and fiber optics.

For the time being, the network's utility is extended by the development of networked games and virtual museums. These communication means serve as the methods of testing the limits of the network's technology.

6. Answer the questions.

What means are used to extend the sphere of the Internet activity?

Which component of the Internet is considered to be the main one?

In what way was the Internet used originally?

In what way is the network's utility increased?

7. Retell the text.

8. Learn the following definitions. Translate them into Russian.

INTERNET – is a group of interconnected networks extending throughout the world.

HOST – is the main computer system to which users are connected.

TERMINAL – is the computer whose function is to serve as the connector to the host. The terminal may be a personal computer or a microcomputer.

9. Describe the role of the Internet in your life.

HUGENESS OF THE INTERNET

1. Essential vocabulary

To converse – разговаривать, беседовать

Conversation – разговор, беседа

To make up – составлять, собирать, продавать

To retrieve – восстанавливать, брать обратно

Retrieval – поиск (информации)

Hugeness - огромность

Mainframe – компьютер обычных размеров, центральный блок обработки данных.

2. Translate and transcribe the following international words:

Document, empire, standard, procedure.

3. Put down the Russian equivalents of the following combinations.

Great variety, huge size, standard sets, long distance conversations, considerably more complex mainframes.

4. Read and translate the text.

Today the Internet has become a world-wide network of networks. It interconnects millions of computers that differ in size, from comparatively simple to complex and huge mainframes and supercomputers.

The Internet is being used by people for many different purposes. Among them – to find and retrieve important documents, to carry on long distance conversations and relationships with other users, to connect to supercomputers and numerous other activities.

The Internet is made up of many types of computers and uses a great variety of different operating systems and computers can exchange data by connecting computer networks with a standard set of communication procedures.

5. Answer the following questions.

Does the Internet include local networks?

What do the interconnected mainframes differ in?

What devices is the Internet made up?

In what way do operating systems exchange data?

6. Read the sentence, make up the questions of four types to this sentence.

The Internet interconnects millions of computers.

USENET NEWSGROUPS

1. Essential vocabulary

To chat (with)

To participate

To share

Right

Civil

Civil services

Civil rights

2. Translate and transcribe the following international words:

Author, biology, biologist, culture, debate, profession

3. Choose the proper prepositions and fill them in: from…to, of, in, with

Great numbers … users participate … debating current events.

Usenet service is made up … newsgroups and newsfeeds.

Computers range … size … simple … complex mainframes.

People use the Internet in order to carry on conversations … other users and to share information.

Users' debates range … simple chats … complex research problems.

4. Read and translate the text.

Usenet newsgroups are a place for people to communicate electronically, to share ideas, to send and to receive messages, and simply to chat with each other. Usenet newsgroups are accessible on the Internet. Usenet is practically a network of computers through which millions of users all over the world participate in authoring of reading related newsgroup messages.

Usenet is made up of newsgroups and newsfeeds. Each newsgroup has a name. Each name describes a topic the members of the group discuss. Subjects of discussions are practically unlimited. Among them there are the subjects of computer software and hardware, the subjects of recreational activities and people's hobbies, and discussions about science ranging from elementary to complex research problems, discussions about cultural and political events around the world. There are debates on controversial topics, such as civil rights, workers' strikes and so on.

There are also subjects of professional categories: discussions among biologists, business and commercial topics, newsgroups for students and educators. Each computer user has the right to participate in any of the existing newsgroups.

5. Answer the following questions.
- What parts is Usenet service made up?
- What are the traditional subjects that make up the News service?
- What topics are classified as controversial ones?

6. Read the text. Describe E-mail.

Basic E-mail. Like one sends to and receives from the post office, the electronic mail, or E-mail, makes it possible to exchange messages with other people or services on the Internet. One can communicate with one's friends and colleagues. Besides, E-mail can be used for many other purposes including publishing, transferring documents, getting answers to one's technical problems and taking part in discussions on an unlimited range of topics.

Using E-mail to send a letter includes the following processes: writing one's E-

mail message on a computer, including one's friend's E-mail address and sending one's E-mail message. E-mail letter is moved electronically by the computer throughout the Internet.

7. Choose the proper prepositions and fill them in: over, on, among, in, of, through, about.

One should write one's E-mail message … a computer.

Millions … computers users participate … exchanging messages … Usenet.

People all … the world exchange messages … the Internet.

… the topics being discussed there are discussions … cultural and political events, debates … controversial topics and so on.

ETHERNET

1. Essential vocabulary

Board – коммутатор, правление, совет

Board of experts – совет экспертов

Brand – фабричная марка, сорт, качество

Ether - эфир

Over the ether – по радио

Integrity - целостность

Territorial integrity – территориальная целостность

Integrity of data – единство (целостность) данных

To determine – определять, обуславливать

Determination of cost – определение стоимости

2. Translate the words. Follow the model.

To determine - определять

Determination - определение

Determinable – определяемый;

To consider, consideration, considerable;

To communicate, communication, communicable;

To vary, variant, variable.

3. Find the English equivalents of the following combinations in the text.

В результате, локальная сеть, единая сеть, давно существующий сетевой стандарт, профессиональные контакты (связи), ряд преимуществ, целостность данных, различные типы компьютеров.

4. Determine the tense and the voice of all the verbs used in the text.

5. Read and translate the text.

Connecting to the Internet was considered to be a difficult task some ten years ago. Nowadays this task has become much easier due to the introduction of the Ethernet. As a result, for the time being, the local-area network is most often an Ethernet network.

Ethernet is a long-standing network standard. Now it became possible to connect large numbers of computers into a single network. Many institutions that are connected to the Internet use Ethernet for their internal connections and professional communications. An Ethernet connection is known to have a number of advantages (for example – increased communication speed). The next advantage is integrity of data. During Ethernet operations data loss decreases considerably.

Basic Ethernet connections include the following two components: wiring and protocols. As for the wiring used, it may be thick, thin or T-base. The type of Ethernet wiring choice is of importance since it help ads to determine the type of add-on Ethernet board that is needed for the microcomputer being used.

Network protocols are the software program that makes it possible for the user to communicate with various brands of computers over a local or wide-area network.

6. Answer the following questions.

- What is the main characteristic of the Ethernet?

- For what kind of connections do many institutions use Ethernet?

- What are the two main components of the Ethernet?

- Why is the type of Ethernet wiring so important?

- What do network protocols allow the users to do?

ARCHIE

1. Essential vocabulary

Available

Wealth

Wealth of information

To install

2. Find the English equivalents of the following combinations in the text.

Файлы, доступные широкому кругу пользователей, большое количество (изобилие) информации, трудная задача, необходимая информация, обнаруживать (находить) специфические файлы.

3. Read and translate the text.

Archie is one of the Internet systems. It is widely used since it helps to locate files that are publicly available.

The Internet is known to contain a great wealth of information. Sites throughout the Internet are known to contain over two million files and their number is constantly increasing. Naturally, it became a difficult task to find what one needs. But the task becomes much easier if it is known where the necessary information is located. And to fix it helps Archie. So, what is Archie?

It is an Internet utility designed to help locate specific files and their associated host sites on the Internet.

There exist three main ways to access and use Archie and Archie servers:

1) directly by software installed on PC or on the local computer host;

2) by telnet;

3) by E-mail.

These ways have their specific properties. Each of them is to be used in every particular case.

4. Answer the following questions.

What files does Archie help to locate?

What does software installed on PC serve for?

What is Archie designed for?

COMPUTER PROGRAMMING

1. **Essential vocabulary.**

Equation

List of instructions

To guard

Appropriate sequence

Program logic

Flowchart

Flowcharting

Pictorial representation

Predefined symbols

Specifics

Pseudo code

Burden

Programming rules

To consume

To emphasize

Top-down approach

Looping logic

2. Read and translate the text

Programming is the process of preparing a set of coded instructions which enables the computer to solve specific problems to perform specific functions. The essence of computer programming is the encoding of the program for the computer by means of algorithms. The thing is that any problem is expressed in mathematical terms; it contains formulae, quotations and calculations. But the computer cannot manipulate formulae, equations and calculations. Any problem must be specially processed for the computer to understand it, that is – coded or programmed.

The phase in which the system's computer programs are written is called the development phase. The programs are lists of instructions that will be followed by the control unit of the central processing unit (CPU). The instructions of the program must be complete and in the appropriate sequence. To guard against errors in logic and to do document the program's logical approach, logic plans should be developed.

There are two common techniques for planning the logic of a program. The first technique is flowcharting. A flowchart is a plan in the form of a graphic or pictorial representation that uses predefined symbols to illustrate the program logic. It is, therefore, a "picture" of the logical steps to be performed by the computer. Each of the predefined symbols shapes stands for a general operation. The symbol shapes communicates the nature of the general operation, and the specifics are written within the symbol. A plastic or metal guide called a template is used to make drawing the symbols easier.

The second technique for planning program logic is called pseudo code. Pseudo code is an imitation of actual program instructions. It allows a program-like structure without the burden of programming rules to follow. Pseudo code is less time-consuming for the professional programmer than flowcharting. It also emphasizes a top-down approach to program structure. Pseudo code has three basic structures: sequence, decision, and looping logic. With these three structures, any required logic can be expressed.

3. Answer the following questions.

- What is programming?

- What is the essence of programming?

- What should be done with the problem before processing by the computer?

- What is a program?

- What are instructions?

- What are the main techniques for planning the program logic?

- What is a flowchart?

- What do you understand by "pseudo code"?

4. Find the English equivalents of the following word combinations.

Совокупность закодированных команд, суть компьютерного программирования; кодирование посредством алгоритма, формулы, уравнения, вычисления, обработать особым образом, перечень команд, необходимая последовательность, защищать от ошибок, составлять план логической последовательности, логическая последовательность выполнения программы, построение блок-схемы, заранее заданные символы, псевдопрограмма, без издержек, логическая схема выполнения операций в цикле, необходимая последовательность операций.

5. Choose the appropriate translation of the following terms.

INFORMATION TECHNOLOGY

1.Essential vocabulary

implementation-выполнение, осуществление

disseminate- распространять

encompass-осуществлять, охватывать

capability-способность возможность

comprise- состоять из

reliability and integrity-надежность и целостность

to retrieve- восстанавливать

2. Read the text.

Information Technology is abbreviated as IT and is defined as "The development, installation, and implementation of computer systems and applications". When computer and communications technologies are combined, the result is information technology, or "infotech". Information technology is a general term that describes any technology that helps to produce, manipulate, store, communicate or disseminate information.

Encompassing the computer and information systems industries, information technology is the capability to electronically input, process, store, output, transmit, and receive data and information, including text, graphics, sound, and video, as well as the ability to control machines of all kinds electronically.

Information technology is comprised of computers, networks, satellite communications, robotics, videotext, cable television, electronic mail ("e-mail"), electronic games, and automated office equipment. The information industry consists of all computer, communications, and electronics-related organizations, including hardware, software, and services. In the 1960s and 1970s, the term information technology (IT) was a little known phrase that was used by those who worked in places like banks and hospitals to describe the processes they used to store information. With the *paradigm shift* to computing technology and "paperless" workplaces, information technology has come to be a household phrase.

It defines an industry that uses computers, networking, software programming, and other equipment and processes to store, process, retrieve, transmit, and protect information.

In the early days of computer development, there was no such thing as a *college degree* in IT. Software development and computer programming were best left to the computer scientists and mathematical engineers, due to their complicated nature. As time passed and technology advanced, such as with the *advent* of the personal

computer in the 1980s and its everyday use in the home and the workplace, the world moved into the information age.

Great technological advances have been made since the days when computers were huge pieces of equipment that were stored in big, air conditioned rooms, getting their information from *punch cards.* The information technology industry has turned out to be a huge employer of people worldwide, as the focus shifts in some *nations* from manufacturing to service industries. It is a field where the barrier to entry is generally much lower than that of manufacturing, for example. In the current business environment, being proficient in computers is often a necessity for those who want to compete in the workplace.

In the 21st century , the term information has become very recognizable. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform may include data management, networking, engineering computer hardware, database and software design, as well as the management and administration of entire systems. Information technology is starting to spread farther than the conventional personal computer and network technology, and more into integrations of other technologies such as the use of cell phones, televisions, automobiles, and more, which is increasing the demand for such jobs.

3. Look through the text and formulate the main idea of the text.

There are various ways of finding idea in the text. It is often helpful to look for the main information:

• by following the key words

• by concentrating on international words and familiar words and vocabulary

• by finding the key sentence which often appears at the beginning or at the end of the paragraph

• by using background knowledge of the subject.

4. Concentrate on the international words and words expressions known to you which can be understood without dictionary. These words are:

Information Technology, computer and communications technologies, information systems, electronically, text, graphics, robotics, videotext, banks and hospitals, to protect information, college, mathematical engineers, cards, IT professionals, management and administration, integrations, phones, televisions, automobiles.

5. Read the words and word combinations and guess their meanings from the text. The words in the text are given *in italics.*

Paradigm shift College degree Advent Punch cards Nations

6. Choose the right word or the word combination.

1. When computer and communications technologies ... , the result is information technology, or "infotech".

a) are combined

b) is combined

c) were combined

2. The information ... consists of all computer, communications, and electronics-related organizations, including hardware, software, and services

a) policy

b) industry

c) capability

3. The term information technology was a little known phrase that was used ... those who worked in places like banks and hospitals

a) with

b) for

c) by

4. In the early days of computer development, there was no such ... as a college degree in IT.

a) think

b) things

c) thing

5. ... proficient in computers is often a necessity for those who want to compete in the workplace.

a) beeing

b) being

c) to being

7. Read the text again looking for the answers to the following questions.

a) How can we define information technology?

b) What is information technology comprised of ?

c) Who used the term information technology n the 1960s and 1970s?

d) What duties do IT professionals perform?

e) How have information and computer technology changed the way you study?

8. Read the text about the types of computers.

DO YOU KNOW THE DIFFERENT TYPES OF COMPUTERS?

There are a lot of terms used to describe computers. Most of these words imply the size, expected use or capability of the computer. While the term computer can apply to virtually any device that has a microprocessor in it, most people think of a computer as a device that receives input from the user through a mouse or keyboard, processes it in some fashion and displays the result on a screen.

1 PC

The personal computer (PC) defines a computer designed for general use by a single person. While a Mac is a PC, most people relate the term with systems that run the Windows operating system. PCs were first known as microcomputers because they were a complete computer but built on a smaller scale than the huge systems in use by most businesses.

2 *Desktop*

A PC that is not designed for portability is a desktop computer. The expectation with desktop systems are that you will set the computer up in a permanent location. Most desktops offer more power, storage and versatility for less cost than their portable brethren.

3 *Laptop*

Also called notebooks, laptops are portable computers that integrate the display, keyboard, a pointing device or trackball, processor, memory and hard drive all in a battery- operated package slightly larger than an average hardcover book.

4 *Netbook*

Netbooks are ultra-portable computers that are even smaller than traditional laptops. The extreme cost-effectiveness of netbooks (roughly $300 to $500) means they're cheaper than almost any brand-new laptop you'll find at retail outlets. However, netbooks' internal components are less powerful than those in regular laptops.

5 *PDA*

Personal Digital Assistants (PDAs) are tightly integrated computers that often use flash memory instead of a hard drive for storage. These computers usually do not have keyboards but rely on touchscreen technology for user input. PDAs are typically smaller than a paperback novel, very lightweight with a reasonable battery life. A slightly larger and heavier version of the PDA is the handheld computer.

6 *Workstation*

Another type of computer is a workstation. A workstation is simply a desktop computer that has a more powerful processor, additional memory and enhanced capabilities for performing a special group of task, such as 3D Graphics or game development.

7 *Server*

A computer that has been optimized to provide services to other computers over a network. Servers usually have powerful processors, lots of memory and large hard drives. The next type of computer can fill an entire room.

8 Mainframe

In the early days of computing, mainframes were huge computers that could fill an entire room or even a whole floor! As the size of computers has diminished while the power has increased, the term mainframe has fallen out of use in favor of enterprise server. The term is used particularly in large companies to describe the huge machines processing millions of transactions every day.

9 Supercomputer

This type of computer usually costs hundreds of thousands or even millions of dollars. Although some supercomputers are single computer systems, most are composed of multiple high performance computers working in parallel as a single system. The best known supercomputers are built by Cray Supercomputers.

10 Wearable computers

The latest trend in computing is wearable computers. Essentially, common computer applications (e-mail, database, multimedia, calendar/scheduler) are integrated into watches, cell phones, visors and even clothing.

9. Which type of computer do these descriptions refer to?

1. a computer designed for use by one person at a time

2. a small laptop with less powerful components meant for surfing the web, reading email, and other basic tasks

3. refers to only the most powerful class of computer, typically designed to perform specialized tasks such as weather prediction, governmental financial calculations, or space research

4. a portable computer with a built-in screen, integrated keyboard, and battery power; also called a 'notebook'

5. a handheld computer about the size of wallet used as an organizer, web browser, game machine, mobile phone, or message recorder; also known as a hand-held computer.

10. Make a short summary of the text "Ubiquitous Computing". Do it according to the following format.

1 .The title of text is...

2. The text is devoted to.'

3. It consists of.

4. The first (second, third, forth, etc.) passage deals with.

5. The main idea of the text i s . .

UBIQUITOUS COMPUTING

A popular theme in science fiction stories set in the future is ubiquitous computing. In this future, computers have become so small and pervasive that they are in practically everything. You might have computer sensors in your floor that can monitor your physical health. Computers in your car that can assist you when you drive to work.

It's a vision of the future that is both exhilarating and frightening. On the one hand, computer networks would become so robust that we'd always have a fast, reliable connection to the Internet. You could communicate with anyone you choose no matter where you were with no worries about interruption in service. But on the other hand, it would also become possible for corporations, governments or other organizations to gather information about you and keep tabs on you wherever you go.

We've seen steps toward ubiquitous computing over the last decade. Municipal Wi-Fi projects and 4G technologies like LTE and WiMAX have extended network computing far beyond the world of wired machines. You can purchase a smartphone and access petabytes of information on the World Wide Web in a matter of seconds. Sensors in traffic stoplights and biometric devices can detect our presence. It may not be long before nearly everything we come into contact with has a computer or sensor inside it. We may also see massive transformations in user interface technology. Currently, most computers rely on physical input interfaces like a computer mouse, keyboard, tracking pad or other surface upon which we input commands. There are also computer programs that can recognize your voice or track your eye movements

to execute commands. Computer scientists and neurologists are working on various brain-computer interfaces that will allow people to manipulate computers using only their thoughts. Who knows? The computers of the future may react seamlessly with our desires.

Technological progress isn't necessarily linear or logarithmic. We may experience decades of progress followed by a period in which we make very little headway as we bump up against unforeseen barriers. On the other hand, according to some futurists, there may be no meaningful difference between computers and humans within 100 years. In that world, we'll be transformed into a new species that can improve upon itself at a pace unimaginable to us in our current forms. Whatever the future may hold, it's a safe bet to assume the machines we rely upon will be very different from today's computers

Notes:

ubiquitous – повсеместный, вездесущий

pervasive – adj. проникающий, распространяющийся повсюду; всеобъемлющий,

exhilarating – бодрящий, освежающий, возбуждающий

linear – аналоговая (линейная)

rely upon – полагаться на , надеяться на

11. Questions for group discussion

1. What was the origination of the earliest computing device?

2. How was the meaning of the word "computer" changed with the passing time?

3. How much has information technology changed in just the last 20 years?

4. What way do we use computer today?

5. Why do you think companies moved away from mainframes and minicomputers and more towards laptops, desktop computers and workstations?

STORAGE AND MEMORY

1.Essential vocabulary

storage-накопитель, запоминающее устройство

feed -питание, подача материала

semiconductor-полупроводник

volatile-непостоянный , изменчивый

exception-исключение

plentiful-изобильный

durability-прочность , долговечность

means-способ, средство

2. Using your background knowledge of the subject answer the following questions:

a) What is a computer's memory?

b) How does it work?

c) What are RAM and ROM?

d) What way do RAM and ROM work?

e) What is flash memory?

3. Read the text.

Computer memory needs to be quick. It is constantly feeding the CPU with data to process. Since nobody likes to wait for a computer, high-quality computers will have fast processors and lots of quick memory.

Computers do not normally process all the information they have at once. They also need to save some data for long term use. This is where storage comes in. Think of all the video files, mp3s , photos, documents, etc. on your PC. These files are not always being processed by the CPU, they are mostly just hanging around waiting to be used at some point. Storage does need to be as quick as memory, but there does need to a lot more of it. This is a key difference between memory and storage.

Because memory needs to be much faster than storage, it is rather more expensive than storage per KB. A typical desktop computer today typically has between 512 MB and 8 GB of memory running at speeds of anywhere from 300 MHZ to 1.2 GHZ. Memory is almost always based on semiconductor technology.

Examples of common computer memory include RAM, ROM, and video memory. Memory is typically volatile in nature, meaning that it needs power in order to retain its state. There are exceptions however, such as EPROMs, which can retain their state even when the power is off.

Computer storage is typically cheaper, slower, and more plentiful than computer memory. Storage comes in many different types including magnetic storage, optical storage, and more recently semiconductor storage. Storage is typically non-volatile in nature, meaning that it retains its state even when the power is off. A typical computer today comes with anywhere between 50 GB and 1 TB of computer storage.

The most popular example today of magnetic storage is the hard disk drive. These devices use rotating, magnetically-charged platters to store data. Hard disk drives are popular because they can store a lot of data very reliably with relatively quick access times. Other examples of magnetic storage devices include the tape drive and diskette. Tape drives and diskettes are both good examples of legacy devices. It's unlikely they will even be made much past 2010. Trends in computer storage are always changing. Now it looks as if traditional magnetic hard disk drives might eventually be replaced by SSDs or solid state drives. SSDs have many key advantages over magnetic storage including 1) no moving parts and 2) less power consumption. This makes them very good for laptops where battery life and overall durability can be big issues. If the technology continues to improve, we may even see them in desktop computers as well.

Optical storage is another technology strategy used in computer storage, and is particularly useful for sharing audio, video, and larger programs. Optical storage is worked by a laser burning or reading data off a plastic disc coated with various types of light sensitive material in it. Due to reliability and space limitations, optical storage is seldom used as a primary means of data storage.

3. Work with the partner. Take it in turns to dictate abbreviations and write them down. Can you decode all of them?

CPU, KB, MB , GB, TB , MHZ, GHZ.

4. Match each term with the correct definition.

a) SSD (solid state drive)

b) EPROM (erasable programmable read only memory)

c) RAM (random access memory)

d) hard disk drive

e) floppy disk drive

1. a storage device using rotating magnetic platters to quickly store and retrieve digital data

2. a type of computer memory known for being volatile (temporary) and fast

3. a legacy storage device which can read and write data slowly from a removable magnetic medium (normally 3.5" in diameter and holding 1.44 MB of data)

4. a non-volatile (permanent) memory type that is erasable via ultra-violet light and reprogrammable

5. a newer data storage device meant to replace a traditional hard disk drive; these are characterized by non-moving parts and lower energy consumption.

5. Complete the sentences with the following word combinations.

Tape drive, video memory, optical storage, magnetic drives, semiconductor storage.

1. All computers created today use at least some form of _____ .

2. _____have been around since the 1950's and are typically used to store large amounts of data.

3. Modern games such as Quake IV load textures which can fill 512 megabytes of dedicated _____.

4. The system administrator used to do a_____ backup every week. Now he uses a DVD-R backup because it is cheaper and more reliable.

5. _____ is a good choice for distributing software packages because it has a good mix of storage size, portability, and a low cost to manufacture.

6. Answer the questions.

1. What are the major differences between memory and storage?

2. How much memory does your computer have?

3. How much storage does your computer have?

4. Do you think semi-conductor storage will ever completely replace magnetic storage? When and why?

In information technology, a backup or the process of backing up is making copies of data which may be used to restore the original after a data loss event.

7. Read quickly the text below, then match each paragraph (I-V) with the appropriate title (A-E).

A. *What are the Advantages of Online Data Backup ?*

B. *No Need to Find a Disk Again With Online Storage*

C. *What is Online Backup?*

D. *So How Do You Get an Internet Backup Drive?*

E. *Various Types of Online Data Backup*

I. Making data backups is an important aspect of using the computer, and online backup is an innovative method of doing so these days. Traditionally, physical media like ZIP disks, CD-ROMs, or floppy disks were used. However, these days you can backup your data via the Internet, making data storage on disks practically obsolete. This is an extremely powerful and exciting type of backup, making the backup process much smoother and easier.

Online data backup is arguably one of the most convenient methods of data storage. Losing files is a common occurrence that happens to everybody some time or the other, hence neglecting backing up your files can lead to disastrous consequences. There are many ways in which files can be lost, many of which are not within your control. Some of the most common ways of losing data are: mechanical failure; human error; software failure; computer viruses; natural disaster.

II. By backing up your files on the Internet, you don't have to bother about locating a disk that has your data on it ever again. You can access your data whenever you want to on the Internet. Plus, your data can be accessed by you from anywhere in the world, as long as there is Internet connectivity.

When you have an online backup of your data, it basically means that you are storing them on a server online that is separate from your computer. Essentially, it works like an Internet drive, which can always be accessed via the Internet. All that needs to be done is to type in the Internet address where your online drive is located, use your username and password to log in, and you have access to all the data you backed up on the online storage space that was created for on the Internet.

Since it is the Internet, the backup storage possibilities are practically unlimited. Whereas physical storage media like CD-ROMs or floppy disks are fairly limited in their storage capacity, an online backup storage drive, also known as Internet backup drive, can hold almost unlimited amounts of data, since it can be powered by several servers, each in turn with the capacity to hold enormous amounts of data. Hence, this can be an ideal resource for you if you have large amounts of data that you need to backup.

III. There are several Internet backup service providers available on the net, which are quite easy to find. Just key in the terms 'Internet Backup' into a search engine online, and you will get a plethora of results.

Once you find a company that you think serves your online data backup needs, all you need to do is register on their website and either choose or be given a username as well as a password. After which, you can log onto their website from wherever you may be in order to access all your online backup files. As is evident, this form of backup is very powerful indeed.

IV. Essentially, there are two types of online data backup. The first type involves downloading software that the online backup service provider provides, which has to be installed into your computer. Once this is done, you connect to the server of the online backup service provider, choose whatever files you need to backup, and transfer them to that server. After that, if you should ever lose your files or data, you can simply restore them from the backup stored on that server.

If you should lose your internet connection or if you have huge numbers of files which would take a large amount of time to backup, you will be sent your backups on your choice of media by some online storage companies.

The second option is to choose a web-based online data backup service. This can be done from any browser window you use, which gives you the ability of accessing all your stored data from any PC with an internet connection. In general, web-based online data backup systems do not have the data storage capacity as the first option, however, file sharing is much easier on them and they are certainly more user-friendly.

V. Compared to other options, online storage systems cost less to set up and run.

- You do not need to buy, maintain, or repair any hardware, plus, there is no need to manage any consumable media.
- You can make the process of online data backups fully automatic, which saves you time wherein you can do more productive work.
- All you need to do is turn it on; hence, it is very easy to manage.
- No requirement of having to arrange for the storage of media, either offsite or onsite.
- No need to worry about media becoming obsolete or degrading.
- There are online data backup systems that offer certain features that media based backups do not, like remote data access and synchronization.
- Before your backup files are sent they are encrypted by your PC, and stored in that format, which ensures the security of all your data.
- You can access all your backup data at any time from anywhere in the world.

8. Now look back in the text and find words that have an opposite meaning to:
a) modern
b) weak
c) inconvenient
d) offline
e) little

9. Complete the sentences according to the information in the text.
1 .You can back up your data via ... .

2. Online data backup is arguably one of the most. .

3. Use your username and password to ... .

4. An online backup storage drive, also known as ... .

5. There are two types of online data. .

6. You can access all your backup data at any . .

10. Read the text about BIOS. Choose a, b, or c.

WHAT BIOS DOES?

1. What is BIOS' most important role?

a) loading the operating system

b) initiating the microprocessor

c) running applications

2. BIOS is a type of:

a) hardware

b) software

c) operating system

3. Where is the BIOS usually stored?

a) on a hard disk

b) on a Flash memory chip

c) in a device driver

4. Small pieces of software that act as translators between the hardware components and the operating system are called:

a) device drivers

b) interrupt handlers

c) peripheral component interconnects

5. How many bytes of RAM are located on the complementary metal oxide semiconductor (CMOS) chip?

a) 34

b) 64

c) 124

6. *Incorrect settings in the CMOS setup may prevent you from doing what?*

a) accessing your e-mail

b) logging on to the Internet

c) booting up your computer

7. *Which of the following is not one of the common options included in the CMOS setup?*

a) *system time and date*

b) Internet provider

c) Security

8. *Pieces of software that identify the base hardware components are called:*

a) *interrupt handlers*

b) device drivers

c) drive chips

9. *What helps BIOS to run faster?*

a) buying an older computer

b) getting rid of RAM

c) copying it into RAM

10. *What do most computers use as their central processing unit?*

a) microprocessors

b) parallel ports

c) BIOS chips

BIOS is an acronym for Basic Input / Output System. It is the first part of the computer to boot, and usually decides from where to boot the operating system. The BIOS software has a number of different roles, but its most important role is to load the operating system.

When you turn on your computer and the microprocessor tries to execute its first instruction, it has to get that instruction from somewhere. It cannot get it from the operating system because the operating system is located on a hard disk, and the

microprocessor cannot get to it without some instructions that tell it how. The BIOS provides those instructions. Some of the other common tasks that the BIOS performs include: – A power-on self-test (POST) for all of the different hardware components in the system to make sure everything is working properly.

—Activating other BIOS chips on different cards installed in the computer - For example, SCSI and graphics cards often have their own BIOS chips.

—Providing a set of low-level routines that the operating system uses to interface to different hardware devices - It is these routines that give the BIOS its name. They manage things like the keyboard, the screen, and the serial and parallel ports, especially when the computer is booting.

—Managing a collection of settings for the hard disks, clock, etc.

The BIOS is special software that interfaces the major hardware components of your computer with the operating system. It is usually stored on a Flash memory chip on the motherboard, but sometimes the chip is another type of ROM.

When you turn on your computer, the BIOS does several things. This is its usual sequence:

•Check the CMOS Setup for custom settings

•Load the interrupt handlers and device drivers

•Initialize registers and power management

•Perform the power-on self-test (POST)

•Display system settings

•Determine which devices are bootable

•Initiate the bootstrap sequence

The first thing the BIOS does is checking the information stored in a tiny (64 bytes) amount of RAM located on a complementary metal oxide semiconductor (CMOS) chip. The CMOS Setup provides detailed information particular to your system and can be altered as your system changes. The BIOS uses this information to modify its default programming as needed.

Interrupt handlers are small pieces of software that act as translators between the hardware components and the operating system. For example, when you press a key

on your keyboard, the signal is sent to the keyboard interrupt handler, which tells the CPU what it is and passes it on to the operating system. The device drivers are other pieces of software that identify the base hardware components such as keyboard, mouse, hard drive and floppy drive. Since the BIOS is constantly intercepting signals to and from the hardware, it is usually copied, or shadowed, into RAM to run faster.

11.Questions for group discussion

1. Which devices or format would be most suitable for storing programs, the files, movies, the music tracks, the photos?
2. Why does a computer need so many memory systems?
3. What is one of the most convenient methods of data storage?
4. What are the advantages of online data backup?
5. What is BIOS' most important role?

INPUT DEVICES

1. Essential vocabulary

Input devices- внутренние устройства

binary - двоичный

tiny-крошечный

evolve-развить

the late 20th century- в конце 20 века

precision-точность, аккуратность

augment- увеличивать

handicapped computer users- пользователи-инвалиды

a wide array- широкий спектр

stores and warehouses- магазины и склады

cashier- касса

implement- вводить в действие

retina — сетчатка

2. What devices are the pieces of hardware which allow you to enter information into your computer?

3. Read the text and mark the sentences T (true), F (false) or DS (doesn't say).

1. We use the input devices to enter drawings, images and sketches into a computer.
2. The first input device was the simple electronic switch which turned bits on or off.
3. There were a lot of switches on large computers.
4. Tiny switches are used on motherboards to change memory speed.
5. Computers evolved throughout the early 20th century.
6. Touch screens are replacing keypads on mobile.
7. Many graphic artists prefer to use a mouse rather than a stylus and graphics tablet.
8. Barcode readers are used to enter stock and sell items at the cashier.
9. You can also interact with your computer with a voice-recognition system.
10. An optical mouse has an optical sensor.

We use input devices every time we use a computer. Without them, the computer would not know what we want it to do. Some of the things we do with input devices are: move a cursor around the screen, enter alphanumeric text, draw pictures, and even enter binary data in the form of graphics or audio wave forms.

Input devices have a history as long as computers themselves. Perhaps the first input device was the simple electronic switch (similar to a light switch) which turned bits on or off. There were hundreds or even thousands of these switches on large computers. It used to take a team of programmers hours or even days to set up a computer to perform a single calculation.

Switches and jumpers are still used today on computers. For instance the power button on the computer is a switch which is also an input device telling the computer to power on or power off. Tiny switches called jumpers are also widely used on motherboards to change important settings such as processor clock speed or memory speed.

As computers evolved throughout the late 20th century , computers became more and more interactive. Input devices came and went. Some lasted and some did

not. The light pen and the joystick are almost unknown today, although they were popular before the mouse and the gamepad became well-known. Touch screens are already replacing keypads on mobile phones and may come to replace or augment keyboards and mice on PCs and laptops in the near future.

Different people prefer different input devices for doing same task. For instance, many graphic artists prefer to use a stylus and graphics tablet rather than a mouse. It might offer them a greater deal of artistic freedom, or precision while performing their work.

Handicapped computer users have invented a wide array of input devices designed to replace the mouse including devices controlled by foot or even eye movement.

Not only PCs and mainframes use input devices. Almost all computers feature some kind of input device. Special scanners are used in many stores and warehouses called barcode readers to enter stock and sell items at the cashier. These are input devices as well. Even microphones can technically be called input devices as a computer can respond to them and interpret them as incoming data.

Corporations and especially government institutions are already implementing the second generation of input devices to improve security. These include retina scanners or fingerprint readers to replace or improve accuracy of username and password authentication.

4. Name the following input devices.

1. A handheld input device for computers with one or more buttons and a rounded body meant to be slid around on a pad or flat surface.

2. An input device with a vertical rod mounted on a base used to control pointing devices or on-screen objects; normally with one or more buttons.

3. An input device consisting of a sensitive rectangular area in which one uses a finger to move a cursor on a display.

4. A pointing device consisting of a ball on top of a base that is rotated to move a cursor on the computer screen.

5. A display that also acts as an input device by allowing a user to navigate a program by touching specific locations of the screen.

6. A hardware peripheral designed to 'scan' products into an inventory tracking system.

7. An input device or mouse alternative using a sensitive rectangular surface and a stylus.

8. A hardware device plugged into a computer's sound card optimized for voice commands or other audio recording.

5. Complete each sentences by choosing from the following devices:

touch screen, trackball, touchpad, stylus.

1. Most information kiosks in airports make use of _____ instead of keyboards or mice.

2. The handicapped person used a _____instead of a mouse to move the cursor.

3. Laptops commonly include a built-in_____ in addition to supporting a mouse.

4. The man lost his_____and thus could no longer enter text on his PDA until he replaced it."

6. Read the text about wireless mouse and keyboards and give us more information about using them.

The word wireless has become a very important part of our lives. Wireless technology surrounds us and helps us to accomplish many things that were not possible before. Wireless allows for things such as mobile phones, internet signals to be sent over the air and other things like digital TV. Wireless technology helps people to accomplish tasks that were never possible in certain locations before. There are many ways that wireless can help us to be more productive and one of the technologies is wireless mice and keyboards.

Wireless keyboards and mice have become more and more popular over the last few years and are becoming more and more versatile. They offer many benefits to users that are almost all concerned with mobility and flexibility. The modern family

is increasingly mobile and needs to be doing something constantly to feel productive. Many families have computers that are found in main living areas of homes and offer access to all members. Wireless technology allows family members to use the computer without needing to be strapped to a desk at all times. This is also convenient in an office setting where multi-tasking is done. You can roll over to your filing cabinet to find a file while you are on the phone with someone on your Bluetooth phone while taking notes on your conversation by using your wireless keyboard.

Some people don't have much space to store a computer and need to have components separated from each other. Sometimes it is necessary to have a computer tower far away from the monitor because of a small desk or some other reason. A mouse and keyboard normally have to be connected directly to the tower to be used. This configuration makes it more difficult but can be overcome through the use of a wireless mouse and keyboard. Most wireless keyboards are linked to the computer through a small USB plug that has to be put on the computer somewhere.

Many people are now using systems that are more integrated than before and offer features such as using a high definition TV as a monitor. Wireless makes this more convenient and allows people to enjoy their computer in more places throughout the house. Some people even have wireless computer servers that can be used in multiple places in the home connected to various monitors and using a wireless keyboard and mouse. The same wireless technology also allows for more multitasking while at home as well. You could be in the kitchen cooking and watching a movie on the computer while typing an email to a friend or chatting online. Wireless keyboards and mice allow people to feel productive more and more often than ever before.

Another important use of wireless mice is in conjunction with laptop computers. Some people don't like the small and often awkward touch pad mouse that controls many laptops and would prefer to use a mouse that offers them more flexibility. This is exactly what wireless mice offer to laptop users. They are also very compact and are lightweight and easy to just slip in the case with the laptop computer.

Wireless keyboards and mice are also convenient because they can be used on almost any surface. It used to be necessary to have a mouse pad and some type of place to rest your wrists while typing, but this is no longer necessary with wireless ones, which are almost always infrared rather than roller ball driven. The most obvious and important convenience and benefit of wireless is the flexibility of options presented to users while using them.

7. Find synonyms to the underlined words in the dictionary.

1. Wireless technology helps us *to accomplish* many things that were not possible before.

2. Wireless keyboards and mice are becoming more and more *versatile.*

3. The same wireless technology also allows for more multitasking while at home as well.

4. Wireless keyboards and mice allow people to feel *productive* more and more often than ever before.

5. The most obvious and important convenience and benefit of wireless is the flexibility of options.

8. Make a list of the wireless mouse and keyboard benefits mentioned in the text.

9. What are the real-life uses of a BCI? Read on to find out the possibilities.

BCI INPUT AND OUTPUT

One of the biggest challenges facing brain-computer interface researchers today is the basic mechanics of the interface itself. The easiest and least invasive method is a set of electrodes - a device known as an electroencephalograph (EEG) - attached to the scalp. The electrodes can read brain signals. However, the skull blocks a lot of the electrical signal, and it distorts what does get through.

To get a higher-resolution signal, scientists can implant electrodes directly into the gray matter of the brain itself, or on the surface of the brain, beneath the skull. This allows for much more direct reception of electric signals and allows electrode

placement in the specific area of the brain where the appropriate signals are generated. This approach has many problems, however. It requires invasive surgery to implant the electrodes, and devices left in the brain long-term tend to cause the formation of scar tissue in the gray matter. This scar tissue ultimately blocks signals.

Regardless of the location of the electrodes, the basic mechanism is the same: The electrodes measure minute differences in the voltage between neurons. The signal is then amplified and filtered. In current BCI systems, it is then interpreted by a computer program, although you might be familiar with older analogue encephalographs, which displayed the signals via pens that automatically wrote out the patterns on a continuous sheet of paper.

In the case of a sensory input BCI, the function happens in reverse. A computer converts a signal, such as one from a video camera, into the voltages necessary to trigger neurons. The signals are sent to an implant in the proper area of the brain, and if everything works correctly, the neurons fire and the subject receives a visual image corresponding to what the camera sees.

Another way to measure brain activity is with a Magnetic Resonance Image (MRI). An MRI machine is a massive, complicated device. It produces very high-resolution images of brain activity, but it can't be used as part of a permanent or semipermanent BCI. Researchers use it to get benchmarks for certain brain functions or to map where in the brain electrodes should be placed to measure a specific function. For example, if researchers are attempting to implant electrodes that will allow someone to control a robotic arm with their thoughts, they might first put the subject into an MRI and ask him or her to think about moving their actual arm. The MRI will show which area of the brain is active during arm movement, giving them a clearer target for electrode placement.

Notes:

attached – нацепленный , закрепленный ,присоединенный

skull – череп

surgery – хирургическое вмешательство

scar tissue – рубцовая ткань

corresponding – соответственный, соответствующий

10. The following extracts come from sales assistants in computer shops describing the features and functions of various input devices. Complete the sentences using the words from the box and then choose which device they're talking about from.

to can which allows used by features works for

1. This model _____ a backlight, so you can see what you're typing in the dark.

game controller

scanner

keyboard

2. We have a Bluetooth version which_____ without wires, but the surface

you use it on needs to be dark.

mouse

microphone

game

controller

3. Why don't you try this? It's _____drawing, as if you were using a pen and paper.

keyboard

graphics

tablet

scanner

4. You'll need one of these - it's _____ to control your movements while you play.

microphone

game

controller

graphics

tablet

5. For more precision, I'd recommend this. It's like an upside-down mouse, and it works_____ running your hand over the plastic ball here.

trackball light

pen game

controller

6. This works just like a mouse, except you _____ write directly onto the screen with it.

scanner

keyboard light

pen

7. This is a model _____ works particularly well with Skype.

microphone

mouse

game controller

11. Questions for group discussion

1. The most typical input devices for a desktop computer are the keyboard and mouse. How did people use computers before these devices were invented?

2. Which is your favorite input device? Why?

3. Do you think an operating system controlled by speech recognition is possible today? Is it practical? Why or why not?

4. Our future is completely depending on wireless technology devices because it has already become a part of our daily life.

OPERATIHG SYSTEM

1. Essential vocabulary

multitasking-многозадачный

low-level- низкий уровень

to log on -регистрироваться

log off- выход из системы (сети)

compression- сжатие, уплотнение

to launch applications- запускать прикладные программы

kernel-ядро

booting- (начальная) загрузка

diehard - догматик

geek- человек увлечённый компьютерными технологиями

market share-рыночная доля

totally -нареч. полностью, совершенно, безусловно

by default - назначение по умолчанию

2. Read the following text and complete the blanks with the words which seem most appropriate to you:

Drivers, devices, files, applications, username and password, system,

An operating system is a generic term for the multitasking software layer that lets you perform a wide array of 'lower level tasks' with your computer. By low-level tasks we mean:

•the ability to log on with a _____

•log off the _____ and switch users

•format storage _____ and set default levels of file compression

•install and upgrade device _____ for new hardware

•install and launch_____ such as word processors, games, etc.

•set file permissions and hidden _____

•terminate misbehaving applications

A computer would be fairly useless without an OS, so today almost all computers come with an OS pre-installed. Before 1960, every computer model would normally have its own OS custom programmed for the specific architecture of the machine's components. Now it is common for an OS to run on many different hardware configurations.

At the heart of an OS is the kernel, which is the lowest level, or core, of the

operating system. The kernel is responsible for all the most basic tasks of an OS such as controlling the file systems and device drivers. The only lower-level software than the kernel would be the BIOS, which isn't really a part of the operating system.

The most popular OS today is Microsoft Windows, which has about 85% of the market share for PCs and about 30% of the market share for servers. But there are different types of Windows OSs as well. Some common ones still in use are Windows 98, Windows 2000, Windows XP, Windows Vista, and Windows Server. Each Windows OS is optimized for different users, hardware configurations and tasks. For instance Windows 98 would still run on a brand new PC you might buy today, but it's unlikely Vista would run on PC hardware originally designed to run Windows 98.

There are many more operating systems out there besides the various versions of Windows, and each one is optimized to perform some tasks better than others. Free BSD, Solaris, Linux and Mac OS X are some good examples of non-Windows operating systems.

Geeks often install and run more than one OS on a single computer. This is possible with dual-booting or by using a virtual machine. Why? The reasons for this are varied and may include preferring one OS for programming, and another OS for music production, gaming, or accounting work.

An OS must have at least one kind of user interface. Today there are two major kinds of user interfaces in use, the command line interface (CLI) and the graphical user interface (GUI). Typically speaking, GUIs are intended for general use and CLIs are intended for use by computer engineers and system administrators. Although some engineers only use GUIs and some diehard geeks still use a CLI even to type an email or a letter.

Examples of popular operating systems with GUI interfaces include Windows and Mac OS X. Unix systems have two popular GUIs as well, known as KDE and Gnome, which run on top of X-Windows. All three of the above mentioned operating systems also have built-in CLI interfaces as well for power users and software engineers. The CLI in Windows is known as MS-DOS. The CLI in Max OS X is

known as the Terminal. There are many CLIs for Unix and Linux operating systems, but the most popular one is called Bash.

In recent years, more and more features are being included in the basic GUI OS install, including notepads, sound recorders, and even web browsers and games. A great example of an up and coming OS is Ubuntu. Ubuntu is a Linux operating system which is totally free, and ships with nearly every application you will ever need already installed. Even a professional quality office suite is included by default. What's more, thousands of free, ready-to-use applications can be downloaded and installed with a few clicks of the mouse. This is a revolutionary feature in an OS and can save lots of time, not to mention hundreds or even thousands of dollars on a single PC. Not surprisingly, Ubuntu's OS market share is growing very quickly around the world.

3. Find the terms to these definitions from the text.

1. to enter information related to an account name and its password in order to access a computer resource
2. to terminate a connection to a computer or network
3. to copy and configure a piece of software on a computer
4. to properly and completely remove a program from the computer

4. Complete the sentences with the words from the box.

Password   username   hidden file
Boot   filename   terminate

1. One must _____ a computer before using it.

2. The network administrator made users change their _____ every three months to help keep the system secure.

3. The teacher gave every student a unique _____and password to access the computer.

4. The man did not know he could not use spaces when creating a _____ in Unix.

5. The administrator was upset when the end user found a way to display and then delete several   .

6. The system administrator need to manually _____ a process before he could reboot the system.

5. Find grammar mistakes in these sentences and correct them.

1. A computer would be fairly useless without an OS, so today almost all computers came with an OS pre-installed.

2. The kernel is responsible with all the most basic tasks of an OS such as controlling the file systems and device drivers.

3. But there is different types of Windows OSs as well.

4. Each Windows OS optimize for different users, hardware configurations, and tasks.

5. Although some engineers only use GUIs and some diehard geeks still use a CLI even type an email or a letter.

6. Read the text again looking for the answers to the following questions.

1. Which operating system do you use? Why?

2. What does "multitasking " mean?

3. What are low-level tasks ?

4. What is the kernel responsible for?

5. Why do you think experts like system administrators and developers still use CLI interfaces over GUI interfaces?

7.Question for group discussion

1. What is the operating system of a computer?

2. What are the basic functions of an operating system?

3. Which operating system do you think will be the most popular in 10 years? Why?

4. The interface of the operating system exists because there are many ways to manage multiple tasks simultaneously.

PROGRAMMING LANGUAGE

1. Essential vocabulary

trait - характерная черта, особенность

behaviour - поведение, режим

construct - логическая структура, структурный компонент

template - образец, шаблон

ambiguous - неопределенный, неоднозначный

from scratch - с нуля

to embed - вводить, внедрять

host language - базисный, базовый язык

2. Decide if the following words collocate with *code* or *language*.

1 low-level

2 machine

3 object

4 high-level

5 programming co

6 markup co

7 source co

8 assembly co

3. Match the terms with their definitions.

a) low-level language;

b) machine code;

c) markup language;

d) assembly language;

e) programming language;

f) high-level language;

g) source code;

h) object code;

1 : general term for a formal language used to write instructions that can be translated into machine language and then executed by a computer.

2 : a set of instructions that a computer can-understand; directly; it is expressed in binary code and is very difficult to write .

3 : a type of low-level language that uses abbreviations such as ADD, SUB and MPY to represent instructions; then translated into machine code using an assembler.

4 : a language such as an assembly language, which does not need a compiler or interpreter.

5 : developed to make programs easier to write ; for example, FORTRAN, BASIC, C and Java.

6 : the original work of a programmer, which must be translated by a compiler.

7 : instructions that a compiler generates from source code written in a higher-level language, for example C++.

8 : a language for creating web documents.

4. Find the main idea, major details, and minor details by completing the block diagram after reading the following text.

A programming language is an artificial language that can be used to control the behaviour of a machine, *particularly* a computer. Programming languages, like human languages, are defined through the use of syntactic and semantic rules, to determine structure and meaning respectively.

Programming languages are used to facilitate communication about the task of organizing and manipulating information, and to express algorithms *precisely.* Thousands of different programming languages have been created, and new ones are created every year.

There is no precise definition, but traits often consider important requirements and objectives of the language to be characterized as a *programming language.* Let's speak about their function, target, construct and expressive power.

Function: A programming language is a language used to write computer programs, which instruct a computer to perform some kind of computation, and/or organize the flow of control between external devices (such as a printer, a robot, or any peripheral).

Target: Programming languages differ from natural languages in that natural languages are only used for interaction between people, while programming languages also allow humans to communicate instructions to machines. In some cases, programming languages are used by one program or machine to program another; PostScript source code, for example, is frequently generated programmatically to control a computer printer or display.

Constructs: Programming languages may contain constructs for defining and manipulating data structures or for controlling the flow of execution.

Expressive power: The theory of computation classifies languages by the computations they can express. All Turing complete languages can implement the same set of algorithms. ANSI/ISO SQL and Charity are examples of languages that are not Turing complete yet often called programming languages.

Non-computational languages, such as *markup* languages like HTML or formal grammars like BNF, are usually not considered programming languages. It is a usual approach to embed a programming language into the non-computational *(host)* language, to express templates for the host language.

What is the purpose of programming languages? A prominent purpose of programming languages is to provide instructions to a computer. As such, programming languages differ from most other forms of human expression in that they require a greater degree of precision and completeness. When using a natural language to communicate with other people, human authors and speakers can be *ambiguous* and make small errors, and still expect their intent to be understood. However, computers do exactly what they are told to do, and cannot understand the code the programmer "intended" to write. The combination of the language definition, the program, and the program's inputs must fully specify the external behavior that occurs when the program is executed.

All the programming languages can be divided into high-level languages and machine-level languages. High-level languages such as BASIC or FORTRAN are machine independent because any program written in this language can easily be executed by different computer system, they are easy to learn and produce fast

results. On the other hand, machine-level languages such as assembly languages require that computer and peripheral devices should correspond. That is why machine-level languages are machine-dependent languages. But system programmers use machine-level languages for writing programs that must be as fast and efficient as possible.

5. Language work. Try to guess the meaning of the following words from the text. The words in the text are given *in italics.*

Particularly

Host

Markup

Intended

Ambiguous

Precisely

6. Are the following statements true or false? Correct the false ones with the right information and discuss your answers with a partner.

1. A programming language is a special program that helps the computer to facilitate the communication with peripheral devices.

2 .Human languages have something in common with programming languages: they have the same rules to determine structure and meaning.

3. Many years ago, at the dawn of computer era, there appeared programming languages which are widely used today.

4 .Sometimes programming languages are used to program another machine.

5. The programming languages are classified into different grades according to the theory of computation.

6. Markup languages like HTML or formal grammars like BNF are usually considered programming languages.

7. Programming languages unlike any type of human expression require much precision and completeness.

8. There is an opinion that modern computers are so much sophisticated and they can understand the code the programmer "intended" to write. Do you agree?

7 . Read the passages and then answer the questions that follow the text.

Top 10 Most Popular Programming Languages

1. Java

　　Java uses a compiler, and is an object-oriented language released in 1995 by Sun Microsystems. Java is the number one programming language today for many reasons. First, it is a well-organized language with a strong library of reusable software components. Second, programs written in Java can run on many different computer architectures and operating systems because of the use of the JVM (Java virtual machine). Sometimes this is referred to as code portability or even WORA (write once, run anywhere). Third, Java is the language most likely to be taught in university computer science classes. A lot of computer science theory books written in the past decade use Java in the code examples.

　　Java Strengths: WORA, popularity

　　Java Weaknesses: Slower than natively compiled languages

2. C

　　C is a compiled, procedural language developed in 1972 by Dennis Ritchie for use in the UNIX operating system. Although designed to be portable in nature, C programs must be specifically compiled for computers with different architectures and operating systems. This helps make them lightning fast. Although C is a relatively old language, it is still widely used for system programming, writing other programming languages, and in embedded systems.

　　Strengths: Speed

　　Weaknesses: Memory management can be difficult to master

3. C++

　　C++ is a compiled, multi-paradigm language written as an update to C in 1979 by Bjarne Stroustrup. It attempts to be backwards-compatible with C and brings object-orientation, which helps in larger projects. Despite it's age, C++ is used to create a wide array of applications from games to office suites.

　　Strengths: Speed

Weaknesses: C++ is older and considered more clumsy than newer object-oriented languages such as Java or C#.

4. PHP

PHP uses a run-time interpreter, and is a multi-paradigm language originally developed in 1996 by Rasmus Lerdorf to create dynamic web pages. At first it was not even a real programming language, but over time it eventually grew into a fully featured object-oriented programming language. Although PHP has been much criticized in the past for being a bit sloppy and insecure, it's been pretty good since version 5 came out in 2004. It's hard to argue with success. Today, PHP is the most popular language used to write web applications.

Strengths: Web programming, good documentation

Weaknesses: Inconsistent syntax, too many ways to do the same thing, a history of bizarre security decisions

5. VB (or Visual Basic)

Visual Basic is an interpreted, multi-paradigm language developed by Microsoft Corporation for the Windows platform. It has been evolving over the years and is seen as a direct descendant of Microsoft's old BASIC from the 1970's. Visual Basic is a good language for scripting Windows applications that do not need the power and speed of C#.

Strengths: None.

Weaknesses: Only runs in Windows

6. Python

Python is an interpreted, multi-paradigm programming language written by Guido van Rossum in the late 1980's and intended for general programming purposes. Python was not named after the snake but actually after the Monty Python comedy group. Python is characterized by its use of indentation for readability, and its encouragement for elegant code by making developers do similar things in similar ways. Python is used as the main programming choice of both Google and Ubuntu. *Strengths*: Excellent readability and overall philosophy *Weaknesses:* None *7 C#*

C# is a compiled, object-oriented language written by Microsoft. It is an open specification, but rarely seen on any non-Windows platform. C# was

conceived as Microsoft's premium language in its .NET Framework. It is very similar to Java in both syntax and nature.

Strengths: Powerful and pretty fast

Weaknesses: Only really suitable for Windows

8. JavaScript

JavaScript is an interpreted, multi-paradigm language. A very strange one too. Despite it's name, it has nothing whatsoever to do with Java. You will rarely, if ever, see this language outside of a web browser. It is basically a language meant to script behaviors in web browsers and used for things such as web form validation and AJAX style web applications. The trend in the future seems to be building more and more complex applications in JavaScript, even simple online games and office suites. The success of this trend will depend upon advancements in the speed of a browser's JavaScript interpreter. If you want to be correct, the real name of this programming language is ECMAscript, although almost nobody actually calls it this.

Strengths: it's the only reliable way to do client-side web programming

Weaknesses: it's only really useful in a web browser

9. Perl

Perl is an interpreted, multi-paradigm language written by Larry Wall in 1986. It is characterized by a somewhat disorganized and scary-looking syntax which only makes sense to other PERL programmers ;) However, a lot of veteran programmers love it and use if every day as their primary language. 10 years ago, Perl was more popular than it is today. What happened? A lot of newer programmers and even old Perl programmers (such as myself) have switched to other languages such as PHP, Python, and Ruby. Perl is perhaps still the best language for text processing and system administration scripting.

Strengths: text processing and system administration

Weaknesses: strange syntax, and perhaps too many ways to do the same thing

10. Ruby

Ruby is an interpreted, object-oriented language written by Yukihiro Matsumoto

around 1995. It is one of the most object-oriented languages in the world. Everything is an object in Ruby, even letters and numbers can have method calls. It's a great language to learn if you love objects. The only negative is that it's love of object-orientation makes it a bit slow, even for an interpreted language.

Strengths: Perhaps the world's most object-oriented language *Weaknesses:* its superior object model comes at a price... namely speed.

8. Answer the following questions.

1. Which programming languages do you already know? Which ones do you want to learn? Why?

2. Which language do you think is best for making banking software? Web pages? Games ? Text processing? Computer languages such as FORTRAN and COBOL were once very popular, but not so much anymore. Why do you think they lost popularity?

3. Which languages in the top 10 do you think will drop in 10 years? Which one will gain in popularity?

9. Read and translate the text. Use dictionary. Choose the right meaning and open brackets. Title the text.

Many languages have been designed *(from scratch/ from the beginning),* altered to meet new needs, combined with other languages, and eventually fallen into disuse. Although there have been attempts to design one *(universal/wide-spread)* computer language that serves all purposes, all of them have failed to be accepted in this role. The need for (*different /diverse*) computer languages arises from the diversity of contexts in which languages are used:

One common *(direction/ trend)* in the development of programming languages has been to add more ability to solve problems using a higher level of abstraction. The earliest programming languages were *(fastened/ tied)* very closely to the underlying hardware of the computer. As new programming languages have developed, features have been added that let programmers express (*ideas/thoughts*)

that are more removed from simple translation into underlying hardware instructions. Because programmers are less tied to the needs of the computer, their programs can do more computing with less *(effort/attempt)* from the programmer. This lets them write more programs in the same *(quantity/amount)* of time.

Natural language processors have been *(proposed/nominated)* as a way to eliminate the need for a specialized language for programming. However, this *(goal/intention)* remains distant and its benefits are open to debate.

10.Questions for group discussion

1. What programming languages are used most on Web 2.0 sites?

2. What languages are in development, and which are being phased out?

3. How C Programming language is similar to English language?

4. Which software programming language should a beginner start with for web development?

5. What is your favorite computer programming language?

6. How can we explain the difference between the natural languages and programming languages?

7. What languages aren't usually considered programming languages?

What is difference between high-level languages and machine -level languages?

PART 2
TEXTS FOR SUPPLEMENTARY READING

Common tasks to the texts:

1. Identify the main parts of the text (introduction, a narrative or major sections, the author's conclusions.)

2. Briefly describe the contents of each main part of the text.

3. Identify key issues discussed in the text.

4. Mark passages that contain the most relevant information of the text.

5. Find the key words that convey the basic idea of the paragraph.

6. State the main idea of each paragraph.

7. Mark passages of text that can be safely omitted.

8. Make a brief retelling of the text.

9. Make a plan to complete the presentation of text.

10. Make a brief summary to the text.

Use the following structure and vocabulary.

.. .is/are discussed (described, mentioned)

...is/are considered (outlined) .is/are presented (shown) .is/are studied (investigated, examined) .is/are obtained (found, established)

A (short) description given of .

Particular (special) attention is given (paid) to .

WHY IS INFORMATION TECHNOLOGY IMPORTANT IN BUSINESS?

There are many businesses which are in need of the software packages for satisfying their operational as well as functional needs. For fulfilling this requirement, these companies sign deals with the software manufacturing companies. Information technology is useful in ensuring the smooth functioning of all the departments in a company such as the human resource department, finance department, manufacturing department and also in security related purposes. With the help of information technology, the companies in the automobile manufacturing sector are able to get rid of any sort of errors or mistakes in the proper functioning of the tools used for designing and manufacturing purposes. Due to the development of the information technology sector, the companies are being able to keep themselves aware of the changes in the global markets.

The software applications and the hardware devices are known to be the main elements of the use of information technology. The web browsers, the operating systems, ERP's and special purpose applications are the software which are used in information technology. Information technology plays an important role in easily solving the mathematical problems and also in the project management system.

Information technology has a great use in the automated production of sensitive information, automated upgradation of the important business processes and the automated streamlining of the various business processes. It has also played an important role in the areas of communication and automated administration of entire systems.

Importance of information technology in educational sector is well known. Information technology helps the students as well as the teachers in studying the course material easily because of fast access. Studying the subjects with the help of online libraries and dictionaries has made grasping and increasing the knowledge easy for the students. The inclusion of information technology in the syllabus in schools, colleges and universities has helped them in grasping the subject well and getting their basics cleared. Since, many educational centers have the online grading system, it has been a boon for the parents of the children to keep a tab on their performances. Parents can also get the details of the attendance record of their child in schools.

Importance of information technology in management is quite significant. It helps the managers in adapting to the new business processes and also to predict the possible impact of new technologies. The managers can benefit from the efficiently prepared computer packages and the electronically stored confidential information. With just a single click of the mouse, they can have the relevant information in front of their screen. However, in order to be able to handle these software packages in a better way, the managers should have undergone quality training in information technology. Taking this need into consideration, many corporate companies are seen taking special efforts for the development of these soft skills by training programs prepared by experienced software professionals.

Notes:

software packages – пакеты программ

get rid of – освободиться

due to – благодаря; вследствие; в результате

streamlining – выбор оптимальной организации производства; выбор оптимальных технологических маршрутов

grasping — цепкий, хваткий; быстро схватывающий, постигающий

PERSPECTIVES IN COMPUTER SCIENCE

By its very nature, computer science is a multifaceted discipline that can be viewed from at least four different perspectives. Three of the perspectives —*theory, abstraction,* and *design* — underscore the idea that computer scientists in all subject areas can approach their work from different intellectual viewpoints and goals. A fourth perspective — *the social and professional context* — acknowledges that computer science applications directly affect the quality of people's lives, so that computer scientists must understand and confront the social issues that their work uniquely and regularly encounters.

The *theory* of computer science draws from principles of mathematics as well as from the formal methods of the physical, biological, behavioral, and social sciences. It normally includes the use of abstract ideas and methods taken from subfields of mathematics such as logic, algebra, analysis, and statistics. Theory includes the use of various proof and argumentation techniques, like induction and contradiction, to establish properties of formal systems that justify and explain underlying the basic algorithms and data structures used in computational models. Examples include the study of algorithmically unsolvable problems and the study of upper and lower bounds on the complexity of various classes of algorithmic problems. Fields like algorithms and complexity, intelligent systems, computational science, and programming languages have different theoretical models than human-computer interaction or net-centric computing.

Abstraction in computer science includes the use of scientific inquiry, modeling, and experimentation to test the validity of hypotheses about computational phenomena.

Computer professionals in all areas of the discipline use abstraction as a fundamental tool of inquiry — many would argue that computer science is itself the science of building and examining abstract computational models of reality. Abstraction appears in the design of heuristic and approximation algorithms for problems whose optimal solutions are computationally intractable. It is surely used in

graphics and visual computing, where models of three-dimensional objects are constructed mathematically; given properties of lighting, color, and surface texture; and projected in a realistic way on a two-dimensional video screen.

Design is a process that models the essential structure of complex systems as a prelude to their practical implementation. It also encompasses the use of traditional engineering methods, including the classical life-cycle model, to implement efficient and useful computational systems in hardware and software. It includes the use of tools like cost/benefit analysis of alternatives, risk analysis, and fault tolerance that ensure that computing applications are implemented effectively. Design is a central preoccupation of computer architects and software engineers who develop hardware systems and software applications. Design is an especially important activity in computational science, information management, human-computer interaction, operating systems, and net centric computing.

The *social and professional context* includes many concerns that arise at the computer-human interface, such as liability for hardware and software errors, security and privacy of information in databases and networks intellectual property issues (e.g., patent and copyright), and equity issues (e.g., universal access to technology and to the profession). All computer scientists must consider the ethical context in which their work occurs and the special responsibilities that attend their work.

Notes:

to acknowledge – подтверждать

behavioral – психологический

contradiction – противоречие

heuristic – эвристический

equity issue – выпуск акций

PLAY GAMES AND IMPROVE YOUR SHORT TERM
& LONG TERM MEMORY!

How's your memory?

Have you ever forgotten where you left your car keys? Or which area of the

parking lot that you parked your car? Or the name of the person you were introduced to just seconds ago.

Memory is a general term used to describe a variety of brain functions. It is the ability to recall both recent events and events that occurred many years ago. Some level of memory loss is a normal part of the aging process for some people although many people retain extremely sharp memories for their entire lives.

Recently, there has been encouraging research reported by Harvard Medical School that suggests that the brain continues to develop new cells and makes new connections between them. This capacity for rejuvenation introduces the potential for future medical treatment to reverse memory loss. In the meantime there are many options to help brain function and improve memory as we age. Remember the adage: "use it or lose it" ... this certainly applies to memory.

Often we learn best when we aren't aware that we are learning! An example of this is when we are having fun or playing games. Many games can help you improve both your short term and long term memory.

Crossword puzzles can be both challenging and fun. They often force us to delve into our long-term memory to recall a word. They keep the brain active and stimulate thought processes and recall ability.

Video games are an often overlooked source of improving memory. Many games will require that you negotiate your way through a mapped course ... you will be required to remember where you have been, who you have seen and recall landmarks. Without good memory skills it can be impossible to achieve the goal. Playing video games can improve your short- term memory skills while you have fun and exercise your brain.

Most card games require a strong level of recall ability. Even simple games from childhood can help improve short and long term memory. Most people will be familiar with the card game simply called "Memory" where all the cards from a deck are placed face down on the table and each player attempts to find matching pairs. This old game is a brilliant way of improving your memory. And the more you play the better you get.

Another memory and recall game from childhood is to look around the room then close your eyes. With your eyes still closed you must recall all the blue items, or all the red items. Open your eyes and see how well you remembered what you had previously seen. This game not only improves your short term memory, it stimulates the brain and improves your observation skills. This memory game also teaches participants to think in pictures. It is generally agreed that people with photographic memories think in pictures so this is an excellent memory habit to develop.

Notes:

rejuvenation — омоложение

adage — поговорка; пословица

challenging — стимулирующий, побуждающий

delve into — углубляться в

the more ... the better — чем больше... тем лучше

WHAT IS CLOUD COMPUTING?

The Internet has changed the way we communicate and brought a paradigm shift in the way information travels around the world. In the past, nature of the Internet was a gigantic library with global open access. Now the Internet is taking the next step in evolution with cloud computing. What is cloud computing? What are the applications of cloud computing? What is cloud computing in the simplest words?

Cloud computing is the provision of all computing resources through the medium of the Internet. Cloud computing is about taking the client server architecture of a computer networking system to an extreme, in terms of scaling and resource sharing. A computer or any mobile device connected to a cloud computing network will have all its data, along with all the processing programs hosted on a remote server farm.

He will access data and use the resources on the cloud computing servers from any terminal connected to them. Just like power is supplied to any region in a power grid, according to demand, so are the resources allocated to terminals in a cloud

computing network, based on demand. The 'cloud' in cloud computing essentially stands for the Internet.

Instead of installing programs on your own computer, you can access the same programs as web service applications that are made accessible via a web browser. So, any user can access and save his work or data on the cloud computing server. This provides users with the freedom to access their work from any terminal they choose to work on, which can make a remote connection with the cloud computing server network.

Cloud computing has been made possible because of the increasing high speed connectivity provided by the Internet to remote locations. The power of Internet connectivity has been harnessed to share resources on a cloud computing network. Google is one of the main players in the cloud computing business and it is aggressively promoting this concept across the globe through introduction of its own cloud computing resources.

There are several applications of cloud computing. If you are wondering what is private cloud computing, it is the creation of a cloud computing network with limited access to a private network of computers. There are cloud computing companies like Amazon and Google who set up cloud computing services for private use. The reason for the popularity of cloud computing network is the economics of it. Instead of purchasing proprietary software and bearing the cost of maintenance, companies can save the cost involved by opting for a cloud computing service instead.

Cloud computing is thus the next step in evolution of computing and the Internet where its power is being harnessed not to just share information, but also services. The software development technology that has made this software resource sharing possible is the concept of an 'Application Programming Interface' that makes interaction between programs from different platforms possible.

Cloud computing is a way of making optimum use of resources. Many companies are preferring cloud computing solution, as it reduces costs and provides the most optimized computing solution. With time, private cloud computing will be the preferred mode of resource sharing for most businesses around the world.

PLAYING FAST-ACTION VIDEO GAMES HELPS DECISION-MAKING

The relentless march of technology into everyday life has always given rise to debate about whether it is a good or a bad thing. Some believe that the Internet and computer software are making humans more stupid or shallow. But others argue that computer programs in the form of video games can make people smarter or improve specific skills, such as spatial awareness. Indeed, an entire industry has emerged to help people "train" or improve their brains.

Many scientific studies have shown that video games can improve human performance in sensory and perceptual tasks, involving hand-to-eye co-ordination, as well as those that require a lot of attention. But the improvement seems to come only in the task that a game trains you for. This is not surprising. The real question is whether video games are capable of providing more general gains in performance.

Shawn Green, Alexandre Pouget and Daphne Bavelier, from the University of Rochester, in New York state, set out to find an answer. They recruited a group of video-gamers and compared their reaction skills with a group of non-players. The gamers had all spent at least five hours a week on action games in the previous year.

The study, reported in Current Biology, involved a number of experiments. In one, the participants had to watch 12 dots moving randomly on a screen and quickly assess their aggregate direction of movement. Another test asked participants to work out the direction of specific sounds embedded within stereo white noise. In both tests the video-gamers did better. However, the scientists were aware that gamers could have been born with improved abilities to perform such tasks, which were possibly what attracted them to gaming in the first place. Consequently, a third test was necessary to see if these abilities could have been learnt.

The researchers found that those trained with action games raised their performance to the level of the experienced gamers. Moreover, they were more efficient in their use of visual or auditory evidence than those playing with the Sims. The action gamers were up to 25% faster at coming to a conclusion and they answered just as many questions correctly.

The researchers conclude that video-games players develop an enhanced sensitivity to what is going on around them and that this may help with activities such as multitasking, driving, reading small print, navigation and keeping track of friends or children in a crowd. The precise neural mechanism for this effect, however, is still unknown.

What is known is that people make decisions based on probabilities that are constantly being calculated and refined in their heads—something called "probabilistic inference". The brain collects small pieces of information, eventually gathering enough to make an accurate decision. When driving a car, for example, many probabilities will be collated to make decisions such as whether or not to brake. The more efficient someone is at collecting visual and auditory information, the faster he can reach the threshold needed to make a decision.

One implication of this work is that reaction times in the population will probably improve with the rise of fast-action video-games. There are a lot of players: last year a report estimated that 67% of American households contained at least one video-gamer. And if video-gamers are really better equipped to make quick decisions, they might also turn out to be better drivers and end up in fewer accidents. However, the notion that gamers acquire some minor physical skills may not pacify concerned parents. What, after all, of the skills they are not acquiring when shooting virtual cops instead of reading or talking?

A NEW SPIN ON COMPUTER MOUSE

How many engineers does it take to design a computer mouse? At Logitech, the leader in the global mouse market, it took more than 30 electrical, mechanical, computer, and industrial engineers working for two years to create the company's MX Revolution. The company calls the engineering project the largest in its history. The mouse has a curvy grey-and-black body and is cordless, optical, and decked with plenty of buttons, but the same can be said of other high-end mice. What sets it apart is its high-speed "inertial" scroll wheel.

While most mice have a plastic or rubber scroll wheel that weighs a gram or two, the MX Revolution has a 14-gram chrome-plated brass wheel. Turn it slowly and you'll scroll one line at a time, the wheel's internal ratchets* clicking under your fingertip, just like in a usual mouse. But give the wheel a good spin and the result is entirely different: a tiny electric motor retracts the ratchet mechanism and the wheel revolves freely for up to seven seconds. A single flick of your finger sends you whizzing through 50 pages in a Word document.

Logitech has also created a special version aimed at notebook users, the VX Revolution, which has the same inertial wheel. The "Revolution" in the name may be pure PR trick, but the company showed it's possible to innovate in a category that hasn't changed much since Douglas Engelbart and his colleagues invented the mouse in the late 1960s. Improving scrolling was high on users' wish lists.

Most people may take their mice for granted, but for users like gamers and artists these devices are more than just boxes with buttons. Some know by heart their mice's coefficient of friction and maximum acceleration, while others enjoy "mouse modding"—modifying mice to change their appearance or enhance their tracking and scrolling performance. The MX Revolution confirms Logitech Company's strategy of designing products aimed at "power" mouse users as one way of staying ahead of Microsoft, which is No. 2 in the world mouse market.

*ratchets- трещотка, храповик

CELLULAR SYSTEMS

Cellular telephones are transportable by vehicle or personally portable devices that may be used in motor vehicles or by pedestrians. Communicating by radio wave, they permit a significant degree of mobility within a defined serving region that may be hundreds of square kilometers in area.

All cellular radio systems exhibit several fundamental characteristics. The geographic area served by a cellular radio system is broken up into smaller geographic areas, or cells. All communication with a mobile or portable instrument within a given

cell is made to the base station that serves the cell. As a mobile instrument proceeds from one cell to another during the course of a call, a central controller automatically reroutes the call from the old cell to the new cell without a noticeable interruption in the signal reception. The central controller thus acts as an intelligent central office switch that keeps track of the movement of the mobile subscriber.

As demand for the radio channels within a given cell increases beyond the capacity of that cell (as measured by the number of calls that may be supported simultaneously), the overloaded cell is "split" into smaller cells, each with its own base station and central controller. The radio-frequency allocations of the original cellular system are then rearranged to account for the greater number of smaller cells. Frequency reuse between discontiguous cells and the splitting of cells as demand increases are the concepts that distinguish cellular systems from other radiotelephone systems. They allow cellular providers to serve large metropolitan areas that may contain hundreds of thousands of customers.

The first mobile and portable subscriber units for cellular systems were large and heavy. With significant advances in component technology, though, the weight and size of portable transceivers have been significantly reduced. For example, lightweight portables in 1990 may have weighed 310 grams; by 1994 they weighed as little as 120 grams.

COMPUTER VIRUSES

A computer virus is a computer program that can copy itself and infect a computer without permission or knowledge of the user. A virus can only spread from one computer to another when its host is taken to the uninfected computer, for instance by a user sending it over a network or the Internet, or by carrying it on a removable medium such as a floppy disk, CD, or USB drive. Meanwhile viruses can spread to other computers by infecting files on a network file system or a file system that is accessed by another computer.

Some malware is programmed to damage the computer by damaging programs,

deleting files, or reformatting the hard disk. Other malware programs are not designed to do any damage, but simply replicate themselves and perhaps make their presence known by presenting text, video, or audio messages. Even these less sinister malware programs can create problems for the computer user. They typically take up computer memory used by legitimate programs. As a result, they often cause erratic behavior and can result in system crashes and data loss.

Viruses can be divided into two types, on the basis of their behavior when they are executed. Nonresident viruses immediately search for other hosts that can be infected, infect these targets, and finally transfer control to the application program they infected. Resident viruses do not search for hosts when they are started. Instead, a resident virus loads itself into memory on execution and transfers control to the host program. The virus stays active in the background and infects new hosts when those files are accessed by other programs or the operating system itself.

Many users install anti-virus software that can detect and eliminate known viruses after the computer downloads or runs the executable. One may also minimize the damage done by viruses by making regular backups of data on different media, that are either kept unconnected to the system (most of the time), read-only or not accessible for other reasons, such as using different file systems.

COMBATING VIRUSES, WORMS AND TROJAN HORSES

Trojans, viruses or worms can make computers or a network unstable and, in many cases, unusable. The first steps to protecting your computer are to ensure your operating system (OS) is up-to-date. This is essential if you are running a Microsoft Windows OS. Secondly, you should have anti-virus software installed on your system and ensure you download updates frequently to ensure your software has the latest fixes for new viruses, worms and Trojan horses. Additionally, you need to make sure your anti-virus program has the capability to scan e-mail and files as they are downloaded from the Internet. This will help prevent malicious programs from even reaching your computer. You should also install a firewall as well.

A firewall is a system that prevents unauthorized use and access to your computer. A firewall can be either hardware or software. Hardware firewalls provide a strong degree of protection from most forms of attack coming from the outside world and can be purchased as a stand-alone product or in broadband routers. Unfortunately, when battling viruses, worms and Trojans, a hardware firewall may be less effective than a software firewall, as it could possibly ignore embedded* worms in outgoing e-mails and see this as regular network traffic.

For individual home users, the most popular firewall choice is a software firewall. A good software firewall will protect your computer from outside attempts to control or gain access to your computer, and usually provides additional protection against the most common Trojan programs or e-mail worms. The downside to software firewalls is that they will only protect the computer they are installed on, not a network.

It is important to remember that on its own a firewall is not going to rid you of your computer virus problems, but when used in conjunction with regular operating system updates and a good anti-virus scanning software, it will add some extra security and protection for your computer or network.

*embedded- встроенный

E-MAIL

Electronic mail is a store-and-forward method of writing, sending, receiving and saving messages over electronic communication systems. The term "e-mail" (as a noun or verb) applies to the Internet e-mail system based on the Simple Mail Transfer Protocol, to network systems based on other protocols and to various mainframe, minicomputer or intranet systems allowing users within one organization to send messages to each other in support of workgroup collaboration. E-mail was quickly extended to become *network e-mail,* allowing users to pass messages between different computers by at least 1966.

E-mail is very simple to understand and like postal mail, e-mail solves two basic problems of communication: logistics and synchronization. However the usefulness of e-

mail is being threatened by four phenomena: e-mail bombardment, spamming, phishing and e-mail worms.

Spamming is unsolicited commercial e-mail. Because of the very low cost of sending e- mail, spammers can send hundreds of millions of e-mail messages each day over an inexpensive Internet connection. Hundreds of active spammers sending this volume of mail results in information overload for many computer users who receive voluminous unsolicited e-mail each day. E-mail worms use e-mail as a way of replicating themselves into vulnerable computers. Although the first e-mail worm affected UNIX computers, the problem is most common today on the more popular Microsoft Windows operating system.

The combination of spam and worm programs results in users receiving a constant drizzle of junk e-mail, which reduces the usefulness of e-mail as a practical tool.

A number of anti-spam techniques mitigate the impact of spam. In the United States, U.S. Congress has also passed a law, the Can Spam Act of 2003, attempting to regulate such e-mail. Australia also has very strict spam laws restricting the sending of spam from an Australian ISP, but its impact has been minimal since most spam comes from regimes that seem reluctant to regulate the sending of spam.

NETWORK SECURITY

Internet security professionals are, by occupational temperament, a pretty anxious people. But lately they've had more reason than ever to be nervous. Not long ago, a new kind of worm, known as Storm, began to sweep through the Internet. It hasn't received much attention in the mainstream press, but it has given security professionals more than a few sleepless nights. Storm is far more sophisticated than previous worms, because it uses peer-to-peer technologies and other new techniques to avoid detection.

Storm methodically infiltrates computers with inactive code that could be used to damage the whole network of a company, creating opportunities for getting money illegally. And Storm's creators, whoever they are, continue to modify their dangerous product even as it already stands as a dark cloud poised over the Internet.

Network security software products on the market today offer only limited defense. They use firewalls, which simply block access to unauthorized users, and software patches, which can be created only after a worm or virus's unique bit pattern is decoded. By the time this difficult process of hand coding is complete, the worm has had hours and hours to spread, mutate, or be modified by its creators.

A new kind of answer is needed. Network security researchers are developing software that can rapidly detect a wide variety of intrusions from worms, viruses, and other attacks without the high rate of false alarms that outbreaks many conventional Internet security products. These new programs can detect any anomalous network behavior in seconds and block threats. This new generation of algorithms is based on concepts related to the thermodynamic concept of entropy. Often defined briefly as a measure of the disorder of a system, entropy as a cornerstone of thermodynamic theory goes back more than a century and a half. But as a construct of information theory it is only 60 years old, and its application to data communications began only in the last decade or so.

WIRELESS NETWORK

A wireless network serves the same purpose as a wired one — to link a group of computers. Because "wireless" doesn't require costly wiring the main benefit is that it's generally cheaper to set up. By comparison, creating a network by pulling wires throughout the walls and ceilings of an office can be labour-intensive and thus expensive. But even when you have a wired network already in place, a wireless network can be a cost-effective way to expand it. In fact, there's really no such thing as a purely wireless network, because most links back to a wired network at some point.

Wireless networks operate using radio frequency (RF) technology, a frequency within the electromagnetic spectrum associated with radio wave propagation. When an RF current is supplied to an antenna, an electromagnetic field is created that then is able to propagate* through space.

The cornerstone of a wireless network is a device known as an access point (AP).

The primary job of an AP is to broadcast a wireless signal that computers can detect and "tune" into. Since wireless networks are usually connected to wired ones, an AP also often serves as a link to the resources available on the a wired network, such as an Internet connection. In order to connect to an access point and join a wireless network, computers must be equipped with wireless network adapters. These are often built right into the computer, but if not, just about any computer or notebook can be made wireless-capable through the use of an add-on adapter plugged into an empty expansion slot, USB port, or in the case of notebooks, a PC Card slot.

A common misconception connected with a wireless network is that the term Wi-Fi is short for wireless fidelity; however not since 1999 has the Wi-Fi Alliance officially used the term wireless fidelity. Wi-Fi is simply a brand name and a registered trademark of the Wi-Fi Alliance. The term Wi-Fi is a play on the term Hi-Fi, which is short for high- fidelity, but Wi-Fi is not actually short for wireless fidelity.

*__to propagate__ - распространяться

GLOSSARY

Access - доступ

Access time – время доступа

Accessible - доступный

ADP (automated data processing) – автоматизированная обработка данных

ARPA (Advanced Research Projects Agency) – Агентство перспективных исследований и проектов

ARPAnet (Advanced Research Projects Agency network)

Attachment – сеть Агентства по научно-исследовательским проектам. Создана министерством обороны США для связи между университетами и научно-исследовательскими институтами

BASIC (Beginner's All-purpose Symbolic Instruction Code) – простой в употреблении язык программирования высокого уровня, разработанный в 1964 г.

BIOS (basic input/output system) – базовая система ввода - вывода

Bit - бит, двоичный разряд

Bootstrapping – начальная загрузка

To browse - просматривать

Bus – шина, канал, линия (передачи данных)

Control bus – шина управления

Byte - байт

CDD – дисковод для компакт-дисков

Chip – кристалл, микросхема

Circuitry – (электронные) схемы

To communicate – связываться, взаимодействовать

To connect – подключать(ся), устанавливать связь

To convey – передавать информацию

COBOL (Common business Oriented Language) – Кобол – всеобщий бизнесориентированный язык программирования высокого уровня, специально разработанный для бизнес-приложений в 1964 г.

Code – код, кодировать, программировать, система команд

Coding - программирование

Communication - связь, сообщение, взаимодействие

Computer – компьютер, вычислительная машина

Computer literacy –компьютерная грамотность

Connection – подключение, установление связи, соединение, схема

Conveying – передача (информации)

Core – ядро, оперативная память, суть, основная часть

Database – база данных, заносить в базу данных

Database access – доступ к базе данных

Decoder - дешифратор

Device – устройство, приспособление

Digital - цифровой

Disc - диск

Disc capacity – емкость диска

DOS – дисковая операционная система

Driver – драйвер, двигатель

DVD – цифровой видеодиск

Error - ошибка

Error checking – проверка ошибок

Error detecting and correction – обнаружение и корректировка ошибок

Ethernet – локальная сеть, которая используется для связи компьютеров друг с другом на предприятиях. Разработан фирмой Xerox в семидесятых годах

Flexible disc – гибкий диск

Floppy disc – дискета, гибкий диск

FORTRAN (Forth generation programming language) – Фортран – первый компилирующий язык программирования высокого уровня, ориентированный на решение задач математического характера

Hard disc – жесткий диск

Hard-copy – распечатка, печатная копия

Hardware – аппаратура, оборудование, аппаратное обеспечение

Ink-jet printer – струйный принтер

To install – устанавливать, размещать, настраивать

Input/output – устройство ввода - вывода

Installation – установка, вставка, размещение, настройка

Internet – название самой крупной сети по всему миру, точнее объединения сетей. Возникла на основе сети ARPAnet

Key - клавиша

Keyboard - клавиатура

Laser printer – лазерный принтер

Modem - модем

Network – сеть, схема, контур

On-line – неавтономный, подключенный компьютеру

On-line guide – электронный справочник

Operating system – операционная система

Password - пароль

PC – персональный компьютер

Program file – программный файл

Program language – язык программирования

Programmer - программист

Programming - программирование

RAM (random-access memory) – память прямого доступа. Память, в которой чтение/запись можно осуществлять по произвольному адресу

Range – диапазон, область, интервал

Recorder – устройство/программа регистрации, самописец

To retrieve – отыскивать, извлекать (данные), восстанавливать (файл)

ROM (read-only memory) – только для чтения или пассивное запоминающее устройство.

Scanner -сканер

Scanning – сканирование, считывание, просмотр, поиск

Soft-copy – изображение на мониторе

Software - программное обеспечение

Storage – запоминающее устройство, запоминание, память, хранение

To store - хранить

Table - таблица

Terminal – терминал, зажим, вывод, конец

To utilize - использовать

User - пользователь

Utility – полезность, пригодность, вспомогательные средства

Version - версия

Virtual - виртуальный

Web – сеть, паутина

Word processor – текстовый процессор

World-Wide web – всемирная сеть

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