

**Федеральное государственное бюджетное
образовательное учреждение высшего образования
«Поволжский государственный университет
телекоммуникаций и информатики»**



Кафедра иностранных языков

***ENGLISH FOR IT
STUDENTS***

Учебное пособие по английскому языку
для студентов 2 курса дневного отделения
специальностей «Информационная безопасность
телекоммуникационных систем», «Информатика и
вычислительная техника», «Информационные системы и
технологии» и «Программная инженерия»

Составитель:
ст. преп. Игнаткина И. В.

Самара-2016

УДК 43=20:415
ББК 4И (Англ)

Рекомендовано Методическим советом ПГУТИ от
7.09.2016

Игнаткина И.В.

Учебное пособие по английскому языку «English for IT students» предназначено для студентов 2 курса дневного отделения специальностей «Информационная безопасность телекоммуникационных систем», «Информатика и вычислительная техника», «Информационные системы и технологии» и «Программная инженерия»

Цель пособия – научить чтению и пониманию оригинальной литературы, способствовать формированию лингвистических навыков в данной отрасли знаний.

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

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

ББК 4И (Англ)

© издательство ИУНЛ ПГУТИ.

Самара, 2016

Предисловие

Данное учебное пособие предназначено для студентов 2 курса дневного отделения специальностей «Информационная безопасность телекоммуникационных систем», «Информатика и вычислительная техника», «Информационные системы и технологии» и «Программная инженерия». Цель пособия — подготовить студентов к чтению специальной научно-технической литературы для извлечения информации, а также привить им навыки устной речи по специальной и общей тематике.

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

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

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

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

Content

	UNIT 1	5
1	Text 1 A. Data processing and Data processing systems	5
2	Text 1 B. Advantages of Computer Data processing	10
3	Text 1 C. Inventors and their inventions	13
4	GrammarReview:	14
	UNIT 2	20
1	Text 2 A. A computer operating system	21
2	Text 2 B. What is an operating system (OS)?	23
3	Text 2 C. The problems of inventors	25
4	Grammar Review:Причастие	28
	UNIT 3	33
1	Text 3 A. Computer system architecture	34
2	Text 3 B. Hardware, Software and Firmware	37
3	Text 3 C. Why the last shall be first	39
4	Grammar Review: Инфинитив	42
	UNIT 4	47
1	Text 4 A. Coding and programming	48
2	Text 4 B. From the history of programming	50
3	Text 4 C. Program errors	53
4	Grammar Review: Complex Object	54
	UNIT 5	58
1	Text 5 A. What is it a computer virus?	59
2	Text 5 B. How computer viruses work	61
3	Text 5 C Earliest Virus History	67
4	Grammar Review: Complex Subject	71
	UNIT 6	76
1	Text 6 A. Text 6 A Machine Translation	77
2	Text 6 B. The Advantages and Disadvantages of Machine Translation	81
4	Grammar Review: Conditional Mood. Tests	93
	Грамматический справочник	101
	Supplementary reading	111

UNIT 1.

1. Text 1 A. Data processing and Data processing systems
2. Text 1 B. Advantages of Computer Data processing
3. Text 1 C. Inventors and their inventions
4. GrammarReview:

Text 1 A. DATA PROCESSING AND DATA PROCESSING SYSTEMS

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

Data processing - обработка информации (данных);
to convert - преобразовывать; переводить (вдр. единицы);
to accomplish - завершать, заканчивать; осуществлять, выполнять; ***to house*** - помещать, размещать; ***to improve*** [im'pru:v] — улучшать, совершенствовать; ***to control***— управлять, регулировать; ***to store*** - хранить, запоминать, заносить (размещать) в памяти; ***storage*** - запоминающее устройство, память; хранение; ***resource*** - ресурс; средство; возможность ***facility*** [fa'siliti] — устройство; средство; ***facilities*** — приспособления; возможности; ***successively*** – последовательно; ***data storage hierarchy*** [hai'ra:ki] — иерархия (последовательность) запоминания информации (данных); ***comprehensive groupings*** — полные, обширные, универсальные образования; ***item*** ['aitem] — элемент; составная часть

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

The necessary data are processed by a computer to become useful information. In fact this is the definition of data processing. *Data* are a collection of facts — unorganized but

able to be organized into useful information. **Processing** is a series of actions or operations that convert inputs into outputs. When we speak of data processing, the input is data, and the output is useful information. So, we can define **data processing** as a series of actions or operations that converts data into useful information.

We use the term **data processing system** to include the resources that are used to accomplish the processing of data. There are four types of resources: people, materials, facilities, and equipment. People provide input to computers, operate them, and use their output. Materials, such as boxes of paper and printer ribbons, are consumed in great quantity. Facilities are required to house the computer equipment, people and materials.

The need for converting facts into useful information is not a phenomenon of modern life. Throughout history, and even prehistory, people have found it necessary to sort data into forms that were easier to understand. For example, the ancient Egyptians recorded the ebb and flow of the Nile River and used this information to predict yearly crop yields. Today computers convert data about land and water into recommendations to farmers on crop planting. Mechanical aids to computation were developed and improved upon in Europe, Asia, and America throughout the seventeenth, eighteenth, and nineteenth centuries. Modern computers are marvels of an electronics technology that continues to produce smaller, cheaper, and more powerful components.

Basic data processing operations

Five basic operations are characteristic of all data processing systems: inputting, storing, processing, outputting, and controlling. They are defined as follows.

Inputting is the process of entering data, which are collected facts, into a data processing system. *Storing* is saving data or information so that they are available for initial or for

additional processing. *Processing* represents performing arithmetic or logical operations on data in order to convert them into useful information. *Outputting* is the process of producing useful information, such as a printed report or visual display.

Controlling is directing the manner and sequence in which all of the above operations are performed.

Data storage hierarchy

It is known that data, once entered, are organized and stored in successively more comprehensive groupings. Generally, these groupings are called a data storage hierarchy. The general groupings of any data storage hierarchy are as follows.

1) *Characters*, which are all written language symbols: letters, numbers, and special symbols. 2) *Data elements*, which are meaningful collections of related characters. Data elements are also called data items or fields. 3) *Records*, which are collections of related data elements. 4) *Files*, which are collections of related records. A set of related files is called a data base or a data bank.

Task 3. Answer the questions

1. What is processing? 2. What is data processing? 3. What does the term of data processing system mean? 4. What basic operations does a data processing system include? 5. What is inputting / storing / outputting information? 6. What do you understand by resources? 7. How did ancient Egyptians convert facts into useful information? 8. When were mechanical aids for computation developed? 9. What does data storage hierarchy mean? 10. What are the general groupings of any data storage hierarchy?

Task4. Find English equivalents in the text:

Системы обработки информации; определение (термина) обработки данных; совокупность фактов;

последовательность действий; преобразование входных данных в полезную информацию; включать ресурсы; завершить обработку данных; обеспечивать ввод информации в компьютер; ленты принтера; расходовать в большом количестве; размещать компьютерное оборудование; нуждаться (требовать) в приспособлениях; явление современной жизни; на протяжении доисторического периода; превращать информацию в выражения; регистрировать отливы и приливы; прогнозировать урожай зерновых культур; механические средства вычисления; ввод данных; хранение данных; первоначальная обработка данных; дополнительная обработка; выдача полезной информации; напечатанное сообщение; зрительное отображение; последовательность запоминания информации; записанные символы языка; элементы информации; база данных; набор взаимосвязанных файлов.

Task5. Translate the following word-combinations:

Data resource; storage resource; network resource; security resource; system resource.

Communication facilities; data base facilities; display facilities; management facilities.

Distance control; device control; keyboard control; position control; program control.

Computer storage; laser storage; file storage; disk storage; data storage hierarchy.

Character sequence; instruction sequence; message sequence; pulse sequence.

Batch file; catalog file; data file; help file; input file; output file; menu file; user file.

Command input; data input; disk input; file input; keyboard input; program input.

Task6. Match the words with the definitions:

1. Computer	a) the set of instructions that direct the operations of computers
2. Computer literacy	b) a part of a computer, entering data into the device
3. A program	c) facts unorganized but able to be organized
4. Data	d) the output of a data processing system
5. Data processing	e) possessing sufficient knowledge of how computers work and what they can do to use them as problem-solving tools
6. Data processing	f) a series of operations that results in the conversion of data system into useful information
7. Input	g) an electronic device performing calculations on numerical data
8. Output	h) an electronic device accepting the data processing results from the computer and displaying them
9. Useful information	i) a set of related files
10. Data bank	j) the resources required to accomplish the processing of data. These resources are personnel, material, facilities and equipment.

Task7. Retell the text 1 A in 10-13 sentences

**Text 1 B. ADVANTAGES OF
COMPUTER DATA PROCESSING**

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

Manual- ручной, выполняемый вручную; *to take advantage of smth* — воспользоваться ч.-л.; *capability* -

способность, возможность, характеристика; *to eliminate* — устранять, удалять, отменять; *error-prone* — подверженный ошибкам; *vulnerable* — уязвимый; *invalid data* — ошибочные данные; *to respond* — отвечать, реагировать; *capacity of storage* — объем (емкость) памяти; *to retrieve* [ri'triv] — извлекать, выбирать (данные); восстанавливать (файл); *objective* — цель; требование; целевая функция; *cost-effective* — экономичный, экономически оправданный

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

Computer-oriented data processing systems or just computer data processing systems are not designed to imitate manual systems. They should combine the capabilities of both humans and computers. Computer data processing systems can be designed to take advantage of four capabilities of computers.

1. Accuracy. Once data have been entered correctly into the computer component of a data processing system, the need for further manipulation by humans is eliminated, and the possibility of error is reduced. Computers, when properly programmed, are also unlikely to make computational errors. Of course, computer systems remain vulnerable to the entry by humans of invalid data.

2. Ease of communications. Data, once entered, can be transmitted wherever needed by communications networks. These may be either earth or satellite-based systems. A travel reservations system is an example of a data communications network. Reservation clerks throughout the world may make an enquiry about transportation or lodgings and receive an almost instant response. Another example is an office communications system that provides executives with access to a reservoir of data, called a corporate data base, from their personal microcomputer work stations.

3. Capacity of storage. Computers are able to store

vast amounts of information, to organize it, and to retrieve it in ways that are far beyond the capabilities of humans. The amount of data that can be stored on devices such as magnetic discs is constantly increasing. All the while, the cost per character of data stored is decreasing.

4. Speed. The speed, at which computer data processing systems can respond, adds to their value. For example, the travel reservations system mentioned above would not be useful if clients had to wait more than a few seconds for a response. The response required might be a fraction of a second.

Thus, an important objective in the design of computer data processing systems is to allow computers to do what they do best and to free humans from routine, error-prone tasks. The most cost-effective computer data processing system is the one that does the job effectively and at the least cost. By using computers in a cost-effective manner, we will be better able to respond to the challenges and opportunities of our post-industrial, information-dependent society.

Task 3. Answer the following questions:

1. What capabilities should data-processing systems combine when designed? **2.** What are the main advantages of computers? **3.** What do you know of computers accuracy? **4.** What is the function of communication networks? **5.** Give examples of a data communication network. **6.** What do you understand by capacity storage? **7.** What other values of computer data processing systems do you know? **8.** What is an important objective in the design of computer data processing systems? **9.** What is the most effective computer data processing system? **10.** What is the best way of responding to the challenges and opportunities of our post-industrial society?

Task 4. Find English equivalents in the text:

Система обработки информации компьютером; система ориентирования на обработку данных компьютером; сочетать возможности человека и машины; ограничивать управление; вряд ли допустят ошибку; оставаться уязвимым; недопустимые данные; легкость осуществления связи; сеть передачи информации; системы, основанные на использовании спутников; служащие по резервированию жилья; получить мгновенный ответ; наводить справки; хранилище данных; корпоративная база данных; объем памяти; запоминать огромное количество информации; извлекать информацию; добавить значимости; упомянутый выше; доля секунды; подверженный ошибкам; экономически оправданный.

Task 5. Translate the following words

To eliminate: elimination; eliminable; eliminator; unlimited.

To respond: respondent; response; responsible; irresponsible; responsibility.

Accuracy: inaccuracy; accurate; inaccurate; accurately.

Correctly: correct; incorrect; to correct; correction; correctional; corrective; corrector.

Vulnerable: invulnerable; vulnerability; invulnerability.

Invalid: valid; invalidity; validity;

Access: accessible; inaccessible; accessibility; inaccessibility.

Text 1C. INVENTORS AND THEIR INVENTIONS

Task 1 Read and translate

- perfect, chemist, aristocrat;
- barrel, began, fantasy;
- create, great;

- production, run, combustion, success, industry, rubber;
- bullet, enthusiast, solution;
- ghost, most;
- textile, reliable, design, financial, crisis;
- pistol, engine, diesel.

Task 2. Read the text and translate it without a dictionary. Give a brief summary of the text

Samuel Colt was an American. He lived in the 19-th century. In 1836 he designed and patented a pistol. It was a pistol with a revolving barrel that could fire six bullets one after another. It was the first pistol of its kind. Later there came many other pistols with six bullets.

Rudolf Diesel was a German engineer. He was born in 1858 and died in 1913. In 1897 he invented a new internal combustion engine. This engine is known as a diesel. And it began a transport revolution in cars, lorries, trains and ships.

Samuel Finley Morse was born in 1791. He died in 1872. he was a portrait painter. Then he became an inventor. For twelve years he tried to perfect the telegraph and he was a success. Later he invented the telegraphic dot-and-dash alphabet. Now it is known as Morse code. Morse code was not only one in America of that time. There were some others. But now we use Morse code all over the world.

Charles Makintosh lived from 1766 to 1843. He lived in Scotland and was a chemist by profession. He worked in a textile industry. In 1823 he developed a rubber solution. This rubber solution was used for raincoat production. Raincoats with this rubber solution didn't allow water to penetrate. These raincoats were called makintoshes. Now people all over the world use them in spring and in autumn.

Charles Rolls was born in 1881 in Great Britain. He died in 1910. He was an aristocrat and businessman. He was

especially interested in cars. Once he met another enthusiast of cars Henry Royce. Henry Royce was a famous car engineer. They decided to design the most comfortable and reliable car. At the beginning of the 20th century it seemed to be a fantasy. But they worked hard and at last in 1907 they created the famous Rolls-Royce car. It was so comfortable and reliable that one of the models of Rolls-Royce cars «Silver Ghost» hadn't changed greatly for 20 years since 1907.

Gottlieb Daimler and Charles Benz were two inventors. They lived in Germany. They were both interested in car production. At the end of the 19th century each of them designed a car. At the same time they organized two independent firms to produce them. All the cars produced by the firm of Daimler were called «Mercedes». Mercedes was a daughter's name of one of the stockholders of the firm. This man saved the firm of Daimler from financial crisis at the beginning of the 20th century. But after the World War I the firm of Daimler met with financial difficulties again.

Task 3 Find the words with similar meanings to these words.

1. to enable; 2. to invent; 3. to improve; 4. to start; 5. to name; 6. to design; 7. the benefit; 8. an occupation;

GRAMMARREVIEW:

1. Переведите предложения, определив время и залог

1. Everyone agreed that the plan should go ahead. 2. They offered Nancy a pay increase. 3. All our money and passports were stolen. 4. The roof of the building was damaged in a storm a few days ago. 5. You were invited to the wedding. Why did not you go? 6. People advised us not to go out

alone.7. They accused me of stealing money. 8. All flights were cancelled because of fog.

2. Раскройте скобки, употребляя глаголы в Past Simple Active или Passive.

1. The letter... (post) a week ago and it ...(arrive) yesterday. 2. Dan's parents... (die) when he was very young. He and his sister ... (bring) up by their grandparents. 3. Why ... (Ann/resign) from her job? Didn't she enjoy it? 4. Where ... (these photographs/take)? 5. While I was on holiday, my camera... (disappear) from my hotel room. 6. While I was on holiday, my camera... (steal) from my hotel room.

3. Поставьте глагол в соответствующем времени в зависимости от обстоятельства (Present Perfect или Past Simple):

Examples: *I am writing a letter to my cousin (already, yesterday).*

I have already written a letter to my cousin.

I wrote a letter to my cousin yesterday.

1. The waitress is bringing our tea. (a few minutes ago; not yet)
2. The bell is ringing. (Just; some minutes ago)
3. He is going to London in a few days. (Already; last week)
4. The boys are playing football in the yard now. (Yesterday; many times)
5. Mother is reading a new novel. (This month; last year)
6. Students are discussing this text. (Already, last Saturday)
7. The teacher is explaining a new rule. (Just; at the previous lesson)
8. Ann is doing her homework now. (Just; on Friday)
9. The train is coming. (Just; an hour ago)
10. Who is your friend speaking to? (Yesterday, just)
11. We are writing test. (Already, at the last lesson)

4. Переведите предложения, обращая внимание на модальные глаголы

1. Nobody could translate this text. 2. He has to do this task at once. 3. Must I attend this meeting? - No, you needn't. 4. You should show your notes to the teacher. 5. Your son could do this work himself. 6. Would you tell me the way to the station? 7. Who is to answer my question? 8. May I leave for a while? - Yes, you may. 9. She should be more attentive to her parents. You needn't come so early.

5. Поставьте модальный глагол (*must, should, would, ought to, have to, needn't, can, could, may*)

1. I ... not go to the theatre with them last night, I ... revise the grammar rules and the words for the test. 2. My friend lives a long way from his office and ... get up early. 3. All of us ... be in time for classes. 4. When my friend has his English, he ... stay at the office after work. He (not) ... stay at the office on Tuesday, Thursday and Saturday and ... get home early. 5. ... you ... work hard to do well in your English? 6. ... we discuss this question now? No, we We ... do it tomorrow afternoon. 7. I'm glad you ... come. 8. ... you ... come and have dinner with us tomorrow? I'd love to. 9. Please send them this article. Oh, ... I do it now?

6. Поставьте глагол в соответствующей форме. Переведите предложения

1. Computers (*applied; are applied; are applying*) for automatic piloting and automatic navigation. 2. The programs (*write; have written; are written*) to help people in the use of the computer system. 3. As digital computers (*count; counted; are counted*) quickly, they widely (*use; used; are used*) in business data processing. 4. Once data (*entered; have entered; have been entered*) correctly into the data processing

system, the possibility of error (*reduced; is reduced; are reduced*). 5. It is known that an analyst (*use; uses; is used*) a computer to solve specific problems.

7. Раскройте скобки и выберите глагол в требуемом залоге: действительном или страдательном.

1. Electronic devices (*help; are helped*) people discover new phenomena of nature. 2. The transistor (*replaced; was replaced*) by vacuum tubes thanks to its numerous advantages. 3. Due to transistors all circuit functions (*carried out; were carried out*) inside semiconductors. 4. Electronic devices (*use; are used*) in scientific research. 5. Before the invention of the transistor its function (*performed; was performed*) by vacuum tubes. 6. The reliability of electronic systems (*connect; is connected*) with the number of discrete components. 7. Semiconductor integrated circuits (*helped; were helped*) to increase reliability of devices. 8. New types of integrated circuits (*have developed; have been developed*) lately.

8. Преобразуйте предложения, содержащие модальные глаголы, в а) прошедшее время; б) будущее время.

1. Computers *can* replace people in dull routine work. 2. The program is a set of instructions that *may* also include data to be processed. 3. Computer-controlled robots *must* increase the productivity of industry. 4. They *can* help in making different decisions. 5. The pupils *may* work with computers at the lessons. 6. Electric pulses *can* move at the speed of light. 7. Storage devices *must* have capacities for the input, output data and programs and for intermediate results. 8. Business minicomputers *can* perform to 100 million operations per second. 9. In order to solve scientific problems researchers *must* deal with the language of science — mathematics. 10. Programmers *must* write application programs in a way that computers *can* understand.

9. Преобразуйте следующие предложения действительного залога в страдательный по образцу:

People widely use electronic devices -- Electronic devices are widely used by people.

1. Electronic devices control the work of power stations. 2. They calculate the trajectories of spaceships. 3. People discover new phenomena of nature due to electronic devices. Scientists designed a variety of tubes for specialized functions. American scientists invented the transistor in 1948. 6. Integrated circuits greatly reduced the size of devices. 7. New types of integrated circuits increased packing density. 8. Electronics has extended man's intellectual power. 9. Scientists are looking for new ways for the improvement of integrated circuits technology. 10. Jack Kilby developed the concept of integrating device and built the first IC in 1958.

10. Раскройте скобки и выберите глагол в Present Perfect, Past Perfect, Future Perfect или Past Indefinite Tense.

1) Microsoft already (to create) its own standards in a market. 2) Microsoft (to revolutionize) the PC computing world and it (to put) much effort in to application integration and interoperability. 3) They (to say) that Microsoft (to design) its products with necessary components. 4) This system (to give) the user an enormous amount of power by 3 p.m. tomorrow. 5) When I (to come) she (to enter) the password and (to begin) working. 6) He (to receive) the e-mail by tomorrow. 7) They (to repair) the computer before they (to begin) typing. 8) You ever (to make) up a computer program? – Yes, I (to create) some last year. 9) At last I (to understand) the purpose of the operating system; now I'll have a rest. 10) By this time you (to take) your examination on Information Technologies.

11. Раскройте скобки и выберите глагол в требуемом залоге: действительном или страдательном. Переведите предложения

1) Microsoft ... (found) by Bill Gates. 2) Computer language ... (develop) in the 1970s. 3) During that period enormous advances ... (make) in computer technology. 4) The following year, twice as many personal computers ...(sell). 5) The first digital computer ... (build) by the University of Pennsylvania in 1946. 6) Last year more software companies ...(launch) than ever before. 7) Intel (release) the first microprocessor. 8) They (perform) many data processing operations in nanoseconds, which (to be) billionths of seconds. 9) Fourth generation computers (become) smaller as more components (squeeze) onto microchips.

12. Раскройте скобки. Определите время и залог. Переведите предложения

Computers, as we know them today, (to appear) comparatively recently. Only in the mid-1940s the first working digital computer (to complete). Then computers (to evolve) tremendously. Vacuum tubes used in the first-generation computer (to replace) by transistors in the second-generation computer at the beginning of the early 1960s. By the end of the 1960s, transistors themselves (to replace) by tiny integrated circuit boards and a new generation of computers (to be) on the market. Fourth-generation computers (to be) now produced with circuits that (to be) much smaller than before and can be on a single chip. Even today, new technologies (to develop) to make even better machines.

13. Переведите слова. Определите части речи.

Science – scientific – scientifically – a scientist; to explore – an explorer – an exploration – explorative; to develop

– a developer – development – developing – developed; to specialize – special – a specialist – a specialty; an achievement – to achieve – achievable; manufacturing – to manufacture – a manufacturer; a representative – to represent – representative – representation; to employ – an employer – an employee – employment – the (un)employed; commerce – commercial.

UNIT 2.

1. Text 2 A. A computer operating system
2. Text 2 B. What is an operating system (OS)?
3. Text 2 C. The problems of inventors
4. Grammar Review: Причастие

Text 2 A. A COMPUTER OPERATING SYSTEM

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

Distributed— распределенные; *interact*— взаимодействовать; *backbone* — (зд.) магистраль сети; *managing*— координирующая; *allocation of memory*— распределение памяти; *commonly* — часто, в большинстве случаев; *liaison*— связь взаимодействия; *efficiently*— рационально; *tools* — инструментарий; *interpreter* — преобразователь данных; *linker* — компоновщик, редактор связи; *debugger*— программа отладки; *to merge*— объединять; *bundle* — связка; *to accomplish*— выполнять; *application suite* — прикладной программный комплекс (напр., Microsoft Office); *spreadsheet* — крупноформатная (электронная) таблица; *template*— шаблон; *simulation*— имитационное моделирование; *middle ware* - промежуточное программное обеспечение;

Task 2. Read and translate the text.

A collection of computer programs, procedures and documentation that perform specific tasks on a computer system as desired by the user is known as Computer Software. Examples include application software such as word processors, which perform productive tasks for users, and system software.

They interact with the hardware to provide the necessary services for application software and middle ware that controls and coordinates distributed systems. Software also includes websites, programs, video games, etc. that are coded by programming languages like C, HTML, Java, PHP, etc. An operating system is a program designed to run other programson a computer. A computer operating system is its most important software. It is considered the backbone of a computer, managing both software and hardware resources. Operating systems are responsible for everything from the control and allocation of memory to recognizing input from external devices and transmitting output to computer displays. They also manage files on computer hard drives and control peripherals, like printers and scanners. Commonly used operating systems for IBM compatible personal computers include Microsoft Windows, Linux, andUNIX variations. For Macintosh computers, Mac OS X, Linux, BSD, and some Windows variants are commonly used. Device driver software is small files that act like liaisons between hardware in a computer system and the operating system (OS). Hardware requires device drivers so that the OS can see the devices and handle them effectively and efficiently. Common components that require drivers include keyboards, mice, controllers, graphics cards, audio hardware, wireless cards, ports, card readers, card slots and CD/DVD drives. Multiple applications bundled together as a package are sometimes referred to as an application suite. Microsoft Office, Open Office org, and work

08, which bundle together a word processor, a spreadsheet, and several other discrete applications, are typical examples.

User written software includes spreadsheet templates, word processor macros, scientific simulations, and graphics and animation scripts. Even email filters are a kind of user software. Users create this software themselves.

Task 3. Give the Russian equivalents for the following expressions.

Business software, computer hard drives, productive tasks, distributed systems, device driver software, an advanced graphical user interface, scientific simulations, email filters, animation scripts, a software bundle, common components, middle ware.

Task 4. Pick out from the text all the word combinations with the following words (terms) and give their Russian equivalents:

Programming; computer; software; user; system; device; task.

Task 5. Match the following English expressions (A-L) and their Russian equivalents (1-12):

A input peripherals	1. аппаратное моделирование
B hardware compatible	2. эффективно использовать ресурсы
C to use resources effectively	3. макрооперация, определенная пользователем
D software tools	4. периферийные устройства ввода
E graphics editor	5. (стандартный) блок испытательной программы
F debugging compiler	6. периферийные устройства

	вывода
<i>G</i> educational software	7. программа редактирования графической информации
<i>H</i> antivirus package	8. отладочный компилятор
<i>I</i> test program template	9. аппаратно-совместимый
<i>J</i> output peripherals	10. программные средства
<i>K</i> user-defined macros	11. обучающее программное Обеспечение
<i>L</i> hardware simulation	12. антивирусный пакет программ

Task 6. Sum up the contents of the text by answering the following questions:

1. What is OS? 2. What is it responsible for? 3. What operating system do you know? 4. What acts like liaisons between hardware in a computer system and the operating system? 5. What is the function of device driver software? 6. What for does hardware require device drivers? 7. What OS are used for personal computers? 8. What tools are provided by programming software? 9. What do typical applications include? 10. What is an application suite? 11. What does user written software include?

Text 2 B. WHAT IS AN OPERATING SYSTEM (OS)?

Task 1 Practice the reading. Translate the words

Microwave; straightforward; unnecessary; complexity; none; hard-wired program; collaborators; special-purpose; specializations; mainframes; far from; circuits; modified; patch; entirely; junk

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

Not all computers have operating systems. The computer that controls the microwave oven in your kitchen, for example, doesn't need an operating system. It has one set of tasks to perform, very straightforward input to expect (a numbered keypad and a few pre-set buttons) and simple, never-changing hardware to control. For a computer like this, an operating system would be unnecessary baggage, driving up the development and manufacturing costs significantly and adding complexity where none is required. Instead, the computer in a microwave oven simply runs a single hard-wired program all the time.

All desktop computers have operating systems. The most common are the Windows family of operating systems developed by Microsoft, the Macintosh operating systems developed by Apple and the UNIX family of operating systems (which have been developed by a whole history of individuals, corporations and collaborators). There are hundreds of other operating systems available for special-purpose applications, including specializations for mainframes, robotics, manufacturing, real-time control systems and so on.

In any device that has an operating system, there's usually a way to make changes to how the device works. This is far from a happy accident; one of the reasons operating systems are made out of portable code rather than permanent physical circuits is so that they can be changed or modified without having to scrap the whole device.

For a desktop computer user, this means you can add a new security update, system patch, new application or even an entirely new operating system rather than junk your computer and start again with a new one when you need to make a change. As long as you understand how an operating system works and how to get at it, in many cases you can change some

of the ways it behaves. The same thing goes for your phone, too.

Task 3. Give examples of the following words or phrases in the sentences of your own:

Desktop computer, operating systems, set of tasks, any device, special-purpose applications.

Task 4. Prepare a list of 8-10 questions to ask about the text.

Text 2 C THE PROBLEMS OF INVENTORS

Task 1 Practice the reading. Translate the words

Discovery, amateur, ideas, laugh, frozen, successful, scientist, science, since, surprise, product, whole, cheat, frustrate, untried, modify, major, wind, retain

Task 2. Read the text and translate it without a dictionary. Give a brief summary of the text

Many of the modern world's most famous discoveries and inventions were not made by scientists, but by amateur inventors. Often, these inventors had such unusual ideas that they were laughed at. But people like these, working on their own, gave us many of the things we use every day.

Clarence Birdseye (1886-1956), who invented frozen foods, was both a successful inventor and a good businessman. If he hadn't visited the Arctic, there may never have been frozen TV dinners. Now he is recognized as a major innovator in the food industry.

As a young scientist working in the frozen North, it didn't surprise Birdseye to note that freshly caught fish, when placed on the Arctic ice and exposed to the wind, immediately

froze solid. What did surprise Birds-eye was that the fish, if thawed and eaten much later, retained all of its fresh characteristics. This discovery was to create a new food industry and make Birdseye a millionaire.

Few inventors were as successful as Birdseye. Some, like the original owners of Coca-Cola, didn't realize the potential of their discoveries. The son of the inventor of Coca-Cola sold the recipe for \$2,300. Today the product is worth billions of dollars. In 1853, Karl Gerhardt invented aspirin, but he didn't know what to do with it. Fifty years after his invention, a German company discovered that it was a painkiller and has since made millions selling it. Edwin Armstrong invented FM radio, but he spent his whole life trying to protect his invention. Competitors stole his patents, and companies cheated him out of money. Finally, he became so frustrated with his failures that he ended his life by jumping out of a window.

Most great inventors, like Gerhardt and Armstrong, made little or nothing from their inventions. The first person with a new idea may get attention, but he also gets the problem of an untried idea. In business, it is sometimes better to be second.

Task 3. Read the text again and decide whether these statements are true or false. Correct the false ones with the facts from the text.

1. Birdseye Seafoods, Inc. was a big success.
2. The inventor of Coca-Cola became rich.
3. Karl Gerhardt didn't realize the potential of aspirin.
4. Edwin Armstrong loved the competition of the business world.
5. It takes more than just a good invention to make money.

Task 4. Discuss the following questions in pairs.

1. Why did Birdseye's first company go bankrupt?
2. Who discovered that aspirin is a painkiller?
3. Why did Armstrong kill himself?
4. What is the biggest problem of successful inventions?
5. Why do you think many inventors are not good businessmen?

Task 5. Translate the text in written form.

Computers originally dealt only with letters and numbers as input, so the keyboard is the oldest and most widespread input device. In addition to the basic typewriter arrangement of letters and numbers plus shift key, tab and so forth, computer keyboards typically contain additional specialized keys.

Control (Ctrl) and alternate (Alt) keys are used in conjunction with letter or number keys to issue commands from the keyboard to programs that are running on the computer. For example, Ctrl-C is a key combination often used to “break” or interrupt a program run and return control to the operating system.

Function keys (typically ten or twelve) may have frequently used operations assigned to them by various programs one might run. For example, F1 (function key 1) might be used to get on-screen help, F3 to undo the last operation, and F10 to save the file.

Cursor keys are used to move the cursor (a blinking line or rectangle indicating the currently active location on the screen) under keyboard control.

Additional keys for insert, delete, page up, page down, and other operations help one move around in files during editing. The numeric keypad found on many keyboards is a convenience if many numbers must be entered, because the hand can stay in one location (typically at the right-hand

side of the keyboard) rather than having to move back and forth on the top row.

The keyboard communicates with the operating system by issuing an interrupt for every key press. It normally has its own connector to the system unit and so does not occupy an I/O port.

GRAMMAR REVIEW

1. Переведите предложения с Participle I и Participle II

1. When entering the Internet, I always find a lot of interesting information. 2. Though never built Babbage's analytical engine was the basis for designing today's computers. 3. When written in a symbolic language programs require the translation into the machine language. 4. While operating on the basis of analogy analog computers simulate physical systems. 5. When used voltage represents other physical quantities in analog computers. 6. Being discrete events commercial transactions are in a natural form for a digital computer. 7. As contrasted with the analyst, the computer system architect designs computers for many different applications. 8. While dealing with discrete quantities digital computers count rather than measure. 9. When using a microcomputer you are constantly making choice — to open a file, to close a file, and so on. 10. As known all computer systems perform the functions of inputting, storing, processing, controlling, and outputting.

2. Переведите следующие словосочетания, а) употребляя причастие II

письмо, написанное моим братом (to write); перевод, сделанный (to do) студентами; принятое (to accept) приглашение; законченный (to finish) проект; прочитанная

(toread) книга; картина, написанная (topaint) молодым художником; машина, сконструированная (todesign) инженером; эксперимент, проделанный (tomake) ученым

б) употребляя причастие I:

читающая девушка; разговаривающий (totalk) студент; рабочие, идущие на завод; молодой человек, встречающий (tomeet) своих родителей; студенты, изучающие английский язык; мальчик, отсылающий письмо

3. Переведите предложения, содержащие Perfect Participle Active и Perfect Participle Passive.

1. *Having finished* the research the scientists made the analysis of the data obtained. 2. The designer left the office *having looked* through all the documents. 3. *Having discussed* the functions of storage units we passed on to the consideration of control processing unit. 4. *Having limited* the information capacity of a single bit to two alternatives the computer designers expressed data by a combination of bits. 5. *Having translated* the program into machine language the computer architect put the program into the machine. 6. *Having been coded* the instruction was transmitted to the central processing unit. 7. *Having been transmitted* to the central processing unit the instruction made arithmetic-logical unit perform some computations. 8. *Having been regulated* by the operator the equipment operated well. 9. Data *having been entered* correctly into the computer component of a data processing system, the need for further manipulation by humans is eliminated. 10. *Having been well prepared* for the examination the pupils could answer all the questions the teacher asked them.

4. Раскройте скобки, используя Perfect Participle Active или Perfect Participle Passive. Переведите предложения

1. (to finish) the research the scientists made the analysis of the data obtained. 2. The designer left the office (to look through) all the documents. 3. (to discuss) the functions of storage units we passed on to the consideration of control processing unit. 4. (to limit) the information capacity of a single bit to two alternatives the computer designers expressed data by a combination of bits. 5. (to translate) the program into machine language the computer architect put the program into the machine. 6. (to be coded) the instruction was transmitted to the central processing unit. 7. (to be transmitted) to the central processing unit the instruction made arithmetic-logical unit perform some computations. 8. (to be regulated) by the operator the equipment operated well. 9. Data (to be entered) correctly into the computer component of a data processing system, the need for further manipulation by humans is eliminated. 10. (to be well prepared) for the examination the pupils could answer all the questions the teacher asked them. 11. Electromechanical memories depend upon (to move) mechanical parts for their operation. 12. The time (to require) for the computer to locate and transfer data to and from a storage medium is called the access time. 13. (to be) not visible software makes possible the effective operation of computer system. 14. (to invent) magnetic tapes the Germans used them as the secondary storage medium. 15. When properly (to program) computers don't make computational errors. 16. (to be introduced) in the early 1960s magnetic disc storage has replaced magnetic tape storage. 17. The control unit (to interpret) instructions is one of the important parts of any computer system. 18. Data (to record) in the form of magnetized dots can be arranged to represent coded patterns of bits. 19. As (to contrast) with magnetic tapes magnetic discs

can perform both sequential and random processing. 20. While (to have) no moving mechanical parts electronic memories can transfer data at very high speed.

5. Переведите предложения, содержащие всевозможные формы причастий: Participle I, Participle II, Perfect Participle Active и Perfect Participle Passive.

1. Electromechanical memories depend upon *moving* mechanical parts for their operation. 2. The time *required* for the computer to locate and transfer data to and from a storage medium is called the access time. 3. *Being* not visible software makes possible the effective operation of computer system. 4. *Having invented* magnetic tapes the Germans used them as the secondary storage medium. 5. *When properly programmed* computers don't make computational errors. 6. *Having been introduced* in the early 1960s magnetic disc storage has replaced magnetic tape storage. 7. The control unit *interpreting* instructions is one of the important parts of any computer system. 8. Data *recorded* in the form of *magnetized* dots can be arranged to represent *coded* patterns of bits. 9. *As contrasted* with magnetic tapes magnetic discs can perform both sequential and random processing. 10. *While having* no *moving* mechanical parts electronic memories can transfer data at very high speed.

6. Найдите предложения с Participle II, определите его функцию и переведите предложения

1. He checked all the compositions two days ago. 2. When checked by the teacher, the compositions were handed out to the students. 3. He has checked all the papers written by the students. 4. We ordered new magazines yesterday. 5. The engines ordered at the plant will be delivered in a few days. 6. When completed, the project was discussed in detail. 7. The completed project was a great success. 8. We completed our

project the other day. 9. Spoken words are often more powerful than written ones. 10. I have spoken to him more than once, but he hasn't given any answer. 11. Though boiled, the water was unsuitable for drinking. 12. When freshly prepared this substance is colourless. 13. He has prepared everything we need for the experiment. 14. Unless otherwise stated we shall analyse only solutions in liquids. 15. The articles referred to above deal with alkali metals.

7. Переведите предложения на английский язык

1. Написав письмо, я отнес его на почту. 2. Он часто сидел там, читая или разговаривая со своими друзьями. 3. Переписывая статью, она исправила 3 ошибки. 4. Прделанная работа отняла у нас много времени. 5. Эксперименты, проведенные в нашей лаборатории, представляют большой интерес. 6. Закончив работу, я пошел домой. 7. Дома, строящиеся в нашем городе, очень высокие. 8. Идя домой, я встретил моего старого друга. 9. Прочитайте книгу, рекомендованную этим ученым.

8. Найдите независимые причастные и переведите предложения

1. *Data being accessed randomly*, semiconductor memories are called random access memory (RAM).

2. *The Information capacity of a Single bit being limited to two alternatives*, codes are based on combination of bits.

3. *Primary storage having similarity to a function of the human brain*, the storage is also called memory.

4. *An electron leaving the surface*, the metal becomes positively charged.

5. *Computer System architecture being organized around the primary storage unit*, all instructions must pass through it.

6. Computer System architecture is organized around the primary storage unit, *all instructions passing through it*.

7. Electromechanical memories depend upon moving mechanical parts, *their data access time being longer than is that of electronic memories*.

8. For this reason most Computer Systems use electronic memory for primary storage, *electromechanical memory being used for secondary storage*.

9. Large capacity tape de-vices are used with large data processing systems, *cassettes and cartridges being applied with small systems*.

10. The CPU controls the Operation of the entire System, *commands being issued to other parts of the System*.

9. Переведите слова. Определите части речи.

To connect – a connector – connection – connectible; to install – installation – an installment; a place – to place – to replace – a replacement; a multiple – multiplication – to multiply – a multiplier; to perform – performance – a performer.

UNIT 3

1. Text 3 A. Computer system architecture
2. Text 3 B. Hardware, Software and Firmware
3. Text 3 C. Why the last shall be first
4. Grammar Review: Инфинитив

Text 3 A. COMPUTER SYSTEM ARCHITECTURE

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

Accessory equipment - вспомогательные устройства;

engineering background-техническая подготовка, квалификация; **application programmer**-прикладной программист; **to simulate**— моделировать, копировать..; **continuous quantity**-непрерывная величина; **on-going process** —продолжающийся, постоянный, непрерывный процесс; **household appliances**-домашние приборы / устройства; **indoor climate control system** — система регуляции температуры в доме

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

As we know all computer systems perform the functions of inputting, storing, processing, controlling, and outputting. Now we'll get acquainted with the computer system units that perform these functions. But to begin with let's examine computer systems from the perspective of the system designer, or architect.

It should be noted that computers and their accessory equipment are designed by a computer system architect, who usually has a strong engineering background. As contrasted with the analyst, who uses a computer to solve specific problems, the computer system architect usually designs computer that can be used for many different applications in many different business. For example, the product lines of major computer manufacturers such as IBM, Digital Equipment Corporation and many others are the result of the efforts of teams of computer system architects.

Unless you are studying engineering, you don't need to become a computer system architect. However, it is important that as a potential user, applications programmer or systems analyst you understand the functions of the major units of a computer system and how they work together.

Types of computers

The two basic types of computers are analog and digital. Analog computers simulate physical systems. They operate on the basis of an analogy to the process that is being studied. For example, a voltage may be used to represent other physical quantities such as speed, temperature, or pressure. The response of an analog computer is based upon the measurement of signals that vary continuously with time. Hence, analog computers are used in applications that require continuous measurement and control.

Digital computers, as contrasted with analog computers, deal with discrete rather than continuous quantities. They count rather than measure. They use numbers instead of analogous physical quantities to simulate on-going, or real-time processes. Because they are discrete events, commercial transactions are in a natural form for digital computation. This is one reason that digital computers are so widely used in business data processing.

Machines that combine both analog and digital capabilities are called *hybrid computers*. Many business, scientific, and industrial computer applications rely on the combination of analog and digital devices. The use of combination analog devices will continue to increase with the growth in applications of microprocessors and microcomputers. An example of this growth is the trend toward installing control systems in household appliances such as microwave ovens and sewing machines. In the future we will have complete indoor climate control systems and robots to do our housecleaning. Analog sensors will provide inputs to the control centres of these systems, which will be small digital computers.

Task 3. Answer the questions

1. Who designs computers and their accessory equipment? 2. What is the role of an analyst? 3. Is it necessary for a user to become a computer system architect? 4. What

functions do computer systems perform? 5. What types of computers do you know? 6. What is the principle of operation of analog computers? 7. How do digital computers differ from analog computers? 8. Where are digital and analog computers used? 9. What are hybrid computers? 10. Where do they find application?

Task4. Find English equivalents in the text:

Функции ввода, хранения, обработки, управления и вывода информации; познакомиться; системные блоки; для начала; вспомогательные устройства; разработчик компьютерной системы; хорошая компьютерная подготовка; различные сферы применения; корпорация цифрового оборудования; прикладной программист; системный разработчик; главные устройства компьютерной системы; моделировать физические величины; измерение сигналов; в отличие от; иметь дело скорее с дискретными, чем непрерывными величинами; в режиме реального времени; коммерческие операции; цифровое вычисление; аналого-цифровые компьютеры; тенденция к установке систем управления; домашние приборы.

Task 5. Translate the words of the same root. State what parts of speech they are.

To change – a change; to surround – surroundings; to imagine – an image – imagination; possible – impossible; to invent – an invention – an inventor; to amuse – amusing – amusement; to end – an end – endless; to discover – a discovery; ill – illness; to succeed – success – successful – successfully

TEXT 3 B. HARDWARE, SOFTWARE AND FIRMWARE

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

System — системное программное обеспечение; *software* — прикладное программное обеспечение; *application software* — встроенное / микропроцессорное программное обеспечение; *visible units* — видимый блок, устройство; *associated documentation* — соответствующая документация; *payroll* — платежная ведомость; *inventory control* — инвентаризация; переучет; *investment analyses* — анализ инвестиций (капиталовложений); *read-only memory (ROM)* — постоянное запоминающее устройство (ПЗУ); *to accomplish* — завершать, заканчивать; выполнять, осуществлять; *performance* — производительность; быстродействие; рабочая характеристика

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

The units that are visible in any computer are the physical components of a data processing system, or *hardware*. Thus, the input, storage, processing and control devices are hardware. Not visible is the *software* — the set of computer programs, procedures, and associated documentation that make possible the effective operation of the computer system. Software programs are of two types: systems software and applications software.

Systems software are the programs designed to control the operation of a computer system. They do not solve specific problems. They are written to assist people in the use of the computer system by performing tasks, such as controlling all of the operations required, to move data into and out of a computer and all of the steps in executing an application program. The person who prepares systems software is

referred to as a systems programmer. Systems programmers are highly trained specialists and important members of the architectural team.

Applications software are the programs written to solve specific problems (applications), such as payroll, inventory control, and investment analysis. The word program usually refers to an application program, and the word programmer is usually a person who prepares applications software.

Often programs, particularly systems software, are stored in an area of memory not used for applications software. These protected programs are stored in an area of memory called readonly memory (ROM), which can be read from but not written on.

Firmware is a term that is commonly used to describe certain programs that are stored in ROM. Firmware often refers to a sequence of instructions (software) that is substituted for hardware. For example, in an instance where cost is more important than performance, the computer system architect might decide not to use special electronic circuits (hardware) to multiply two numbers, but instead write instructions (software) to cause the machine to accomplish the same function by repeated use of circuits already designed to perform addition.

Task 3. Answer the following questions:

1. What is hardware? 2. Give the definition of software. 3. What are the types of software? 4. What are systems software? 5. What kind of tasks do systems software perform? 6. Who prepares systems software? 7. What are applications software? 8. What problems do applications software solve? 9. What is firmware? 10. How can a computer system architect use firmware?

Task 4. Find English equivalents in the text:

Видимые устройства; система обработки данных; аппаратное обеспечение; набор компьютерных программ; соответствующая документация; эффективная работа; системное программное обеспечение; прикладное программное обеспечение; системный программист; платежная ведомость; переучет; анализ инвестиций; прикладная программа; работающий только в режиме чтения; постоянное запоминающее устройство; последовательность команд; в случае; производительность; электронная цепь; умножать числа; заставить машину выполнять ту же функцию; выполнять сложение.

Task 5. Translate the following word combinations:

Architecture: communication architecture; computer architecture; disk architecture; microprocessor architecture; network architecture; security architecture; system architecture; virtual architecture.

Software: system software; application software; database software; disk software; educational software; game software; management software; simulation software.

Task 6. Give a brief summary of the above text.

TEXT 3 C. WHY THE LAST SHALL BE FIRST

Task 1 Practice the reading. Translate the words

<p><i>Occupies; commercial; exception; dominance; challenged; timing; competitive; expertise; eponymous</i></p>

Task 2. Read the text and translate it without a dictionary. Give a brief summary of the text

Have you heard of Berkey or Ampex? Gablinger or Chux? Perhaps you should have, because each occupies an important place in the history of product innovation. Berkey produced the first hand-held electronic calculators, Ampex the first video recorders. Gablinger developed low-alcohol beer and Chux sold the first not reusable nappies.

Or perhaps you should not, because none of these companies made a commercial success of their innovations. Today the calculators we use are probably made by Casio, our video recorder comes from Matsushita, our low alcohol beer is Miller Lite, our nappies are made by Proctor & Gamble. In each of these markets the innovator was swept away.

Xerox looks like an exception to this sorry catalogue. The company was first into the photocopier market and, even if its dominance was finally challenged by Canon, it remains a large and successful company today. But Xerox was also a pioneer in fax machines and personal computers. Each of these sooner or later proved to be a success but not for Xerox Corporation.

As we all know, it was Apple that developed the personal computer market. But Apple's leadership quickly disappeared when IBM came on the scene. Apple then jumped to the lead by introducing the graphical user interface. Its windows and mice brought personal computing within the reach of everyone. But it is Microsoft that does this now.

The business world is not kind to pioneers. Even if you know how a market will develop, timing is a matter of luck - or of quite exceptional skill.

There are two closely related lessons. One is that being first is not often very important. The other is that innovation is rarely a source of competitive advantage on its own.

Individuals and small companies can make a great deal of money out of good new ideas.

The success of large well-known corporations - Matsushita, Philip Morris, IBM or General Electric is generally based on other things: their power of technical expertise, their marketing skills. And time and again these characteristics make them possible to develop the innovative concept far more effectively than the innovators themselves.

This is not to say that there is no role in business for the great innovator. After all, General Electric was built on the extraordinary creativity of Thomas Edison's mind, the Ford motor company on the abilities of its eponymous founder. The imagination of Walt Disney created a company that is still without parallel or competitor. Perhaps Akio Morita of Sony occupies a similar place in the history of modern business.

Task 3. Answer these questions about the article.

1. What is the main point made by the writer?
2. Several well-known companies are mentioned. What reasons are given for their success?
3. What is the connection between Disney, Ford, General Electric and Sony?

Task 4. Discuss these questions.

1. Do you think it is better to innovate or imitate products and services?
2. Can you name any companies which were a) innovators? b) imitators?

Task 5. Turn the verbs into nouns using the suffix – tion and translate into Russian:

To operate – operation, to execute, to implement, to prevent, to propagate, to consume, to instruct, to add, to multiply, to vary, to apply, to reduce, to modify, customize.

Task 6. Translate the text in written form.

The mouse, developed by Douglas Englebart of Xerox in the 1960s, is perfectly suited for operations like pointing, drawing, and selecting. Programs that involve picking objects on the screen, choosing entries from menus, or manipulating graphic objects often make extensive use of the mouse.

A typical mouse translates the motion of its underside on a flat surface into cursor movement on the screen. The principle may be mechanical (a roller or ball whose rotation translates into cursor movement) or optical (involving reference to a special gridded pad on which the mouse must be used). A mouse may have one, two, or three buttons. A simple press and release (called a “click”) normally selects an item; a click and hold operation is used for dragging an object around the screen or sometimes for moving down to the next level of a menu structure. For a mouse with fewer buttons, double clicks or clicks combined with keystrokes are often used to extend the range of operations that can be performed.

A mouse may either be connected to the rest of the computer through a serial port (serial mouse) or else have its own interface card and connector, which hooks directly onto the system bus (bus mouse). It often requires a device driver that must be loaded at system start-up.

GRAMMARREVIEW

1. Переведите предложения и словосочетания, используя инфинитив в функции

A. обстоятельства

1. Computers were designed to perform thousands of computations per second. 2. To make computers more reliable transistors were used. 3. They were applied to reduce computational time. 4. To integrate large numbers of circuit

elements into a small chip, transistors should be reduced in size. 5. To use integrated circuit technology new computers were built. 6. Analytical engine was invented to store data.

В. определения

The problem to be solved; the work to be finished; the cards to be punched; calculations to be performed; the machine to be shown at the exhibition; the device to be provided with the necessary facts; computers to be used for data processing; efforts to increase reliability; electronics to connect systems and subsystems; the speed of response to depend on the size of transistor; computers to perform thousands of calculations per second; vacuum tubes to control and amplify electric signals; these are circuits to use a large number of transistors; operations to be performed.

2. Переведите предложения, указав инфинитив:

1. A printer is an example of a device to produce output in a human-readable format. 2. The high-speed devices to be used as secondary storage are both input and output devices. 3. The progress of electronics to have resulted in the invention of electronic computers was a breakthrough of the second part of the 20th century. 4. Mendeleev's periodic law to have been accepted as a universal law of nature is of great importance nowadays. 5. When output is available, output interfaces must be designed to reverse the process and to adopt the output to the external environment. 6. The memory stores the instructions and the data to be quickly retrieved on demand by the CPU. 7. Computers to have been designed originally for arithmetic purposes are applicable for great variety of tasks at present. 8. The film to have been running for over a month this year attracts attention of many spectators. 9. The CPU of a computer to be arranged in a single or very small number of integrated circuits is called a microprocessor.

3. Прочтите предложения. Сравните их.

Укажите, в каких предложениях инфинитив выполняет функцию обстоятельства и при переводе появится союз «чтобы»?

1. You must use such device to produce output in a human-readable format. 2. To produce output in a human-readable format was our aim. 3. To produce output in a human-readable format you must use such device as a printer. 4. A printer is a device to produce output in a human-readable format.

4. Прочтите предложения, найдите в них инфинитивы в функции обстоятельства и переведите предложения:

a)

1. To understand how to use a computer one must fully appreciate its design. 2. Processing is operations on data to convert them into useful information. 3. Computers were designed to perform thousands of computations per second. 4. To make computers more reliable transistors were used. They were applied to reduce computational time. 5. To integrate large numbers of circuit elements into a small chip, transistors should be reduced in size. 6. To use integrated circuit technology new computers were built. 7. Analytical engine was invented to store data. 8. Disk drives are used to read and write data on disks.

b)

1. I had to borrow money from the bank in order to set up the business. 2. In order to demonstrate the effect Table 1 is given. 3. To perform this work one must have all the necessary equipment. 4. Data are processed to become useful information.

c)

1. Bus fares in the city are being cut so as to encourage people to use public transport. 2. Input devices are used to enter data

into primary storage. 3. As a scanner, the Sigma 100 can be used to enter photographs as well as documents into a computer. 4. Instead of a mouse, they have a touchpad built into the keyboard – a sensitive pad that you can touch to move the pointer on the screen. 5. It is designed to be placed on your desk. 6. A laser printer uses a laser beam to fix the ink to the paper. 7. In order to avoid complex calculations in bytes, we use bigger units. 8. Enter is pressed to select options from a menu or to start a new paragraph. 9. It is important for the model to be accurate but simple enough. 10. We need more traffic cameras so as to reduce crimes. 11. Different applications of digital technologies were used lest there be carbon emissions.

5. Проанализируйте неличные формы глагола и переведите предложения.

1. Data are processed to become useful information. 2. We use the term data processing to include the resources applied for processing of information. 3. Resources required for accomplishing the processing of data are called data processing system. 4. Processing is a series of operations converting inputs into outputs. 5. Facilities are required to house the computer equipment. 6. Egyptians used the information to predict crop yields. 7. Information to be put into the computer for processing should be coded into ones and zeroes. 8. Processing is operations on data to convert them into useful information. 9. The first machines designed to manipulate punched card data were widely used for business data processing. 10. Hollerith built one machine to punch the holes and the other to tabulate the collected data.

6. Переведите предложения с "for + Infinitive"

1. It was not difficult *for the pupils to understand* the function of the mouse in computer operation. 2. There is no

reason *for computer experts to use* computers of the first generation nowadays. 3. The mechanism is provided with special devices *for the whole system to function* automatically. 4. The text was very interesting but rather difficult *for the students to translate* it without a dictionary. 5. It is not easy *for me to learn* to speak English fluently.

7. Укажите *for-to-infinitive-construction* в предложениях. Предложения переведите.

1. It was impossible for me to solve this problem myself. 2. She was waiting for somebody to come. 3. The lady was speaking too fast for me to get her. 4. He asked for the papers to be brought. 5. I am anxious (мне очень хочется) for Mr. Smith to succeed in all he undertakes. 6. The best thing for you to do is to meet him. 7. He spoke loud enough for you to hear. 8. She was impatient for him to be gone. 9. There was really nothing for him to do there. 10. For a force to exist there must be two objects involved. 11. The temperature was too low for the substance to decompose. 12. The tendency was for the gas to become ionized. 13. It is possible for the reaction to occur. 14. The only conclusion for him to make was the following one. 15. The motion took place long enough for the bodies to become heated.

8. Переведите предложения, обращая внимание на инфинитив

1. To solve problems effectively computer systems are developed. 2. The article on computers to be discussed is of great importance. 3. To solve the 139 problem with the help of the computer was his task. 4. To understand the construction of the CPU was my wish. 5. We went to the laboratory to take part in the work. 6. To use the computer in the work was our engineer's decision. 7. The problem is to integrate hardware and software. 8. He began to study at the radio-engineering faculty last year. 9. The electronic devices to be used in this

experiment will be very effective. 10. When a new law against hackers was introduced, Neil was the first person to be arrested. 11. A PC may have one or more co-processors to handle special kinds of work. 12 The function of the control unit within the central processor is to transmit coordinating control signals and commands. 14. He is glad to have been admitted to the computer courses. 15. The number of problems to have been solved by means of computers is enormous.

9. Переведите слова. Определите части речи.

To expand – an expanse – expansible – an expansion – expansive; to compute – a computer – computation; to connect – a connector – connection; to establish – an establishment – established; to provide – providence – a provider – provident.

UNIT 4

1. Text 4 A. Coding and programming
2. Text 4 B. From the history of programming
3. Text 4 C. Program errors
4. Grammar Review: Complex Object

Text 4 A. CODING AND PROGRAMMING

Task 1. Read and memorize the following words and word combinations:

To convert into— превращать, преобразовывать; **troubleshooting** – диагностика, устранение неполадок, поиск неисправностей; **source code**— исходный текст (программы); **application domain**- область применения вычислительной техники, **to maintain**— поддерживать, сохранять; **to exhibit**— показывать, демонстрировать; **to omit**— пропускать, не включать, пренебрегать (чем-л.), упускать (что-л.); **customization**— настройка или изготовление продукта под требования (технические

условия) заказчика; *to be referred to as*— именовать, называться; *expertise*— квалификация, компетентность, компетенция, мастерство, умение; *reference*— ссылка, эд. адрес, номер (ячейки)

Task 2. Read and translate the text.

Computer programming (often shortened to programming or coding) is the process of writing, testing, debugging/troubleshooting, and maintaining the source code of computer programs. This source code is written in a programming language. The code may be a modification of an existing source or something completely new. The purpose of programming is to create a program that exhibits a certain desired behavior (customization). The process of writing source code requires expertise in many different subjects, including knowledge of the application domain, specialized algorithms and formal logic.

Computer source code is often written by professional computer programmers. Source code is written in a programming language and may be converted into an executable file (sometimes called an executable program or a binary) by a compiler. Compiled computer programs are commonly referred to as executables, binary images, or simply as binaries — a reference to the binary file format used to store the executable code.

Compilers are used to translate source code from a programming language into either object code or machine code. Object code needs further processing to become machine code and machine code is the Central Processing Unit's native code, ready for execution. Alternatively, computer programs may be executed by a CPU with the aid of an interpreter. Interpreting code is slower than running the compiled version because the interpreter must decode each statement each time it

is loaded and then perform the desired action. On the other hand, software development may be quicker using an interpreter because testing is immediate when the compilation step is omitted. Another disadvantage of interpreters is that the interpreter must be present on the computer at the time the computer program is executed. By contrast, compiled computer programs need not have the compiler present at the time of execution.

Interpreted computer programs are either decoded and then immediately executed or are decoded into some efficient intermediate representation for future execution. BASIC, Perl, and Python are examples of immediately executed computer programs. Alternatively, Java computer programs are compiled ahead of time and stored as a machine independent code called byte code.

Notes

Perl (Practical Extraction and Report Language) — язык для практического извлечения данных и составления отчётов, язык Perl свободно распространяемый интерпретируемый язык. Создан Ларри Уоллом (Larry Wall) в 1986 г. Обычно используется для создания динамически генерируемых Web-страниц. Используется также системными администраторами и Web-мастерами для работы и изменения текстов, файлов и процессов.

Python — язык (программирования) Python интерпретируемый полноценный объектно-ориентированный скриптовый ЯВУ, часто применяемый в качестве языка сценариев при написании Интернет-приложений для системного администрирования, доставки веб-контента и т.п. Поддерживается на многих платформах. Создан в конце 1980-х годов голландским программистом Гвидо Ван Россумом.

Task 3. Give the Russian equivalents.

On the other hand; a modification of an existing source code; to require expertise; to be decoded into some efficient representation; debugging; disadvantage; ahead of time; an executable file; be converted into an executable file; binary images; further processing; interpreted computer programs; application domain.

Task 4. Give the English equivalents.

Сохранять исходный текст программы; изменение исходного текста; демонстрировать; устранение неполадок; основной недостаток, программа выполняется; пренебрегать (чем-л.); называться; компетентность; ссылка; сохранить в машинном коде; двоичный; изготовление продукта под требования заказчика; бинарные изображения; код ЦПУ.

Task 5. Answer the following questions.

1. What is the purpose of programming? 2. What is coding? 3. What does the process of writing source code require? 4. What are executables? 5. What are compilers used for? 6. What is the main disadvantage of interpreters?

Task 6. Summarize the information about programming and coding.

Text 4 B. FROM THE HISTORY OF PROGRAMMING

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

To predefine – определять; *gear* – зубчатое колесо, шестерня; *percussion instrument* – ударный инструмент; *pasteboard* – картонный; *loom* – ткацкий станок; *weaves* – переплетения, узоры; *conceive* –

ОСМЫСЛИТЬ, ЗАДУМАТЬ; *plug-board* – коммутационная панель, наборная панель

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

The concept of devices that operate following a predefined set of instructions traces back to Greek Mythology, notably Hephaestus and his mechanical servants. The Antikythera mechanism was a calculator utilizing gears of various sizes and configuration to determine its operation. The earliest known programmable machines (machines whose behavior can be controlled and predicted with a set of instructions) were Al-Jazari's programmable Automata in 1206. One of Al-Jazari's robots was originally a boat with four automatic musicians that floated on a lake to entertain guests at royal drinking parties. Programming this mechanism's behavior meant placing pegs and cams into a wooden drum at specific locations.

These would then bump into little levers that operate a percussion instrument. The output of this device was a small drummer playing various rhythms and drum patterns. Another sophisticated programmable machine was the *castle clock*. The "castle clock", an astronomical clock invented by [Al-Jazari](#) in 1206, is considered to be the earliest programmable analog computer. It displayed the zodiac, the solar and lunar orbits, a crescent moon-shaped pointer travelling across a gateway causing automatic doors to open every hour, and five robotic musicians who play music when struck by levers operated by a camshaft attached to a water wheel. The length of day and night could be re-programmed every day in order to account for the changing lengths of day and night throughout the year.

The Jacquard Loom, which Joseph Marie Jacquard developed in 1801, uses a series of pasteboard cards with holes punched in them. The hole pattern represented the pattern that

the loom had to follow in weaving cloth. The loom could produce entirely different weaves using different sets of cards. Charles Babbage adopted the use of punched cards around 1830 to control his Analytical Engine. The synthesis of numerical calculation, predetermined operation and output, along with a way to organize and input instructions in a manner relatively easy for humans to conceive and produce, led to the modern development of computer programming.

Development of computer programming accelerated through the Industrial Revolution. The punch card innovation was later refined by Herman Hollerith who, in 1896 founded the Tabulating Machine Company (which became IBM). He invented the Hollerith punched card, the card reader, and the key punch machine. These inventions were the foundation of the modern information processing industry. The addition of a plugboard to his 1906 Type I Tabulator allowed it to do different jobs without having to be physically rebuilt. By the late 1940s there were a variety of plugboard programmable machines, called unit record equipment, to perform data processing tasks (card reading). Early computer programmers used plug-boards for the variety of complex calculations requested of the newly invented machines.

Notes

Hephaestus — бог огня; Гефест; *Antikythera* — Антикитерский механизм — механическое устройство, обнаруженное в 1900 году на затонувшем древнем судне недалеко от греческого острова Антикитера. *Al-*

Jazari — Аль-Джазари (1136—1202) — исламский инженер, изобретатель, он изобрел коленчатый вал, по его чертежам строились двухтактные клапанные насосы, дамбы и водоподъемные машины. Аль-Джазари сконструировал водяные часы, отбивавшие время каждые полчаса, фонтаны, музыкальные автоматы и т.д. *Joseph Marie Jacquard* — Жозеф Мари Жаккар — французский

изобретатель ткацкого станка для узорчатых материй (машина Жаккарда); *Herman Hollerith* — Герман Холлерит — создатель электрической табулирующей системы, основатель компании *Tabulating Machine Company*; *Charles Babbage* — Чарльз Бэббидж — английский изобретатель, разработал проект первого автоматического вычислителя.

Task 3. Render the text in English and in Russian. Provide additional information if possible.

Text 4 C PROGRAM ERRORS

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

<i>Programmer's</i>	<i>responsibility</i>	—	
ответственность программиста;	<i>capabilities</i>	—	
потенциальные возможности;	<i>benign</i>	— незначительный;	
<i>subtle</i>	— едва различимый,	<i>be</i>	
<i>harnessed</i>	— использовать;	<i>malicious</i>	— злонамеренный;
<i>to disrupt</i>	— разрушать, прерывать;	<i>undefined terms</i>	—
неопределенные термины;	<i>sample data</i>	— образцы (модели)	
данных, <i>to verify</i>	— проверять.		

Task 2. Read the text and translate it into Russian without a dictionary. Write a short summary of it.

PROGRAM ERRORS

So long as computers are programmed by human beings, computer programs will be subject to errors. It is programmer's responsibility to find errors and correct them. The process of finding and correcting errors or bugs as they are often referred to is called testing and debugging. Testing and debugging can be difficult and time-consuming, but the ability to detect and correct programming errors is one of the most important capabilities of a good programmer. A program is

considered incomplete until the programmer verifies that it performs as required.

There are two main types of bugs in computer programs. These are coding errors and logic errors. Coding errors typically involve incorrect punctuation, incorrect word-order, undefined terms, or misuse of terms. In case of coding errors the language processor is unable to convert the source program to object program and points them out to the programmer by printing error instructions on the source listing, giving thus hints as to the nature of the error. It is a relatively easy task, therefore, to find and correct this type of errors.

The second type of errors, a logic error, is an error in planning the program's logic. In this case, the language processor successfully translates the source code into machine code, and the computer follows instructions. The problem is that the logic being followed does not produce the results that were desired.

In order to determine whether or not a logic error exists, the program must be run using sample data with known answers. By running the program and comparing the program's answers to the known answers, the accuracy of the logic plan can be determined. Logic errors can be avoided through careful planning of the program logic, but it is the programmer's responsibility to test thoroughly all the program's functions, in order to verify that the program performs according to specifications.

Notes

Programmer's responsibility — ответственность программиста: *capabilities* — потенциальные возможности: *benign* — незначительный: *subtle* — едва различимый. трудно уловимый: *be harnessed* — использоваться: *malicious* — злонамеренный: *to disrupt* — разбивать. прерывать: *undefined terms* — неопределенные термины: *sample data* — образцы (модели) данных, *to verify* — проверять.

GRAMMARREVIEW

1. Перепишите предложения, подчеркните в них сложное дополнение, переведите на русский язык.

1. The president expected these laws to protect the interests of the country. 2. He knows gravity to act on every particle of a body. 3. The experiments have shown the electrons to be particles of negative electricity. 4. He knows the idea of space flights to have attracted the attention of people since the remotest times. 5. He heard the town clock strike twelve. 6. I made him repeat the rule. 7. I don't like him to be so long alone. 8. They let me take up educational work. 9. We know the machine to react to a series of electrical impulses that can be represented in binary numbers. 10. Scientists considered *silicon to be* one of the best materials for the creation of an IC. 11. We know all data to be translated into binary code before being stored in main storage. 12. Engineers expect these new devices to be tested very soon. 13. They want their son to become a computer operator and to design new computer models.

2. Переведите, обращая внимание на конструкцию ComplexObject.

1. I suppose her to be about 25. 2. Have you ever heard him speak English? 3. Do you want me to come too? 4. We expect our teacher to speak about the results of our tests. 5. We consider Alex to be the best mathematician of our group. 6. We want you to stay with us. 7. The teacher considers me not to have learnt this rule. 8. We expect him to have taken part in this work. 9. We saw her get off the train. 10. They expect their friend to pass all exams successfully.

3. Переведите, используя конструкцию ComplexObject.

1. Она попросила сына открыть окно. 2. Она попросила открыть окно. 3. Он не разрешил им отвезти книги в институт. 4. Он не разрешает отвезти книги в институт. 5. Директор попросил секретаря отослать письмо по электронной почте. 6. Директор попросил отослать письмо как можно быстрее. 7. Преподаватель разрешил студентам сдать (to hand in) курсовую работу через неделю. 8. Преподаватель разрешил сдать курсовую работу (course work). 9. Он приказал своему агенту продать товары немедленно. 10. Он хотел, чтобы мы помогли решить эту проблему. 11. Она попросила, чтобы ей показали письмо.

4. Употребите, где необходимо to перед инфинитивом в составе сложного дополнения. Переведите предложения.

1. I saw him (to cross) the street. 2. They allowed us (to go) to the party. 3. I hate him (to interrupt) me. 4. She would like (to be invited) to concert. 5. She felt him (to touch) her hand. 6. She cannot bear him (to speak) like that. 7. We shall watch the ship (to sail off). 8. Do your parents make you (to study) English? 9. I like people (to tell) the truth. 10. I haven't heard anyone (to call) me.

5. Прочтите и переведите следующие предложения:

1. We assume the simple wave form to act on the antenna. 2. We know radio electronics to surround us everywhere. 3. We know Ethernet to be the dominant network technology in the IT computing world. 4. Scientists consider the frequency stability of generators to be the heart of all radio transmitting systems. 5. Manufacturers of the magnetic shield consider it to be effective. 6. We expect the documents to serve experienced

programmers. 7. The editor declared this multiformat audio test instrument to be the most important one. 8. The Intel developers want the computer to be noiseless. 9. Japan Electronics Show Association wants the International Broadcast Exhibition 2005 to be successful. 10. Software as a Service will require ordinary users to have more powerful computers. 11. He wished the matter to be taken seriously. 12. We proved this suggestion to be wrong. 13. I hate you to use my laptop. 14. We consider the program as consisting of three stages. 15. We have the device repaired.

6. Прочтите и переведите следующие предложения:

1. They saw his activity bring great success. 2. The group watched the computer operate. 3. Scientists see DBC (Direct – Broadcast Satellite) provide better pictures and sound. 4. Vodafone and Sony feel their research partnership find new ways for successful work. 5. One cannot fail to see other countries tending for mutual cooperation.

7. Прочтите и переведите следующие предложения:

1. Variable current makes the diaphragm vibrate. 2. The inductance in a circuit causes the rise and fall of current to produce a voltage in the same circuit. 3. This force causes the electrons to be attracted to the cathode. 4. Bluetooth, an emerging technology standard, will allow digital devices to connect wirelessly. 5. A spreadsheet is a software which allows data to be displayed and managed in a table format. Word is great because it allows making text files easily. 6. UNIX provides multitasking, which allows simultaneous programs to be shared by several users at one time. 7. The decrease in the weight of the structure of aeroplane enables more passengers to be carried. 8. The technique permitted

problems to be solved.9. The pulse method enables thermodynamic equation to be formulated in a simple manner.10. This sequence causes digitized images to be stored in core memory.11. High temperatures allowed the reaction to be carried out in two hours. 12. Digital television enables viewers to interact with the content and provide feedback to the programmer via telephone line, cable or satellite.13. RFID (Radio Frequency IDENTIFICATION) allowsensors in warehouse to monitor deliveries.14. The power of the modern microcomputer enables it to be used for all kinds of tasks.15. The business lets customers manage their sales data.16. App Engine lets users run custom applications.17. Let us consider this question.18. Let us imagine that this new model of computer has come on the market.

UNIT 5

1. Text 5 A. What is it a computer virus ?
- 2.Text 5 B. How computer viruses work
- 3.Text 5 CEarliest Virus History
- 4.Grammar Review: Complex Subject

Text 5 A. WHAT IS IT A COMPUTER VIRUS?

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

To infect – заражать, инфицировать; ***erroneously*** – неправильно, ошибочно; ***agenda*** – профиль, программа; ***malware, adware and spyware programs*** – почтовые, вспомогательныеишпионскиепрограммы; ***reproductive ability*** – репродуктивнаяспособность, способностьвоспроизводить; ***executable code*** – выполнимый, осуществимыйкод; ***catch-all phrase*** –

всеохватывающая фраза; *malicious* – злостный, злоумышленный, вредный; *vulnerabilities* – слабые места; *to cause harm* – причинять вред; *surreptitious* – потайной, тайный, подпольный; *facilitating* – облегчать, помогать, способствовать

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

A computer virus is a computer program that can copy itself and infect a computer without the permission or knowledge of the owner. The term “virus” is also commonly but erroneously used to refer to other types of malware, adware, and spyware programs that do not have the reproductive ability. A true virus can only spread from one computer to another (in some form of executable code) when its host is taken to the target computer; for instance, because a user sent it over a network or the Internet, or carried it on a removable medium such as a floppy disk, CD, DVD, or USB drive. Viruses can increase their chances of spreading to other computers by infecting files on a network file system or a file system that is accessed by another computer. The term “computer virus” is sometimes used as a catch-all phrase to include all types of malware. Malware includes computer viruses, worms, Trojan horses, most root kits, spyware, dishonest adware, crime ware, and other malicious and unwanted software, including true viruses. Viruses are sometimes confused with computer worms and Trojan horses, which are technically different. A worm can exploit security vulnerabilities to spread itself to other computers without needing to be transferred as part of a host, and a Trojan horse is a program that appears harmless but has a hidden agenda. Worms and Trojans, like viruses, may cause harm to either a computer system’s hosted data, functional performance, or networking throughput, when they

are executed. Some viruses and other malware have symptoms noticeable to the computer user, but many are surreptitious. Most personal computers are now connected to the Internet and to local area networks, facilitating the spread of malicious code. Today's viruses may also take advantage of network services such as the World Wide Web, Email, Instant Messaging, and file sharing systems to spread.

Task 3. Write out the Text all words which are connected with the word “virus”. Translate them

Task 4. Decide whether the following statements are true [T] or false [F] in relation to the information in the text. If you feel a statement is false, change it to make it true

- 1) A computer virus is a computer program that can copy itself and infect a computer without the permission or knowledge of the owner.
- 2) A true virus cannot spread from one computer to another (without any form of executable code) when its host is taken to the target computer.
- 3) Viruses can increase their chances of spreading to other computers by infecting files on a network file system or a file system that is accessed by another computer.
- 4) The term “computer virus” cannot be used as a catch-all phrase to include all types of malware.
- 5) Malware includes computer viruses, but doesn't deal with worms, Trojan horses, most root kits, spyware, dishonest adware, crime ware, and other malicious and unwanted software, including true viruses.
- 6) A worm can exploit security vulnerabilities to spread itself to other computers without needing to be transferred.

Task 5. Put the proper words into sentences:

Personal computers, spread from, increase... chances, networking throughput, a network file system, viruses, malicious code, a removable medium, a Trojan horse.

1. A true virus can only... one computer to another when its host is taken to the target computer; for instance, because a user sent it over a network or the Internet, or carried it on ... such as a floppy disk, CD, DVD, or USB drive.
2. Viruses can ... their ... of spreading to other computers by infecting files on ... or a file system that is accessed by another computer.
3. ... are sometimes confused with computer worms and Trojan horses, which are technically different.
4. ... is a program that appears harmless but has a hidden agenda.
5. Worms and Trojans, like viruses, may cause harm to either a computer system's hosted data, functional performance, or..., when they are executed.
6. Most ... are now connected to the Internet and to local area networks, facilitating the spread of

Task 6. Retell the text 1 A in 10-13 sentences

Text 5 B. How computer viruses work

Task 1 Practice the reading. Translate the words

virus ['vaiðrðs], to enter, infector, detonator, to separate, to replicate, to damage, computer display, to attach, access, file, floppy disk, hard disk, instantly, to be installed, to trigger, to crash, to boot, write-protect tab, bulletin board system, pirated, to detect, virus-checking program, to scan, scanner

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

A computer virus - an unwanted program that has entered your system without you knowing about it - has two parts, which I'll call the infector and the detonator. They have two very different jobs. One of the features of a computer virus that separates it from other kinds of computer program is that it replicates itself, so that it can spread (via floppies transported from computer to computer, or networks) to other computers. After the infector has copied the virus elsewhere, the detonator performs the virus's main work. Generally, that work is either damaging data on your disks, altering what you see on your computer display, or doing something else that interferes with the normal use of your computer.

Here's an example of a simple virus, the Lehigh virus. The infector portion of Lehigh replicates by attaching a copy of itself to COMMAND.COM (an important part of DOS), enlarging it by about 1000 bytes.

So let's say you put a floppy containing COMMAND.COM into an infected PC at your office - that is, a PC that is running the Lehigh program. The infector portion of Lehigh looks over DOS's shoulder, monitoring all floppy accesses. The first time you tell the infected PC to access your floppy drive, the Lehigh infector notices the copy of COMMAND.COM on the floppy and adds a copy of itself to that file.

Then you take the floppy home to your PC and boot from the floppy. (In this case, you've got to boot from the floppy in order for the virus to take effect, since you may have many copies of COMMAND.COM on your hard and floppy disks, but DOS only uses the COMMAND.COM on the boot drive.)

Now the virus has silently and instantly been installed in your PC's memory. Every time you access a hard disk

subdirectory or a floppy disk containing COMMAND.COM, the virus sees that file and infects it, in the hope that this particular COMMAND.COM will be used on a boot disk on some computer someday.

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

Don't worry too much about viruses. You may never see one. There are just a few ways to become infected that you should be aware of.

The sources seem to be service people, pirated games, putting floppies in publicly available PCs without write-protect tabs, commercial software (rarely), and software distributed over computer bulletin board systems (also quite rarely).

Many viruses have spread through pirated – illegally copied or broken – games. This is easy to avoid. Pay for your games, fair and square.

If you see a shared PC or a PC that has public access, such as one in a college PC lab or library, be very careful about putting floppies into that PC's drives without a write-protect tab. Carry a virus-checking program and scan the PC before letting it write data onto floppies.

Despite the low incidence of actual viruses, it can't hurt to run a virus-checking program now and then. There are actually two kinds of antivirus programs: virus shields, which detect viruses as they are infecting your PC, and virus scanners which detect viruses once they've infected you.

Viruses are something to worry about, but not a lot. A little common sense and the occasional virus-scan will keep you virus-free.

Notes

fair and square — honestly
it can't hurt — it's probably a good idea

Task 3. Match the words and definitions listed below

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

Task 4. Decide whether the following statements are true [T] or false [F] in relation to the information in the text. If you feel a statement is false, change it to make it true

1. Viruses cannot be spread through a computer network, only via floppies transported from computer to computer. []
2. The virus will spread as soon as you put the infected floppy in your PC. []

3. The infector works by interfering in some way with the normal use of your computer. []
4. The detonator in Lehigh works by altering what you see on your screen. []
5. Most viruses spread through pirated games. []
6. You should run an antivirus program every time you use your computer. []
7. There are not very many viruses in circulation. []
8. Virus shields are more effective than virus scanners. []

Task 5. These are answers to questions about the text. Write the questions

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

Task 6. Read these sentences, translate them

1. **Public data networks are used for dialing up and signing on.**
2. Speaking with the computer will be possible in the nearest future.
3. A computer virus infects a system by attaching itself to other programs and converting them into viruses.
4. Such viruses generally cause only mischievous behavior, such as ringing the workstation's bell, or displaying an unexpected cartoon, when the user looks at the machine's screen.
5. Viruses occupy memory and disk space, they also interfere with printing.

6. Viruses can also live at very low levels in the operating system and interfere with other parts of the system, causing the system to slow down and perhaps crashing is possible.

Task 7. Translate the following sentences from Russian into English. Mindgrammar

1. Компьютерные вирусы, как и настоящие биологические вирусы, являются переносчиками элементарной информации, которая при встраивании (to embed) в логическую структуру программы заставляет ее выполнять вредоносные действия, или просто замедляет ее работу.
2. Лечение компьютерных вирусов – довольно непростая задача, ведь далеко не во всех случаях программу можно излечить, не повредив ее.
3. Каждый год увеличение числа компьютерных вирусов заставляет производителей антивирусных программ выпускать дополнения для вирусных баз, а также обновления программ-ревизоров.
4. Для профилактики (preventivemeasures) заражения вирусом рекомендуется не запускать на компьютере программы, источник которых ненадежен или неизвестен, а также проводить регулярное сканирование жесткого диска и памяти.
5. Активизация многих вирусов происходит в какие-либо определенные дни – в пятницу 13-го, в праздники, в другие памятные даты или даже в день рождения автора вируса.
6. Иногда определить заражение вирусом можно по изменению размера выполняемого файла программы.

Text 5 CEARLIEST VIRUS HISTORY

***Task 1* Practice the reading. Translate the words**

Inevitably, to debug programs, to execute data, attachment, enshrined, rogue programs. viral type program, procedures, honourable, remnant, toolkit

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

by Robert M. Slade

Viral programs have a long, and sometimes honourable, history.

In the earliest computers it was vital that you knew the initial state of the computer. It was also important that no remnants of other programs remain. (It is hard enough to debug programs now: you don't need extraneous "noise" to deal with.) An instruction was often implemented that had only one function: it would copy itself to the next memory location and then proceed on to that location. Thus, by starting this instruction at the beginning of memory, the entire memory space could be "filled" with a known value. This single instruction could be seen as the first viral type program.

As computers progressed, it became possible to run more than one program at a time in a single machine. It was, of course, important that each program, and its associated data, be contained within certain bounds, or partitions. Inevitably, there were programs which "broke the bounds", and would either perform operations on the data or programs belonging to different procedures, or actually transferred control to random areas and tried to execute data as program instructions.

Random operations and damage would result. Attempts to trace the “path” of damage or operation would show “random” patterns of memory locations. Plotting these on a printout map of the memory looks very much like the design of holes in “worm-eaten” wood: irregular curving traces which begin and end suddenly. The model became known as a “wormhole” pattern, and the rogue programs became known as “worms”. In an early network of computers a similar program, the infamous “Xerox worm”, not only broke the bounds within its own computer, but spread from one computer to another. This has led to the use of the term “worm” to differentiate a viral program that spreads over networks from other types. The term is sometimes also used for viral programs which spread by some method other than attachment to, or association with, program files.

(Programmers being who they are, the development of such rogue programs became a sport. This is now enshrined in the game of “Core Wars”. A program is run which “simulates” a computer environment. A standard set of instructions, known as “Redstone code”, is used to build programs which battle each other within the simulated environment. The objective is survival. The use of such tactics as attack, avoidance and replication is of interest to virus research, as is the trade-off between complexity of design and chance of destruction.)

A brief look at the history of computer viruses

Computer viruses are relatively new and started to emerge and upgrade soon after the Internet appeared. The history of computer viruses shows us that the founding blocks of computer viruses were laid in 1949, when scientist John von Neumann came up with the theory about self-replicating programs. In 1969, AT&T Bell Laboratories came up with the first multi-tasking operating system, UNIX, and, in the same year, ARPANET is developed by the Advanced Research

Projects Agency. This was the precursor of the Internet. Let us look back in time at the interesting history of computer viruses.

In 1979, engineers at Xerox Palo Alto Research Center make a huge discovery: the computer worm. This rudimentary program is the ancestor of modern computer worms and is designed to search for idle processors in a network. In 1983, Fred Cohen of the University of Southern California 91 comes up with the term “computer virus” to describe a program that is created to "affect other computer programs by modifying them in such a way as to include a (possibly evolved) copy of itself." In 1986, the first PC virus, codename “The Brain” is released from Pakistan.

In 1988 came the first devastating attack against ARPANET computers. Robert Morris, 23, created a small virus that infected almost 6,000 computers on the network and flooded them with copies of itself. In 1991, Symantec develops the Norton Anti-Virus software as a way of protecting computers from viruses.

In 1998, more than 500 military and government computer systems are hijacked. Although it was first believed that the masterminds were based in Iraq, investigators soon found out that two California teenagers were behind the incident. This hijack demonstrated what a coordinated attack could do, especially combined with a physical attack.

In 1999 came the “Melissa” virus. It managed to infect thousands of computers at an alarming speed, causing over \$80 million in damages. Antivirus software hit record sales. Melissa works by sending infected Word documents to the first 50 people in your Outlook list.

In 2000, the “I Love You” virus appears. It managed to infect millions of computers in just under a day. The virus sent usernames and passwords it found on the infected computer back to the author.

In 2001, the “Anna Kournikova” frightens experts who believe that this virus was written using a toolkit. A toolkit would allow even inexperienced programmers to create computer viruses. In 2001, the Code Red virus posed a serious threat to the White House website. It infected tens of thousands of computers, causing damages in excess of \$2 billion. It was programmed to unleash the power of all the infected computers against the White House website at a predetermined time. It was stopped before it could act. The same year, the Nimda virus hits the Internet. In the brief history of computer viruses this is one of the most sophisticated viruses ever to appear.

In 2003, the Slammer computer virus infects hundreds of thousands of computers in under three hours. This virus even delayed airline flights worldwide and in computer virus history this was the fastest spreading virus ever. Then in 2004, the MyDoom virus, an email virus, claims the top place as the fastest spreading email virus. However, this computer virus did very little damage. 92

This is the history of computer viruses up to 2004. After 2004, no more notable viruses appeared due to sophisticated antivirus and firewall systems.

Task 3 What do these figures refer to?

1949, 1979, 1991, 23, 500, 50, 2 billion, 2004.

Task 4. Agree/disagree with the following statements.

1. Computer viruses appeared at the same time with the Internet.
2. The basis for creating any virus is a self-replicating program.
3. Computer virus can be described as a program created to delete any information on a computer.
4. Norton Anti-Virus software was developed after the appearance of the first computer virus.

5. The masterminds of a virus that hit over 500 million military and government computer systems in 1998 were 2 Californian teenagers.

6. “I love you” virus was written using a toolkit.

7. The Code Red virus caused the delay of airline flights.

Task 5 Answer the following questions.

1. When and how did the history of computer viruses begin? 2. What was a huge discovery made by engineers at Xerox Palo Alto Research Centre? 3. When did the term “a computer virus” appear? 4. What was this term used for? 5. Who created a virus that hit more than 500 military and government computer systems in 1998? 6. What was the mechanism of “Melissa” virus? 7. Why was “Anna Kournikova” virus so frightening? 8. What virus posed the most serious threat to the White House websites? 9. What was the fastest spreading e-mail virus? 10. Why haven’t any notable viruses appeared since 2004?

Task 6 Comment on the statements:

1. The history of computer viruses show us that the founding blocks of computer viruses were laid in 1949, when scientist John von Neumann came up with the theory about self-replicating programs. 2. The Red Code Virus was programmed to unleash the power of all the infected computers against the White House website at a predetermined time. It was stopped before it could act. 3. After 2004, no more notable viruses appeared due to sophisticated antivirus and firewall systems.

Task 7 Make up a plan of the text and sum it up.

Grammar Review

1. Переведите предложения, обозначив конструкцию Complex Subject

1. *Printers are known to vary greatly in performance and design.*

2. *They are expected to be the most commonly used devices.*

3. *Magnetic fields are supposed to effect a high iron content of the ink.*

4. *The ink-jet printer is stated to be one of the newest types of character printers.*

5. *Electrophotographic techniques proved to have developed from the paper copier technology.*

6. *An impact printer is considered to produce a printed character by impacting a character font against the paper.*

7. *Dot-matrix printers seem to have a lower quality of type.*

8. *The most common printer type used on larger systems is sure to be the line printer.*

9. *A lot of techniques are believed to be used in the design of printers.*

10. *A laser is certain to be an acronym for light amplification by stimulated emission of radiation.*

11. *During the late 1970s and early 1980s, new models and competitive operating systems seemed to appear daily.*

2. Переведите следующие предложения.

1. He is known to be a great book-lover. 2. The members of the committee are expected to come to an agreement. 3. Many buildings were reported to have been damaged by the fire. 4. The experiment is believed to be a failure. 5. She seems to know the subject well. 6. He happened to be at home at that time. 7. There seem to be no changes in the trade relations between these two countries. 8. There proved to be many difficulties in solving the matter. 9. There

happened to be many people there at that time. 10. The ship can be expected to arrive at the end of the week. 11. The weather can't be expected to change tomorrow. 12. There seem to be no objections to their proposal. 13. There happened to be a surgeon among them. 14. He doesn't seem to know this subject. 15. She seems not to know him. 16. He is not likely to come today. 17. They are unlikely to complete the work in time. 18. He is sure not to be asked about it. 19. The prices are certain to fall soon. 20. She is ceratin not to do it.

3Переведите на русский язык, обращая внимание на сложное подлежащее.

1. Many books are known to be published in our country every year. 2. His invention is considered to be of great importance. 3. For a long time the atom was thought to be indivisible. 4. He was said to be one of the most promising nuclear physicists. 5. She appeared to be an excellent actress. 6. This work seems to take much time. 7. The percentage of carbon in this steel turned out to be low. 8. They are sure to acknowledge your talent. 9. The article is likely to appear in the next issue of the journal. 10. She is not likely to change her opinion. 11. Advertising is considered to be the most important marketing tool. 12. Mobile phone appears to be the most universal means of communication. 13. Tungsten is believed to be the most heat resistant metal. 14. He was seen to come to work early. 15. You are supposed to be able to read English texts without a dictionary. 16. They are certain to have forgotten their promise. 17. This method proved to be reliable. 18. They seem to be listening to him very attentively.

4. *Перепаразируйте следующие предложения, употребляя сложное подлежащее.*

E.g.: It is believed that the poem was written by Byron. – The poem is believed to have been written by Byron.

1. People consider the climate there to be very healthful. 2. It is expected that the performance will be a success. 3. It is said that the book is popular with both old and young. 4. It was supposed that the crops would be rich that year. 5. It was reported that five ships were missed after the battle. 6. It appeared that he was losing patience. 7. It happened that I was present at the opening session. 8. It turned out that my prediction was correct. 9. It seems they know all about it. 10. It seems they have heard all about it.

5. *.Раскрой тескобки, употребляя требующуюся форму инфинитива. Переведите на русский язык, обращая внимание на функцию инфинитива.*

1. He seems (to know) French very well: he is said (to spend) his youth in Paris. 2. Ordinary objects are not likely to move with a velocity approaching the velocity of light. 3. You seem (to look) for trouble. 4. I heard the door of the entrance hall (to open) and (to close) softly. 5. The article is likely (to appear) in the next issue of the journal. 6. He is sure (to tell) me all about this even I don't ask him. 7. It seemed (to snow) heavily since early morning: the ground was covered with a deep layer of snow. 8. He began writing books not because he wanted (to earn) a living. He wanted (to read) and not (to forget). 9. Irving turned out (to be) a long, pale-faced fellow. 10. I felt Nick (to put) his hand on my shoulder. 11. Soon we found that there was another complicated problem (to consider). 12. Here are some articles (to translate) for tomorrow. 13. Jane remembered (to tell) a lot about Mr. Rochester. 14. I am very sorry (to add) some more trouble by what I have told you. 15. (To play) chess was his greatest pleasure. 16. She was sorry (to miss) the beginning of the concert.

6. Переведите, используя конструкцию *ComplexSubject*.

1. Оказалось, что он уже сделал доклад. 2. Считают, что он добьется хороших результатов. 3. Говорят, что это довольно трудная статья. 4. Кажется, мы не обсудим этот вопрос. 5. Полагают, что такой метод наиболее эффективен. 6. Говорят, что он хороший врач. 7. Известно, что многие дипломные работы студентов были посланы на выставку в Лондон. 8. Полагают, что многие студенты и преподаватели примут участие в дискуссии о путях развития русского искусства. 9. Кажется, его доклад состоял из трех частей. 10. Он непременно прослушает все лекции по русской литературе. 11. Она обязательно покажет вам свои записи (notes), если вы попросите ее. 12. Конечно, он лучший лыжник в группе. 13. Вы обязательно должны посетить выставку русского портрета. 14. Время встречи, по-видимому, будет изменено.

7. Переведите на русский язык:

A 1. This river is believed to be suitable for navigation. 2. The river Thames is known to divide the city into two parts. 3. Many famous generals and admirals are said to have been buried inside the Cathedral. 4. This ancient Cathedral is considered to have been designed by an outstanding English architect. 5. This monument is considered to have been erected as early as the 11th century. 6. Strength of materials is considered to be a difficult subject. 7. Sport events are reported to have aroused great interest and to have attracted a lot of spectators. 8. The trade union conference to be held next month is reported to be attended by many foreign guests. 9. This factory is known to produce modern furniture. 10. Wood is regarded to be the oldest material used in engineering structures. 11. English is considered to belong to a branch of Germanic family of languages.

B 1. The Gulf Stream, a warm oceanic current, flowing in the north-west of the island is considered to influence the climate in Britain most of all. 2. The eastern part of the island is considered to be drier and cooler due to the nearness to the continent. 3. From the west the British Isles are known to be washed by the Atlantic Ocean. 4. The seas surrounding the island are supposed to be quite shallow. 5. Many new districts are known to have appeared in Moscow lately. 6. Great sums of money are likely to have been spent on the research work in this branch of science. 7. The success of the exhibition is likely to surpass all expectations.

C 1. The exhibition proved to be a success. 2. He proved to be a talented composer. 3. The current in the river seems to be slow. 4. The winter fogs in London seem to be simply awful. 5. The Lake District appears to be the most beautiful and the wettest part of Great Britain. 6. This church appears to be made of wood. 7. The letter is unlikely to reach him in time. 8. My watch is likely to be five minutes fast. 9. He is sure to have been influenced by them. 10. He seems not to understand the importance of this event. 11. He is sure to display his great abilities of composing music. 12. They are certain to come to Moscow.

UNIT 6

1. Text 6 A. Machine Translation

2. Text 6B. The Advantages and Disadvantages of Machine Translation
3. Grammar Review. Conditional Mood. Tests

Text 6 A Machine Translation

Task 1. Decide whether the following sentences are true (T)

or false (F):

1. It is difficult to compare different MT systems.
2. Some machine translation (MT) systems produce good translations.
3. The easiest way to evaluate any machine translation of a given text is to compare it to a human translation of the same text.

Task 2. Read the following text and check your answers to I.

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

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

Inevitably, the MT manufacturers' glossies talk blithely of "a 100 per cent increase in throughput", but skepticism remains. Potential users want to make their own evaluation and that can tie up key members of the corporate language centre for months.

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

buy" results.

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

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

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

Good human translators produce good translations; all MT systems produce bad translations. But just what is a good translation? One traditional assessment technique involves a bunch of people scoring translations on various scales for intelligibility ('Does this translation into English make sense as a piece of English?'); accuracy ('Does this piece of English give the same information as the French original?'); style, and so on. However, such assessment is expensive, and designing

the scales is something of black art.

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

Task 3. Each of the sentences below (except one) summarizes an individual paragraph of the text. Order the sentences so that they form a summary of the text. One of the sentences contains information which is not in the text. Which one?

1. The developers of MT systems have also had problems evaluating their systems.

2. Many European organizations are evaluating MT, but the results may not be conclusive.

3. Assessing machine translations as good or bad is very difficult because such judgements cannot be made scientifically.

4. It is time-consuming for potential users to test the MT manufacturers' claims that their products double productivity.

5. Better tests are needed to monitor linguistic weaknesses in MT systems.

6. All machine translations need to be edited by a human translator.

7. A reliable MT system is unlikely to be available this century.

8. The price of MT systems varies greatly and none actually translates.

9. The Japanese have a few independent MT training

schools, which are said to be very efficient.

10. Analyzing the errors made by MT systems is inconclusive because it may only show that different systems produce similar numbers of different error types.

Task 4. Match each of the following verbs from the text with the expression that has a similar meaning:

- | | |
|---------------|----------------------------|
| 1. churn out | a. add up |
| 2. tie up | b. think carefully about |
| 3. mull over | c. manage successfully |
| 4. tot up | d. produce large amount of |
| 5. cope with | e. fail |
| 6. fall apart | f. occupy the time of |

Task 5. Look at these sentences. Discuss why a machine might find them difficult to translate.

1. I bought a set of six chairs. 2. He set a book on the table. 3. She had her hair set for the party. 4. The sun set at 9 p.m. 5. We set off for London in the morning. 6. The VCR is on the television set.

Task 6. Translate the following sentences from English into Russian.

1. Machine translation, the use of computers to automate translation is one of the computer industry's oldest area of interest.
2. Large corporations look for sophisticated, multilingual translation tools to reduce the costs of translating of marketing materials and documentation.
3. To get a perfect translation, a translation system must take into account the formation and use of words, syntax, semantics.
4. Not to mention incorrect grammar and misspelled words a translation system must be able to recognize colloquial

phrases, acronyms and contractions (сокращения).

5. Direct speech-to-speech translation can be used to provide translation in real time for such applications as videoconferencing or automatic translation over the telephone.

Task 7. Translate the following sentences from Russian into English.

1. Многие предприятия пытались разработать универсальную систему машинного перевода, чтобы быстро и корректно переводить с любого языка на любой другой, но такая система, к сожалению, все еще остается только в воображении писателей-фантастов.
2. Был проведен анализ крупной коммерческой системы машинного перевода, только чтобы обнаружить, что ее последняя версия не только не лучше, но даже хуже предыдущих.
3. Чтобы понять, каким именно образом нужно переводить какое-то конкретное слово, система обязательно должна учитывать контекст предложения.
4. Эксперты тестируют системы машинного перевода не только для того, чтобы выяснить, какая из них лучше в целом, но и для того, чтобы определить, какая лучше справляется с определенными типами предложений.
5. Автоматизированные системы машинного перевода могут использоваться для того, чтобы обеспечить средства общения через Internet для тех людей, которые обычно не могут общаться из-за незнания языка.

Text 6B. The Advantages and Disadvantages of Machine Translation

by IngilizceTurkce.Gen.Tr

In the past when we had to figure out the meaning of a word from another language, we made use of a dictionary. Not

only was this a very time consuming task but it was kind of irritating owing to the fact that it was difficult to interpret the meanings. Moreover, when an entire paragraph or note had to be translated, this could be very difficult because one word had several meanings. So what to do? That's where the machine translator came into the picture.

But what exactly is a machine translator?

Since the advent of the 21st century, there have been a lot of developments and new technologies have been introduced which have made life more convenient and simple. A machine translator is such a small yet useful device. Machine translation, which is also known as Computer Aided Translation, is basically the use of software programs which have been specifically designed to translate both verbal and written texts from one language to another. In the face of rapid globalization, such services have become invaluable for people and you just cannot think of any disadvantages of machine translation.

Nevertheless, like everything has its pros and cons, so does machine translation. Let's go over the advantages of machine translation:

- When time is a crucial factor, machine translation can save the day. You don't have to spend hours poring over dictionaries to translate the words. Instead, the software can translate the content quickly and provide a quality output to the user in no time at all.
- The next benefit of machine translation is that it is comparatively cheap. Initially, it might look like a unnecessary investment but in the long run it is a very small cost considering the return it provides. This is because if you use the expertise of a professional translator, he will charge you on a per page basis which is going to be extremely costly while this will be cheap.
- Confidentiality is another matter which makes

machine translation favorable. Giving sensitive data to a translator might be risky while with machine translation your information is protected.

- A machine translator usually translates text which is in any language so there is no such major concern while a professional translator specializes in one particular field.

Disadvantages of Machine Translation:

- Accuracy is not offered by the machine translation on a consistent basis. You can get the gist of the draft or documents but machine translation only does word to word translation without comprehending the information which might have to be corrected manually later on.

- Systematic and formal rules are followed by machine translation so it cannot concentrate on a context and solve ambiguity and neither makes use of experience or mental outlook like a human translator can.

These are the primary advantages and disadvantages of using machine translation for a document regardless of language. They can be weighed and the right decision can be made depending on the information and the quality that is required.

Task I Посмотрите онлайн-перевод статьи "The Advantages and Disadvantages of Machine Translation", сделанный с помощью сервисов "Google" и "Yandex". Сделайте постредактирование текста - исправьте неточности онлайн-переводчиков, при необходимости, модифицируйте перевод, осуществляя необходимые переводческие трансформации.

<p>ОРИГИНАЛ: (www.omniglot.com)</p>	<p>ОНЛАЙН-ПЕРЕВОД ОТ GOOGLE (http://translate.google.ru/)</p>	<p>ОНЛАЙН-ПЕРЕВОД ОТ YANDEX (http://translate.yandex.ru/)</p>
<p>The Advantages and Disadvantages of Machine Translation</p>	<p>Преимущества и недостатки машинного перевода</p>	<p>Преимущества и Недостатки машинного Перевода</p>
<p>In the past when we had to figure out the meaning of a word from another language, we made use of a dictionary. Not only was this a very time consuming task but it was kind of irritating</p>	<p>В прошлом, когда мы должны были выяснить значение слова из другого языка , мы воспользовались словарем. Мало того, что это очень трудоемкая задача , но это было отчасти раздражающим в связи с тем , что это было трудно интерпретировать значения. Более</p>	<p>В прошлом, когда нам предстояло выяснить значение слова с одного языка на другой, мы использовали словарь. Не только было это очень трудоемкая задача, но это была какая-то раздражает благодаря тому, что было трудно интерпретировать</p>

<p>owing to the fact that it was difficult to interpret the meanings. Moreover, when an entire paragraph or note had to be translated, this could be very difficult because one word had several meanings. So what to do? That's where the machine translator came into the picture.</p>	<p>того, когда целый абзац или заметку нужно было переводить , это может быть очень трудно, потому что одно слово имеет несколько значений . Так что же делать ? Вот где машины переводчик пришел в фотографию .</p>	<p>значения. Более того, когда весь абзац или внимание должно переводиться, это может быть очень трудно, потому что одно слово имеет несколько значений. Так что же делать? Вот где машинный переводчик пришел в фотографию.</p>
<p>But what exactly is a machine translator?</p>	<p>Но что именно это машина, переводчик ?</p>	<p>Но что такое машинный переводчик?</p>
<p>Since the</p>	<p>С появлением 21-</p>	<p>С наступлением</p>

<p>advent of the 21st century, there have been a lot of developments and new technologies have been introduced which have made life more convenient and simple. A machine translator is such a small yet useful device. Machine translation, which is also known as Computer Aided Translation, is basically the use of software</p>	<p>го века , было много разработок и новых технологий были введены , которые сделали жизнь более удобной и простой. Машина переводчик такой небольшой, но полезный прибор . Автоматический перевод, который также известен как системы автоматизированного перевода , в основном использование программ, которые были специально разработаны для перевода устной и письменной текстов с одного языка на другой. В условиях стремительной</p>	<p>21-го века, там было много разработок и новых технологий были введены которые сделали нашу жизнь более удобной и простой. Машинный переводчик-это настолько маленькое, но полезное устройство. Машинный перевод, который также известен как Computer Aided Translation, в принципе, является использование программного обеспечения, которые были специально разработаны, чтобы перевести</p>
--	--	--

<p>programs which have been specifically designed to translate both verbal and written texts from one language to another. In the face of rapid globalization, such services have become invaluable for people and you just cannot think of any disadvantages of machine translation.</p>	<p>глобализации , такие услуги стали неопределимое значение для людей , и вы просто не можете думать ни о каких недостатках машинного перевода.</p>	<p>оба устных и письменных текстов с одного языка на другой. В условиях быстрой глобализации, такие услуги стали бесценным для людей, и вы просто не можете думать о каких-либо недостатков машинного перевода.</p>
<p>Nevertheless, like everything has its pros and</p>	<p>Тем не менее , как и все имеет свои плюсы и минусы , так что делает</p>	<p>Тем не менее, как и все, имеет свои плюсы и минусы, так и машинного перевода. Конечно</p>

<p>machine translation. Let's go over the advantages of machine translation:</p>	<p>перевода. Давайте рассмотрим преимущества машинного перевода :</p>	<p>рассмотрим преимущества машинного перевода:</p>
<p>When time is a crucial factor, machine translation can save the day. You don't have to spend hours poring over dictionaries to translate the words. Instead, the software can translate the content quickly and provide a quality output to the user in</p>	<p>Когда время является решающим фактором , машинный перевод может спасти положение. Вам не придется тратить долгие часы , детально изучая словари для перевода слов. Вместо этого , программа может перевести содержание быстро и обеспечить качество продукции для пользователя в</p>	<p>Когда время-критический фактор, машинный перевод может сохранить день. Вам не придется часами листать словари для перевода слов. Вместо этого, программа может перевести контент, быстро и обеспечить качество на выходе пользователя в никаком времени на всех.</p>

no time at all.	самое короткое время .	
<p>The next benefit of machine translation is that it is comparatively cheap. Initially, it might look like a unnecessary investment but in the long run it is a very small cost considering the return it provides. This is because if you use the expertise of a professional translator, he will charge you on a per page basis</p>	<p>Следующим преимуществом машинного перевода является то, что сравнительно дешево. Первоначально, это может выглядеть как ненужных инвестиций , но в долгосрочной перспективе это очень небольшая стоимость рассмотрения возвращения он предоставляет. Это потому, что если вы используете опыт профессиональног о переводчика , он будет взимать плату в расчете на</p>	<p>Следующий пользу машинного перевода является то, что оно относительно дешево. Поначалу это может показаться ненужным инвестиций, но в долгосрочной перспективе это очень небольшой стоимости с учетом возврата, которые она предоставляет. Это потому, что если вы используете опыт профессиональног о переводчика, он зарядит вас на каждой странице основе, которая обещает быть</p>

which is going to be extremely costly while this will be cheap.	страницу, которая будет очень дорого в то время как это будет дешево.	чрезвычайно дорогостоящим, хотя это будет дешево.
Confidentiality is another matter which makes machine translation favorable. Giving sensitive data to a translator might be risky while with machine translation your information is protected.	Конфиденциальность Другое дело, что делает машинный перевод благоприятный. Предоставление конфиденциальных данных переводчика может быть рискованно в то время как с машинным переводом ваша информация защищена .	Конфиденциальность-это другой вопрос что делает машинного перевода благоприятные. Давая конфиденциальных данных переводчику может быть рискованным, в то время как с машинный перевод ваша информация защищена.
A machine translator usually translates text	Машина обычно переводчик переводит текст которого есть в	Машинный переводчик обычно переводит текст на любом

<p>which is in any language so there is no such major concern while a professional translator specializes in one particular field.</p>	<p>любом языке , так что нет такой серьезной проблемой в то время как профессиональный переводчик специализируется в одной конкретной области.</p>	<p>языке, так что нет такой серьезной озабоченности в то время как профессиональный переводчик специализируется в данной области.</p>
<p>Disadvantages of Machine Translation:</p>	<p>Недостатки Машинный перевод:</p>	<p>Недостатки машинного Перевода:</p>
<p>Accuracy is not offered by the machine translation on a consistent basis. You can get the gist of the draft or documents but machine translation only does word to word</p>	<p>Точность не предлагается машинный перевод, на постоянной основе . Вы можете получить суть проекта или документы, но машинный перевод только делает слова к слову, перевод без</p>	<p>Точность не преподается в машинный перевод на постоянной основе. Вы можете получить суть проекта или машинного перевода документов, но только не слово в слово и его</p>

<p>translation without comprehending the information which might have to be corrected manually later on.</p>	<p>понимания информации, которую, возможно, придется быть исправлены вручную позже.</p>	<p>перевод, без осмысления информации, которые могут быть исправлены вручную позже.</p>
<p>Systematic and formal rules are followed by machine translation so it cannot concentrate on a context and solve ambiguity and neither makes use of experience or mental outlook like a human translator can.</p>	<p>Систематическое и формальных правил следуют машинного перевода поэтому он не может сосредоточиться наконтекст и решить двусмысленности и ни один не использует опыт или кругозор, как человек-переводчик может.</p>	<p>Систематическое и формальные правила следуют машинного перевода, поэтому он не может сосредоточиться на контексте и решить двусмысленности и ни делает использование опыта или психического outlook как человек, переводчик.</p>

<p>These are the primary advantages and disadvantages of using machine translation for a document regardless of language. They can be weighed and the right decision can be made depending on the information and the quality that is required.</p>	<p>Это основные преимущества и недостатки использования машинного перевода для документа вне зависимости от языка . Они могут быть взвешены и правильный выбор может быть сделан в зависимости от информации и качеством , что требуется.</p>	<p>Эти основные преимущества и недостатки использования машинного перевода для документа, независимо от языка. Они могут быть взвешенное и правильное решение может быть принято в зависимости от информации, и качество, которое требуется выполнить.</p>
---	---	--

GRAMMARREVIEW:

1. Определите, какие предложения относятся к 1-му, 2-му и 3-му типам сослагательного наклонения.

1. Я помогу ему, если он попросит. 2. Если бы он попросил меня, то я бы ему помог. 3. Если бы он попросил меня об этом раньше, то я бы ему помог. 4. Если у него будет время, он выполнит эту работу. 5. Он бы выполнил эту работу, если бы у него было время. 6. Не сердись на меня, если бы у меня было время, то я бы выполнил эту работу. 7. Если дождь закончится (to stop), я пойду гулять. 8. Я бы пошел гулять, если бы дождь закончился. 9. Если бы вчера дождь прекратился, то мы пошли бы гулять (а так не ходили). 10. Если Джим вернется домой рано, то мы будем вместе смотреть фильм. 11. Если бы Джим вернулся домой рано, то мы вместе посмотрели бы фильм. 12. Если бы Джим вчера вернулся домой рано, то мы вместе посмотрели бы этот фильм.

2. Перепишите каждое из следующих предложений дважды, образуя предложения нереального условия:

a) относящиеся к настоящему или будущему (II тип);

b) относящиеся к прошедшему (III тип).

1. If I am not too busy, I shall go to the concert. 2. They will all be surprised if I make such a mistake. 3. If he doesn't come on time, shall we have to wait for him? 4. If none comes to help, we shall be obliged to do the work ourselves. 5. If you put on your glasses, you will be better. 6. What shall we do if they are late? 7. Will you be very angry if we don't come? 8. Will he be very displeased if I don't ring him up?

3. Раскройте скобки, употребляя глаголы в требующейся форме. Переведите предложения.

1. If he were not such an outstanding actor, he (not to have) so many admirers. 2. If you (to give) me your address, I shall write you a letter. 3. If she (not to be) an absent-minded, she would be a much better student. 4. If my sister does not go to the south, we (to spend) the summer in St Petersburg

together. 5. If they (not to go) to Moscow last year, they would not have heard that famous musician. 6. If you (not to get) tickets for the Philharmonic, we shall stay at home. 7. If you were not so careless about your health, you (to consult) the doctor. 8. I should be delighted if I (to have) such a beautiful fur coat. 9. If it (to rain), we shall have to stay at home. 10. If he (to work) hard, he would have achieved great progress. 11. If it is not too cold, I (not to put) on my coat. 12. I (to write) the essay long ago if you had not disturbed me. 13. If he (not to read) so much, he would not be so clever. 14. If my friend (to be) at home, he will tell us what to do.

4. *Раскройте скобки, употребляя глаголы в требующейся форме. Переведите предложения.*

1. If you (not to buy) coffee, we shall drink tea. 2. If he is free tomorrow, he certainly (to come) to our party. 3. My brother would not have missed so many lessons if he (not to hurt) his leg. 4. If my friend (to work) in my office, we should meet every day. 5. If you spoke English every day, you (to improve) your language skills. 6. If you get a "five", your mother (to be) happy. 7. If she (to return) earlier, she would have been able to see him before he left. 8. If these shoes were not too big for me, I (to buy) them. 9. If you (to ring) me up, I shall tell you a secret. 10. If you (to be) a poet, you would write beautiful poetry. 11. If he did not read so much, he (not to know) English literature so well. 12. If he (to come) to our house yesterday, he would have met his friend. 13. If he (not to pass) his exam, he will not get a scholarship. 14. If she (not to help) me, I should have been in a very difficult situation. 15. My father would have more free time if he (not to read) so many newspapers. 16. If only you had let me know, I (to go) there immediately. 17. If I were a famous singer, I (to get) a lot of flowers every day.

5. Закончите предложения

1. If it were not so difficult
2. If it were the end of the term
3. If you invited him
4. If I were you
5. If you were the Ministry of Economics
6. What would you do if... ?
8. If there were too much unemployment in the country...
9. If you are working in corporate finance...

6. Переведите предложения.

1. If incomes are rising, the demand for goods and services will tend to increase. 2. If the consultant had done more careful research, he would have identified the gap in the market. 3. If a government cuts taxation, it gains a lot of popular support. 4. If the price of butter fell, the demand for margarine would probably fall. 5. If the market for our product expands, we will have a 20 per cent increase in turnover next year. 6. If we had installed the equipment we would have become more competitive. 7. If wages rise, unemployment will increase. 8. We would have to reduce our workforce if the bank refused to extend our credit. 9. If the government hadn't introduced the tax incentive scheme, we would have faced serious financial difficulties. 10. If the supplier of such a commodity were to raise the price, many buyers would turn to the close substitutes.

7. Переведите предложения на английский язык .

1. Что вы скажете, если бы я предложил вам занять эту должность? 2. Какую программу Вы бы рекомендовали, если бы нас заинтересовал вопрос инвестирования компании? 3. Если бы я умела так хорошо говорить на английском, я бы не воспользовалась услугами переводчика на форуме. 4. Если бы вы регулярно

выплачивали налоги, которые обязаны оплатить, вы бы не имели столько серьезных проблем. 5. Если бы наше предприятие начинало работать рано утром, мы бы уже давно были более успешными на рынке продаж. 6. Если бы ты воспользовался услугой American Express – дорожными чеками, в путешествии тебе было бы проще. 7. Если бы счета оплачивались своевременно, вы бы не несли ответственности за долги. 8. Я бы давно это сделала, если бы знала, что это так важно. 9. Если ты последуешь моему совету, у тебя все будет в порядке. 10. На вашем месте я бы не брал у него денег в займы.

8.Переведите предложения, определите тип условного предложения.

1. If you join a corporate bank as a graduate trainee in the UK, you will often be required to undertake a formal qualification in the first few years. 2. If you're a student looking for your first opportunity in finance or banking, our company should be your first port of call. 3. If you were working in a markets area of a bank based in the UK, you could expect to come across exams ran by the University. 4. What would happen if a law was passed in the United States banning coffee imports? 5. If we had a more competent boss in office, we wouldn't even bring it up. 6. If the service life the instrument had been prolonged, the economic effect would have been increased many times. 7. It would also be more difficult to spot counterfeits, if such banknotes were not withdrawn,

Тест 1. Sequence of Tenses

1. My parents decided that we (celebrate) my birthday on Saturday.

A would celebrate B shall celebrate C celebrated

2. Mike hoped that his friend (help) him with his car.

- A would help B will help C helped
3. We didn't know the score, but we were sure their team (lose) the game.
- A has lost B had lost C lost
4. Yesterday Tom heard that his aunt (be ill) for five days.
- A was ill B has been ill C had been ill
5. The children were afraid of making any noise — Mom (sleep).
- A was sleeping B slept C had been sleeping
6. He gave all his money to me because he (trust) me.
- A would trust B trusted C had trusted
7. We were told that Andrew (go) to enter that college.
- A is going B went C was going
8. The police found out that Bob Slant (live) in London's suburbs at that time.
- A had been living B lives C lived
9. I knew that Mercury (be) the closest planet to the sun, but I didn't feel like answering the question.
- A was B is C had been
10. The pupil wasn't able to do the translation because he (not / know) some special terms.
- A hadn't known B didn't know C doesn't know
11. Ann hasn't been informed that the lecture (not / take place) on Friday.
- A hasn't taken place B wouldn't take place
- C won't take place

Тест 2. The Participle

Заполните пропуски в предложениях, выбрав причастие настоящего или прошедшего времени:

1. All transactions are to be in the general journal.
 a) recording b) recorded
2. There is an number of private investors.

- a) increasing b) increased
3. Staff are to work flexitime.
- a) allowing b) allowed
4. John was to join the family firm.
- a) inviting b) invited
5. She works in an agency.
- a) advertising b) advertised
6. Most of the products are to developing countries.
- a) exporting b) exported
7. Accrued income is a total sum of money by the company during a particular period.
- a) earning b) earned
8. The goods were ... in the shop window.
- a) displaying b) displayed
9. All ... machines are cut-price for one week only.
- a) washing b) washed
10. ... conditions improved last year.
- a) Trading b) Traded

Тест 3. The Infinitive

Заполните пропуски в предложениях, выбрав нужную форму инфинитива:

1. our employers to develop their skills is one of the prime concerns of management.
- a) to recruit b) to inform c) to encourage
2. this market requires a lot of hard work.
- a) to enter b) to inform c) to lose
3. We have decided not to advertise this position, but internally.
- a) to encourage b) to recruit c) to inform
4. I am glad you that you have been successful.
- a) to inform b) to accept c) to encourage
5. It is impossible for us these terms.
- a) to have found b) to accept c) to work out

6. We would like our overdraft facilities.
 a) to extend b) to buy c) to have found
7. The sales director claimed ... three new customers.
 a) to recruit b) to have found c) to find
8. They made us ... extremely hard.
 a) to work b) work c) to have worked
9. Central banks of different countries are expected
 away from monetary
 restrictions.
 a) to stay b) stay c) to have stayed
10. The world economy is predicted growing.
 a) to have continued b) to continue c) continue

Тест 4. Conditional Mood

1. Если у меня будет время, то я приду сегодня.
 a) will have b) have c) would come d) will come
2. Если бы у меня было время, я пришел бы сегодня.
 a) had b) had had c) would come d) would have come.
3. Если бы у меня было время, я пришел бы вчера.
 a) had b) had had c) would come d) would have come.
4. Если бы я знал английский язык, то перевел бы текст сам.
 a) knew b) has know c) would translate d) would have translated.
5. Если бы я тогда знал английский язык, то перевел бы текст сам .
 a) knew b) had known c) would translate d) would have translated.
- 6) Если бы он жил в большом городе, то не пропускал бы выставок живописи.
 a) live b) lived c) wouldn't miss d) wouldn't have missed.
- 7) Если я поеду в Вашингтон, то посету Капитолий.

a) will go, b) go c) visit, d) will visit

8) Если бы я была в Вашингтоне, то посетила бы Капитолий.

a) were b) was c) will visit d) would visit

9) Если бы у меня было свободное время сегодня или завтра, я сделала бы эту работу сам.

a) have b) had c) would have done d) would do

Грамматический справочник

§ 1 THE PARTICIPLE (ПРИЧАСТИЕ)

В английской научно-технической литературе причастие и причастные обороты используются очень широко.

Формы причастия

	Active	Passive
Participle I	using	being used
Participle II		used
Perfect Participle	having used	having been used

Из всех форм причастия наиболее употребительными являются формы причастия I (using, being) и причастия II (used). Перевод причастия зависит от его функции в предложении.

Participle I (non-perfect) выполняет в предложении следующие функции:

1) часть составного глагольного сказуемого в Continuous.

He is waiting for you near the booking office. Он ждёт вас у кассы.

2) *определение. Participle I в функции определения переводится на русский язык действительным причастием настоящего времени, оканчивающимся на –ущий, -ющий, -ащий, -ящий (делающий, бегущий, соединяющий) или действительным причастием прошедшего времени, оканчивающимся на –вший (когда глагол-сказуемое стоит в прошедшем времени) (делавший, бежавший, соединявший).*

The man waiting for you has come from London.
Человек, ожидающий вас, приехал из Лондона.

The engineer delivering the report gave many interesting examples. Инженер, делавший доклад, привёл много интересных примеров.

3) *обстоятельство. Participle I в функции обстоятельства находится в начале предложения или в середине предложения после запятой, и переводится на русский язык **деепричастием несовершенного вида**, оканчивающимся на -а, -я (делая, рассказывая, рисуя, проезжая).*

He saw many interesting things, while traveling about the country. Путешествуя по стране, он видел много интересного.

Waiting for the train arrival I looked through the magazines. Ожидая прибытия поезда, я просматривал журналы.

Примечание:

Часто перед Participle I в функции обстоятельства ставится союз while или when. Такие предложения можно перевести 3 способами:

While translating the article the student consulted the

dictionary.

1) Переводя статью, студент пользовался словарём.

2) Когда студент переводил статью, он пользовался словарём.

3) При переводе статьи студент пользовался словарём.

Participle I (perfect) выражает действие, предшествующее действию, выраженному сказуемым. Оно обычно находится в начале предложения и переводится на русский язык деепричастием совершенного вида (сделав, рассказав, прибежав). В предложении **Participle I (perfect)** выполняет функцию обстоятельства.

Having finished the test he put down the results.
Закончив испытание, он записал результаты.

Participle II

Participle II может выполнять в предложении следующие функции:

1) часть составного глагольного сказуемого.

The road will be opened for traffic next month. Дорога будет открыта для движения в следующем месяце.

2) определение. Participle II в функции определения переводится на русский язык страдательным причастием настоящего или прошедшего времени, оканчивающимся на -емый (-имый), -нный, -тый (сделанный, используемый, вымытый).

The proposed plan is very interesting. Предлагаемый (предложенный) план очень интересен.

They agreed to the design worked out by our engineer.
Они согласились с проектом, разработанным нашим инженером

3) обстоятельство. *Participle II* в функции обстоятельства находится **в начале предложения**, часто после союзов *when, if, though*, и переводится на русский язык **придаточным предложением или существительным с предлогом**.

Though overstressed, the machine kept on running.
Несмотря на перегрузку, машина продолжала работать.

When burned, coal produces heat. При горении угля выделяется тепло.

§ 2 ИНФИНИТИВ (THE INFINITIVE)

Инфинитив, являясь неличной формой глагола, имеет свойства как существительного, таки глагола. Перед инфинитивом обычно стоит частица *to*.

Формы инфинитива

	<i>Active</i>	<i>Passive</i>
<i>Indefinite</i>	to do	to be done
<i>Continuous</i>	to be doing	
<i>Perfect</i>	to have done	to have been done

Сравните перевод предложений:

He is glad **to help** his friend. - Он рад **помочь** своему другу.

He is glad **to be helping** his friend. - Он рад, что **сейчас помогает** своему другу (сейчас).

He is glad **to have helped** his friend. - Он рад, что **помог** своему другу.

He is glad **to be helped**. - Он рад, что **ему помогают**.

He is glad **to have been helped**. - Он рад, что **ему помогли**.

Функции инфинитива в предложении и способы его перевода на русский язык

<i>Functions</i>	<i>English</i>	<i>Russian</i>
подлежащее	<i>To read</i> is useful. = It is useful <i>toread</i> .	Читать – полезно.
часть именного составного сказуемого	Your task is <i>to repair</i> this device as quickly as possible.	Ваша задача <i>состоит в том, чтобы отремонтировать</i> этот прибор как можно быстрее.
дополнение	I am glad <i>to have bought</i> the ticket in advance.	Я рад, что <i>купил</i> билет заранее.
обстоятельство	<i>To finish</i> this test by 5 you must start it at once.	<i>Чтобы закончить</i> испытание к 5 часам, вы должны начать его сейчас.
определение	The device <i>to be tested</i> is in the lab.	Прибор, <i>который нужно испытать</i> , находится в лаборатории.

Примечания:

1) *Infinitive* в функции подлежащего стоит в самом начале предложения перед сказуемыми переводится либо неопределённой формой глагола, либо существительным.

2) *Infinitive* как часть именного составного сказуемого стоит после глагола-связки **to be** и переводится либо неопределённой формой глагола, либо выражением *заключается в том, чтобы; состоит в том, чтобы* + неопределённая форма глагола.

3) *Infinitive* в функции дополнения стоит после глаголов (таких как: *ask, decide, demand, expect, forget,*

learn, like, offer, plan, prepare, promise, refuse, remember, want, wish) или прилагательных (таких как: *afraid to, glad to, prepared to, proud to, ready to, sorry to, surprised to*) и переводится либо неопределённой формой глагола, либо личной формой глагола.

4) *Infinitive* в функции обстоятельства цели может стоять в самом начале предложения

перед подлежащим, в конце предложения и после слов **enough** *достаточно*; **too** *слишком*.

Иногда перед *Infinitive* ставится союз **in order to** *чтобы, для того чтобы*.

5) *Infinitive* в функции определения стоит после существительного или после слов **the first** *первый*; **the last** *последний*; **the only** *единственный* и т.п. После существительных *Infinitive* чаще всего стоит в пассивной форме (**to be tested, to be built, to be read**) и выражает

действие, которое должно произойти или произойдёт в будущем. В этом случае *Infinitive*

переводится определительным придаточным предложением с союзом *который* (*который будет, который нужно, который следует*).

Оборот **for+ Infinitive**

существительное
 for + или + инфинитив
 местоимение

Весь оборот выступает как сложный член предложения, способный выполнять функции подлежащего, части сказуемого, обстоятельства или определения.

Функция	Пример	Перевод
1.	It is necessary for a	Врачу необходимо

Подлежащее	doctor to be patient.	быть терпеливым.
2. Часть сказуемого	It is for her to decide.	Это она должна решить.
2. Обстоятельство	He stepped aside for her to pass.	Он отошел в сторону, чтобы она могла пройти.
4. Определение	The first thing for him to do is to ring her up.	Первое, что он должен сделать, это позвонить ей.

Перевод оборота зависит от выполняемой им функции, при этом предлог *for* опускается, а весь оборот переводится придаточным предложением соответственно функции.

§ 3 ИНФИНИТИВНАЯ КОНСТРУКЦИЯ “СЛОЖНОЕ ДОПОЛНЕНИЕ” (THE COMPLEX OBJECT)

The Complex Object (сложное дополнение) представляет собой инфинитивный оборот, состоящий из имени существительного (в именительном падеже) или местоимения (в объектном падеже) и инфинитива. Вся конструкция выполняет функцию дополнения, часто переводится придаточным предложением с союзами *что, чтобы, как*. Схема предложений со сложным дополнением:

подлежащее	сказуемое	сложное дополнение	второстепенные члены предложения
I	suppose	them to arrive	on Monday

Сложное дополнение употребляется после таких глаголов как:

to want, to wish хотеть, желать; **would (should)**
like хотелось бы; **to suppose** полагать, предполагать;
to expect ожидать, предполагать; **to know** знать;
to consider, to believe, to think считать, полагать, думать;
to watch наблюдать; **to notice** замечать; **to see** видеть;
to hear слышать; **to make, to force, to cause** заставлять;
to order приказывать; **to enable, to allow** позволять, давать
возможность; **to let** разрешать, позволять и т.п.

We *know him to be* a good specialist. Мы знаем, что он хороший специалист.

They *expect the ship to arrive* tonight. Они ожидают, что пароход прибудет сегодня вечером.

I *thought you to be late*. Я думал, что вы опоздаете.

Обратите внимание на то, что:

а) послеглаголов восприятия (**to see, to hear, to watch, to notice**) и послеглаголов (**to make, to let**) инфинитив употребляется без частицы **to**.

I *have never heard her praise* anybody's work. Я никогда не слышал, чтобы она хвалила чью-либо работу.

Nobody *noticed him go out*. Никто не заметил, как он ушёл.

б) сложное дополнение после глаголов (**to make, to cause, to force, to allow, to order, to enable**) не переводится придаточным предложением.

He *enabled us to repeat* the experiment. Он дал нам возможность повторить эксперимент.

What *made her leave* this job? Что заставило её уйти с этой работы?

§ 4. ИНФИНИТИВНАЯ КОНСТРУКЦИЯ “СЛОЖНОЕ ПОДЛЕЖАЩЕЕ” (THE COMPLEX SUBJECT)

The Complex Subject (сложное подлежащее) представляет собой инфинитивный оборот, состоящий из имени существительного или местоимения (в именительном падеже) и инфинитива с частицей *to*.

Схема предложений со сложным подлежащим:

первая часть подлежащего	сказуемое	вторая часть подлежащего	второстепенные члены предложения
She My brother	<i>is known</i> <i>is sure</i>	to arrive to come	on Monday in time

Сказуемое может быть выражено:

а) глаголами **to know** *знать*; **to expect** *ожидать, полагать*; **to find** *находить, устанавливать*; **to suppose** *предполагать*; **to report** *сообщать*; **to consider, to think** *думать, считать*; **to say** *говорить*; **to hear** *слышать* и т.п. в форместрадательного залога.

He is known to be a good specialist.

The train was reported to have arrived.

Перевод таких предложений нужно начинать со сказуемого, которое переводится неопределённо-личным предложением (*Известно, что...; Полагают, что...; Сообщили, что...; Слышали, что...*).

Известно, что он хороший специалист. = Он, **как известно**, хороший специалист.

Сообщили, что поезд уже прибыл. = Поезд, **как сообщили**, уже прибыл.

б) глаголами в форме действительного залога **to seem, to appear** казаться, по-видимому, очевидно; **to happen** случаться; **to prove, to turn out** оказываться.

The new methods of work seem to be very effective.
Очевидно, что новые методы работы очень эффективны.

Do you happen to know Jane's telephone number? Ты *случайно* не знаешь номер телефона Джейн?

с) составными глаголами **to be likely** вероятно, возможно; **to be unlikely** маловероятно, невероятно, вряд ли, едва ли; **to be sure, to be certain** несомненно, обязательно, конечно.

She is sure to come. Она *обязательно* придёт.

He is unlikely to be able to start his car. *Едва ли* он сможет завести машину.

§ 5 СОСЛАГАТЕЛЬНОЕ НАКЛОНЕНИЕ В АНГЛИЙСКОМ ЯЗЫКЕ (CONDITIONAL MOOD)

Сослагательное наклонение выражает предполагаемое или желательное действие. В английском языке существует 3 типа сослагательного наклонения. Для начала сравним 3 предложения:

1. Если у него будет время, он выполнит эту работу.
2. Если бы у него было время, то он выполнил бы эту работу.

3. Если бы у него было время вчера, то он выполнил бы эту работу.

1-е предложение (1 тип), обозначает реальное условие и относится к будущему времени.

2-е предложение (2 тип) обозначает маловероятное условие и относится к настоящему и будущему временам.

3-е предложение (3 тип) обозначает нереальность выполнения условия и относится к прошедшему времени. Сложившуюся ситуацию уже изменить нельзя, о ней можно сожалеть или предположить, что могло быть сделано или не сделано раньше.

1 тип. *If* Present tense, Future tense.

If I have time tonight, I will finish reading a novel.-

Если сегодня вечером у меня будет время, то я закончу читать роман.

Вместо If можно также использовать when
When I have time tonight, I will finish reading a novel. -

Когда сегодня вечером у меня будет время, то я закончу читать роман.

2 тип. *If* Past Simple, would + infinitive.

If I had time tonight, I would finish reading a novel. - Если бы у меня сегодня вечером было время, то я бы закончил читать роман.

Во втором типе условных предложений глагол "to be" всегда имеет форму "were".

If I were you, I would go there at once.

3 тип. *If* Past Perfect, would + have + V3/-ed.

If I had had time last night, I would have finished reading a novel. -

Если бы у меня прошлым вечером было время, то я бы уже закончил читать роман.

SUPPLEMENTARY READING

Text 1

INTERNET SECURITY

The Internet provides a wide variety of opportunities for communication and development, but unfortunately it also has its dark side.

Crackers, or black-hat hackers, are computer criminals who use technology to perform a variety of crimes: virus propagation, fraud, intellectual property theft, etc.

Internet-based crimes include scam, email fraud to obtain money or valuables, and phishing, bank fraud, to get banking information such as passwords of Internet bank accounts or credit card details. Both crimes use emails or websites that look like those of real organizations.

Due to its anonymity, the Internet also provides the right environment for cyberstalking, online or abuse, mainly in chat rooms or newsgroups.

Piracy, the illegal copying and distribution of copyrighted software, information, music and video files, is widespread.

But by far the most common type of crime involves malware.

Malware: viruses, worms, trojans and spyware

Malware (malicious software) is software created to damage or alter the computer data or its operations. These are the main types.

- Viruses are programs that spread by attaching themselves to executable files or documents. When the infected program is run, the virus propagates to other files or programs on the computer. Some viruses are designed to work at a particular time or on a specific date, e.g. on Friday 13th. An email virus spreads by sending a copy of itself to everyone in an email address book.

- Worms are self-copying programs that have the capacity to move from one computer to another without human help, by exploiting security flaws in computer networks. Worms are self-contained and don't need to be attached to a document or program the way viruses do.

- Trojan horses are malicious programs disguised as innocent-looking files or embedded within legitimate software. Once they are activated, they may affect the computer in a variety of ways: some are just annoying, others are more ominous, creating a backdoor to the computer which can be used to collect stored data. They don't copy themselves or reproduce by infecting other files.

- Spyware, software designed to collect information from computers for commercial or criminal purposes, is another example of malicious software. It usually comes hidden in fake freeware or shareware applications downloadable from the Internet.

Preventative tips

- Don't open email attachments from unknown people; always take note of the file extension.

- Run and update antivirus programs, e.g. virus scanners.

- Install a firewall, a program designed to prevent spyware from gaining access to the internal network.

- Make backup copies of your files regularly.
- Don't accept files from high-risk sources.
- Use a digital certificate, an electronic way of proving your identity, when you are doing business on the Internet. Avoid giving credit card numbers.
- Don't believe everything you read on the Net. Have a suspicious attitude toward its contents.

"фишинг" преступная деятельность интернет-мошенников, действующих под видом благонадёжных компаний и юр. лиц, с целью незаконного получения секретной информации: паролей, данных кредитных карточек, логинов...

Crackers - взломщик программной защиты; компьютерный взломщик; **fraud** – обманщик, мошенник; мошенничество; **cyberstalking** - виртуальное преследование **scam** - мошенническая проделка; афера; **onlineharassment**-оскорбления в режиме реального времени; **self-contained** – самостоятельны, независимы; **disguised** – маскировать, скрывать; **embedded**-

вставлять; врезать; вмазывать; вделывать; заделывать (во что-л.); вкраплять; **flaws** - щель, дыра, трещина; **ominous** – зловещие, угрожающие; **freeware** – свободно распространяемое программное обеспечение; **sharewareapplications** - условно-бесплатное программное обеспечение; **backupcopies** – резервная копия

malware - вредоносные программные средства, как то: вирусы, трояны, их цель-нарушение нормальной работы ПК

firewall -межсетевая защита (тж. защитный экран: 1. Узел сети, служащий барьером для предотвращения передачи трафика из одного сегмента в другой. Межсетевой защитный экран используется как для уменьшения трафика, так и для повышения безопасности

сети; может работать в качестве барьера между частной сетью и сетью общего пользования; может быть реализован с помощью маршрутизатора или другого специального сетевого устройства. 2. Применительно к Интернету и Интранету: система защиты средств технического, программного и информационного обеспечения компьютерной сети от несанкционированного доступа и различного рода действий, связанных с нарушением их штатной работы или состояния. Строится на гибком использовании механизмов разрешающего и запрещающего действия, работа которых основана на принципах фильтрации данных

Text 2

COMPUTER CRIME : NEW KIND OF PROFESSIONAL CRIME

Professional criminal activity is illegal activity of the person possessing corresponding experiences, skills, methods and instruments, person considering this activity as basic occupation, and main or additional source of money income. Criminal professionalism is criminal occupation, source of means for the criminal; it demands necessary knowledge and skills for achieving the ultimate goal; it causes certain contacts with antisocial environment. Criminals quickly adapt to new kinds, forms and methods of entrepreneurship. They use conditions of the developing market and new technologies on criminal purposes. The number of crimes committed in sphere of high technologies (carding, computer and cellular crimes), with use of special knowledge in sphere of financial and economic activities, during professional activity.

As an example we may take large money thefts using counterfeit bank documents, fake securities, illegal use of

electronic means designed for accessing bank accounts, office equipment (computers, fax-modems, copying devices).

The analysis of criminal actions committed lately with use of computer technologies, and also numerous interrogations of bank employees allow to allocate the most typical ways of computer crimes against banks and other financial institutions.

First, computer crimes committed by unauthorized access to bank databases by means of telecommunication networks are becoming more and more widespread.

Second, there was practically no computer crime lately which would have been committed by a criminal alone. Moreover there are some cases when organized criminal groups hired hackers. They had a separate protected premise equipped with the latest computer facilities so that they could carry out grand money thefts by illegal penetration into computer networks of large banks.

Third, the majority of computer crimes in bank sphere are committed with direct complicity of commercial banks employees. Results of the researches conducted with bank personnel practice, show that share of such crimes approaches to 70%.

Fourth, the increasing number of computer crimes is committed with use of opportunities of the global computer network Internet.

The amount of computer crimes increases annually. Besides computer technologies are widely used in "shady" convertible centers. This allows their clients to evade taxes.

Criminalists frequently define computer criminality as the following:

1. crimes in sphere of computer information;
2. crimes committed with help of computer (thefts, scams, etc.)

Features of crimes commitment in sphere of computer information, high rates of its development and modifications, and also obviously insufficient legal regulation of information relationship have led to situation when there are no techniques of gathering proofs and investigations of such crimes, no uniform approaches to their suppression and investigation so far.

The important role in preventing computer criminality falls on actions of technical character. These are development and introduction of the newest computer technologies for property protection and computer security.

The significant role in revealing, disclosing and preventing computer crimes is also in the aspect of law enforcement bodies' cooperation with foreign countries.

Text 3

APPLICATION OF PERSONAL COMPUTERS

Personal computers have a lot of applications, however, there are some major categories of applications: home and hobby, word processing, professional, educational, small business and engineering and scientific.

Home and hobby. Personal computers enjoy great popularity among experimenters and hobbyists. They are an exciting hobby. All hobbyists need not be engineers or programmers. There are many games that use the full capabilities of a computer to provide many hours of exciting leisuretime adventure.

The list of other home and hobby applications of PCs is almost endless, including: checking account management, budgeting, personal finance, planning, investment analyses, telephone answering and dialing, home security, home environment and climate control, appliance control, calendar

management, maintenance of address and mailing lists and what not.

Word processing. At home or at work, applications software, called a word processing program enables you to correct or modify any document in any manner you wish before printing it. Using the monitor as a display screen, you are able to view what you have typed to correct mistakes in spelling or grammar, add or delete sentences, move paragraphs around, and replace words. The letter or document can be stored for future use.

Professional. The category of professional includes persons making extensive use of word processing, whose occupations are particularly suited to the desk-top use of PCs. Examples of other occupations are accountants, financial advisors, stock brokers, tax consultants, lawyers, architects, engineers, educators and all levels of managers. Applications programs that are popular with persons in these occupations include accounting, income tax preparation, statistical analysis, graphics, stock market forecasting and computer modeling. The computer modeling program is widely used by professionals. It can be used for scheduling, planning, and the examination of “what if” situations.

Educational. Personal computers are having and will continue to have a profound influence upon the classroom, affecting both the learner and the teacher. Microcomputers are making their way into classrooms to an ever-increasing extent giving impetus to the design of programmed learning materials that can meet the demands of student and teacher.

Two important types of uses for personal computers in education are computer-managed instruction (CMI), and computer-assisted instruction (CAI). CMI software is used to assist the instructor in the management of all classroom-related activities, such as record keeping, work assignments, testing, and grading. Applications of CAI include mathematics,

reading, typing, computer literacy, programming languages, and simulations of real-world situations.

Notes

exciting — увлекательно; *leisure-time* — свободное время; *adventure* — приключение; *stock market forecasting* — прогнозирование рынка акций; *an ever-increasing extent* — в возрастающей степени; *impetus* — толчок, импульс; *work assignments* — задания; *grading* — сортировка, распределение

Text 4

INFORMATION EXPLOSION AND DATA PROCESSING IN MODERN SOCIETY

An outstanding characteristic of modern society is the powerful flow of knowledge and information in different fields of human activities.

Information is often called the lifeblood of modern civilization. It plays an ever increasing part in everyday life, management of business, etc.

The scientific activity, with all its technical and economic outcomes and consequences, is today passing through a period of particularly rapid development. For instance, over the past 150 years the range of human knowledge has been doubled every twelve to fifteen years.

The present-day information explosion must be properly dealt with. To handle the information flow properly and instantly, to help specialists find immediately of machines have been invented. They are now widely used for this purpose.

The computer, with its million fold increase in man's capacity to handle information, undoubtedly, holds the first place. Without the computer, data and information processing would be impossible, say, in space programs. It is the

phenomenal speed of computers that makes them practically well suited to pursuing activities that require instant solution to complex dynamic problems. They are extensively used in the control and monitoring of space vehicles. Computers are ideal for high-volume computing tasks such as the computation and analysis of statistical and mathematical data as well as scientific and engineering calculations.

For example, before production can be started in the factory, raw materials and parts have to be procured. This involves the data processing system in the preparation of purchase orders. When supplies are received they have to be recorded on appropriate stock or job-records, which again involve data processing.

When production is due to begin materials and parts have to be issued to the production centers and suitability recorded on issue notes which are subsequently recorded on stock and job records. The issues are often priced and extended. These are also data processing operations.

In the industry, for instance, one of the new generations of press control combines a menu-driven press computer with a programmable press controller. The press control system monitors all vital functions of the stamping system. It provides an infinite for storing all your setup information.

Total system diagnostics are enhanced by the computer to provide on screen remedies for identifiable problems. Not only do you know why the press has stopped, but now you know where the problem is and how to remedy it.

On-line operating data are automatically recorded. You can now call up a report to tell all about the job while it is running and how long to completion. The computerized control system has the flexibility to meet new requirements for more information.

Thus information and data processing is a special activity performed by the administrative organization for the

business as a whole. It is concerned with the systematic recording, arranging, filing, processing and dissemination of facts relating to the physical events occurring in business.

From the above said it can be concluded that data processing systems provide information and information provides the basis for managerial control of business operations to achieve corporate objectives as effectively as possible. This means making the most suitable decisions based on the information provided.

A management information system therefore embraces the data processing systems control systems (using information provided by the data processing system), and decision-making based on the facts indicated by the control systems.

A data processing system in its simplest form consists of three primary elements: input, processing and output. These elements apply whether the system is manual, mechanical or electronic.

A computer system consists of five elements: input, processing, output, storage and control.

It is absolutely necessary for every active member of modern society to be able to use the computer system in data (information) processing and management.

Text5

BUS

A computer's bus can be viewed as consisting of about one hundred parallel wires. Some of these wires carry timing signals, others will have control signals, another group will have a bit pattern code that identifies the component (CPU, memory, peripheral controller) that is to deal with the data, and other wires carry signals encoding the data. Signals are sent over the bus by setting voltages on the different wires (the voltages are small, like 0-volts and 1-volt). When a voltage is applied to a wire the effect propagates along that wire at close

to the speed of light; since the bus is only a few inches long, the signals are detectable essentially instantaneously by all attached components. Transmission of information is controlled by clocks that put timing signals on some of the wires. Information signals are encoded on to the bus, held for a few clock ticks to give all components a chance to recognize and if appropriate take action, then the signals are cleared. The clock that controls the bus may be "ticking" at more than one hundred million ticks per second. The "plugs" that attach components to the bus incorporate quite sophisticated circuits. These circuits interpret the patterns of 0/1 voltages set on the control and address lines – thus memory can recognize a signal as "saying" something like "store the data at address xxx", while a disk control unit can recognize a message like "get ready to write to disk block identified by these data bits". In addition, these circuits deal with "bus arbitration". Sometimes, two or more components may want to put signals on the bus at exactly the same time – the bus arbitration circuitry resolves such conflicts giving one component precedence (the other component waits a few hundred millionths of a second and then gets the next chance to send its data).

Text 6

HIGH SPEED REGISTER STORAGE

Programmers who write in low-level "assembly languages" will be aware of these data and address registers in the CPU. Assembly language code defines details such as how data should be moved to specific data registers and how addresses are to be calculated and saved temporarily in address registers.

Generally, programmers working with high level languages don't have to be concerned about such details; but,

when necessary, a programmer can find out how the CPU registers are used in their code.

In addition to the main data and address registers, the CPU contains many other registers. The ALU will contain numerous registers for holding temporary values that are generated as arithmetic operations are performed. The timing and control component contains a number of registers that hold control information.

The Program Counter (PC) holds the address of the memory location containing the next instruction to be executed. The Instruction Register (IR) holds the bit pattern that represents the current instruction; different parts of the bit pattern are used to encode the "operation code" and the address of any data required. Most CPUs have a "flags" register. The individual bits in this register record various status data. Typically, one bit is used to indicate whether the CPU is executing code from an ordinary program or code that forms part of the controlling Operating Systems (OS) program. (The OS code has privileges; it can do things, which ordinary programs can not do, like change settings of peripheral device controllers. When the OS-mode bit is not set, these privileged instructions can not be executed.) Commonly, another group of bits in the flags register will be used to record the result of comparison instructions performed by the ALU. One bit in the flags register would be set if the comparator circuits found two values to be equal; a different bit would be set if the first of the two values was greater than the second.

Text7

"CACHE" MEMORIES

"Cache" memories are increasingly common ("cache – a hiding place for provisions, treasures etc"). Cache memories are essentially hidden from the applications programmer; the cache belongs to the computer hardware and its controlling

operating system. These work together using a cache to increase performance. Currently, a typical cache memory would be up to 256 KB in size. The cache may form a part of the circuitry of the CPU chip itself, or may be a separate chip. Either way, the system will be designed so that information in the cache can be accessed much more quickly than information in main storage.

The OS and CPU hardware arrange to copy blocks of bytes ("pages") from main memory into the cache. The selected pages could be those with the instructions currently being executed. Most programs involve loops where particular sets of instructions are executed repeatedly. If the instructions forming a loop are in the cache, the CPU's instruction-fetch operation is greatly speeded up. Sometimes it is worth copying pages with data from main memory to the cache – then subsequent data accesses are faster (though data that get changed do have to be copied back to main memory eventually). The operations shifting pages, or individual data elements, between cache and memory are entirely the concern of the CPU hardware and the operating system. The only way that a programmer should be able to detect a cache is by noticing increased system's performance.

All data manipulated by computers are represented by bit patterns. A byte, with 8 individual bits, can represent any of 256 different patterns.

Text 8

LANGUAGES AND EXTENSIONS

Now we will examine the relationship between languages and extensions. Traditionally, the term *language* refers (in the computer world) to some form of computer language, a set of common instructions that when properly assembled, create a program or application. Most users are well aware of at least one computer language: BASIC, Pascal,

FORTRAN, C, and so on. Such languages are traditionally understood to be *real* languages because one can cab construct a program with them that can thereafter run generally without need of external support from an interpreter.

Today, the climate is different. For example, the popularity of *shell* languages, which are used primarily on the UNIX platform, has greatly increased. They are written in a syntax that meets the requirements of the shell or command interpreter of the given platform. These languages cannot create entirely standalone programs that execute without a command interpreter, yet these languages have become vastly popular. A programmer who can proficiently program is such a language is almost guaranteed to land a job somewhere.

As such, these languages stretch the definition of language itself. For even these programs cannot run without assistance from the underlying system, they are indeed full-fledged programs that can and often do run various services and functions of the Internet.

Similarly, there are interpreted languages such as Perl that offer extreme power to the user. They can often interface not just with their own interpreter, but with various shell languages and system calls. They can even be nested within other language constructs. A typical example would be a Perl script nested within a TCL script or within a C program. These are languages that cross the barriers (or perhaps bridge the gaps) between one or more real languages.

Hypertext Markup Language (HTML) is a language, but it should be interpreted by a hypertext reader (Navigator, Internet Explorer, Grail, Arena, Lynx, Opera, Powerbrowser, Netcruiser, and so forth). JavaScript and VBScript are languages that stand between Perl and HTML. But they perform only a limited set of tasks. In order to create a fully functional and dynamic Web-page environment, one must use a combination of languages. So we can call a *language* any set

of instructions that can perform more than simple display processes, dynamically and without user intervention (that is, any set of instructions that could potentially automate a task).

In contrast, an *extension* is any set of instructions, declarations, or statements that formulate one application of a particular language. Most commonly, the term *extension* refers to HTML extensions. For example, tables in HTML are extensions. They are statements that alter the face of a Web page. The use of tables is becoming more common because tables provide control of the Web page's appearance. Perhaps the easiest way to grasp the concept of extensions is to understand that they are statements that *extend* the originally intended implementation of HTML.

Text 9

COMMUNICATION AND MEDIA TECHNOLOGY

The USA prides itself on its ability to improve and develop new modes of communication and information transfer (i. e. telephone, internet). By combining media and information, the world has indeed changed. For example, computer networks, telephone links, satellite transmission, and publishing have been integrated into what is commonly known as the internet. This combinations of technology, naturally enough, created a new wave of business. What was once the sole domain of telephone companies — simple phone lines — has now expanded to include mass information transfer and television. All of this requires fiber-optic lines. Likewise, television stations can now do more business for their customers. For example, a customer can select a movie or other interesting program from a viewers' menu and order that specific film for viewing.

Another example of mass information transfer and communication technology is the ability to offer entire university courses over the internet. The majority of American universities offer internet courses where you can read text materials, take exams, and actually watch a lecturing professor that has been recorded on video. Some of these lectures are also transmitted over the internet in what is called real time. What this means is live broadcast. Students can also send their questions about the course or lecture through e-mail or through real time interactive dialogues.

Today, if you are a computer user, you can buy a wealth of information/media software that include the entire work of Shakespeare, encyclopedias, dictionaries, language learning programs (known as CALL: Computer Assisted Language Learning), etc. Most of these products are contained on a single CD-ROM. Many American universities already use, or are in the process of establishing, CALL labs. Students can improve their pronunciation, grammar, vocabulary, and writing through interaction with a computer. Likewise, other courses that include political science, literature, and marketing can be learned and/or facilitated through similar computer labs.

The widespread use of the internet grows even greater every day. It is impossible to determine exactly how many people use the internet, but it can be documented just how dependent America and other countries have become to the internet. In the year 2000, there was a problem, officially called Y2K, in data storage and retrieval. Computer intelligence did not know how to cope with two zeros in the last two digits of the year. Experts predicted that there may be mass computer crashes. The implications would have impact on hospitals, government agencies, university records, banking, flight reservations, and credit cards. The government had put official warnings out on both the internet and on television. One example of their precautions was to simply not use credit cards

for payment from the time period beginning in December 1999 through February 2000, as the charges may be inaccurate.

Nevertheless, the growth of the internet, the media, and mass communication has indeed facilitated the global community. Ordinary citizens of different countries can now actually communicate with each other via the internet. The speed and efficiency of the computer age has displaced much older technology. For example, many people would rather do their business communications through e-mail rather than what has now been labeled "snail-mail".

Text 10

THE EXPERIENCE OF THE WEB

Today's World Wide Web presents an ever-diversified experience of multimedia, programming language, and real-time communication. It is a challenge to keep up with the rapid pace of developments.

Multimedia. The web has become a broadcast medium. It is possible to listen to audio and video over the web, both pre-recorded and live. For example, you can visit the site of various news organizations and view the same video shown on the nightly television news. Several plugins are available for viewing these videos. For example, Apple's Quick Time Player downloads files with the mov extension and displays these as "movies" in a small window on your computer screen. Quick Time files can be quite large, as it may take patience to wait for the entire movie to download into your computer before you can view it.

The problem of slow download times has been answered by a revolutionary development in multimedia capability: streaming media. In this case, audio or video files are played as they are downloading, or streaming, into your computer. Only a small wait, called buffering, is necessary before the file begins to play. The RealPlayer plug-in plays

streaming audio and video files. Extensive files such as interviews, speeches and hearings work very well with RealPlayer. The RealPlayer is also ideal for the broadcast of real-time events. These may include press conferences, live radio and television broadcasts, concerts, etc.

Sound files, including music, may also be heard on the Web. It is not uncommon to visit a Web page and hear background music.

Live cams are another aspect of the multimedia experience available on the Web. Live cams are video cameras that send their data in real time to a Web server. These cams may appear in all kinds of locations, such as an office, on top of a building, a scenic locale, a special event, and so on. Text, audio and video communication can occur in real time on the Web. This capability allows people to conference and collaborate in real time. In general, the faster the Internet connection, the more successful the experience

Text 11

MICROSOFT INTERNET EXPLORER

Microsoft is well known for its ability to create attractive, eye-pleasing applications. Moreover, such products are designed for easy use to allow even the most intimidated individual to grasp the basic concepts within a few hours. In this respect, Microsoft has evolved much in the same way as Apple Computer. Consider, for example, the incredible standardization of design that is imposed on products for use in the Microsoft environment. In the Microsoft world, menus must be at least somewhat consistent with general Windows design. Thus, almost any application designed for Microsoft Windows will have a list of menus that can across the top of the program. Three menu choices that you will invariably see are File, Edit and Help (other menu choices that are still very

popular but appear less frequently include View, Tools, Format, and so forth). In other words, if you know one Microsoft program, you know them all.

Microsoft has thus created its own standards in a market. Microsoft has revolutionized the PC computing world. Furthermore, because Microsoft products are so popular worldwide, programmers rush to complete applications for use on the Microsoft platform. Moreover, Microsoft has put much effort in to application integration and interoperability. That means an Excel spreadsheet will drop into a Word document, an Access database will interface with a Visual basic program, and so on. All Microsoft products work in an integrated fashion. Microsoft designed its products with components that meet certain criteria. Each of these applications contain building blocks that are recognizable by the remaining applications. Each can call its sister applications through a language that is common to them all. This system gives the user an enormous amount of power.

Unfortunately, however, it also makes for poor security. Internet Explorer was designed with this interoperability in mind. For example, Internet Explorer was more integrated with the Windows operating system than, say, Netscape's Navigator. Mr. Gates undoubtedly envisioned a browser that would bring the Internet to the user's desktop in the same manner as it would a local application. In other words, Internet Explorer was designed to bring the Internet to the user in a form that is easy to understand, navigate, control.

In a period of less than two weeks in early 1997, Internet Explorer was discovered to have three serious security bugs:

Students at a university in Maryland found that they could embed an icon on a Web page that would launch programs on the client user's computer. Microsoft posted a public advisory on its WWW site. In it, the company

explained: If a hacker took advantage of this security problem, you could see an icon or a graphic in a Web page, which is, in fact, within a regular Window 95 folder of the Web site server or your computer. The hacker could shrink the frame around the icon or graphic so that you would think it was harmless, when in fact it allows you or anyone else to open, copy, or delete the file, or run a program that could, if the author has malicious intent, damage your computer. You can launch the program because the folder bypasses the Internet Explorer security mechanism.

Several sources determined that one could launch programs on the client's machine by pointing to either a URL or an LNK file.

Folks at A.L. Digital, a London-based firm, determined that Microsoft's Internet Explorer contained a bug that would allow a malicious Java applet to steal, corrupt, or otherwise alter files on the client's machine.

Dirk Balfanz and Edward Felten of Princeton University wrote in August 1996: "We have discovered a security flaw in Microsoft's Internet Explorer browser running under Windows 95. An attacker could exploit the flaw to run any DOS command on the machine of an Explorer user who visits the attacker's page. For example, the attacker could read, modify, or delete the victim's files, or insert a virus or backdoor entrance into the victim's machine".

The risk represented here is tremendous.

It is clear that, for the moment, Microsoft Internet Explorer is still cutting its teeth in terms of Internet security. What makes the problem especially serious is that only those users who are truly security aware receive such information as breaking news. The majority receive such information from third parties, long after holes have been discovered. This is of major concern because nearly all of the holes found in Internet Explorer have been Class A.