НАВЧАЛЬНО-НАУКОВИЙ ЦЕНТР ГУМАНІТАРНОЇ ОСВІТИ

Кафедра іноземних мов

МІЙ ФАХ – «КОМП'ЮТЕРНІ СИСТЕМИ»

МЕТОДИЧНІ ВКАЗІВКИ

з розвитку навичок комунікативної компетенції
для студентів 2 курсу факультету АТЗ

(англійська мова)

Харків – 2014

Методичні вказівки розглянуто і рекомендовано до друку на засіданні кафедри іноземних мов 28 січня 2013 р., протокол № 6.

Видання підготовлено відповідно до програми навчальної дисципліни і є складовою частиною навчально-методичного комплексу дисципліни “Англійська мова”.

Основна мета методичних вказівок – подальший розвиток усного мовлення, систематизація та розширення словникового запасу за темою «Мій фах – «Комп’ютерні системи» і подальший розвиток усного спілкування.

Методичні вказівки призначено для студентів 2-го курсу факультету АТЗ.

Укладач

старш. викл. В.М. Михайленко

Рецензент

доц. С.І. Нешко

МІЙ ФАХ – «КОМП’ЮТЕРНІ СИСТЕМИ»

МЕТОДИЧНІ ВКАЗІВКИ

з розвитку навичок комунікативної компетенції
для студентів 2 курсу факультету АТЗ

(англійська мова)

Відповідальний за випуск Михайленко В.М.

Редактор Решетилова В.В.

Підписано до друку 25.03.13 р.

Формат паперу 60х84 1/16. Папір писальний.

Умовн.-друк.арк. 1,00. Тираж 50. Замовлення №

Видавець та виготовлювач Українська державна академія залізничного транспорту,
61050, Харків-50, майдан Фейєрбаха, 7.
Свідоцтво суб’єкта видавничої справи ДК № 2874 від 12.06.2007 р.

UNIT 1

Exercise 1. *Read the following international words and word-combinations. Translate them.*

A typical computer system, central processor unit, arithmetic unit, memory unit, control unit, function, coded pieces of information, to direct the activity, engine, location, to identify, to number, address bus, control bus, data bus, abbreviation, to accept information, external equipment, to display information, human operator, peripheral device, result, method, to convert, to indicate, interpretation, finally, to process information

Exercise 2. *Study the following words and word-combination:*

central processor unit	- центральний процесор
control unit	- прилад керування
data bus	- шина даних
address bus	- шина адреси
control bus	- керуюча шина
input/output unit	- прилад введення/виведення
arithmetic/logic unit	- арифметично-логічний прилад
binary code	- двійковий код
external equipment	- зовнішнє обладнання
floppy disk	- гнучкий диск
human operator	- оператор
general purpose register	- універсальний регістр
instruction register	- регістр команд
memory unit (storage unit)	- пристрій пам`яті
memory location	- комірка пам`яті
memory address register	- регістр адреси комірки пам`яті
machine language instruction	- команда мовою машини
peripheral device	- периферійний прилад
program counter	- лічильник команд

Exercise 3. *Before reading the text pay attention to the key points of the text. Be ready to discuss these questions.*

1 Enumerate the essential units of the computer and explain their functions.

2 How are the functional units of the computer interconnected in the execution of the program?

3 How is information processed by the computer represented?

4 Could you enumerate the sequence of operations in the execution of a program?

5 Speak briefly about the classification of buses and their functions.

TEXT

A TYPICAL COMPUTER SYSTEM

A typical digital computer consists of:

- A central processor unit (CPU)
- A memory unit (storage unit)
- Input/output (I/U) units (See Fig. 1)

The part of a digital computer which stores information is called the storage unit or memory unit. The storage unit is the very heart of the computer and it must retain information inside the computer long enough to carry out computations automatically. Thus the main function of the memory unit is to store information, the coded pieces of information that direct the activities of the CPU, and data, the coded pieces of information that are processed by the CPU. The CPU "reads" each information from memory in a logically determined sequence, and uses it is initiate processing actions. A group of coded instructions stored in memory is referred to as a program. The principal part of the computer, its "brain" or "software" as it is called is as important as the hardware.

The central processor unit is the engine of the computer. It follows sequences of instructions that cause it to process data. The CPU merely does what it is told to do per instructions stored in the memory. The memory stores both instructions and data for processor`s use storing such information in the thousands of locations into which the memory is divided. Each of the locations in memory is numbered. The number which identifies a memory location is called its address.

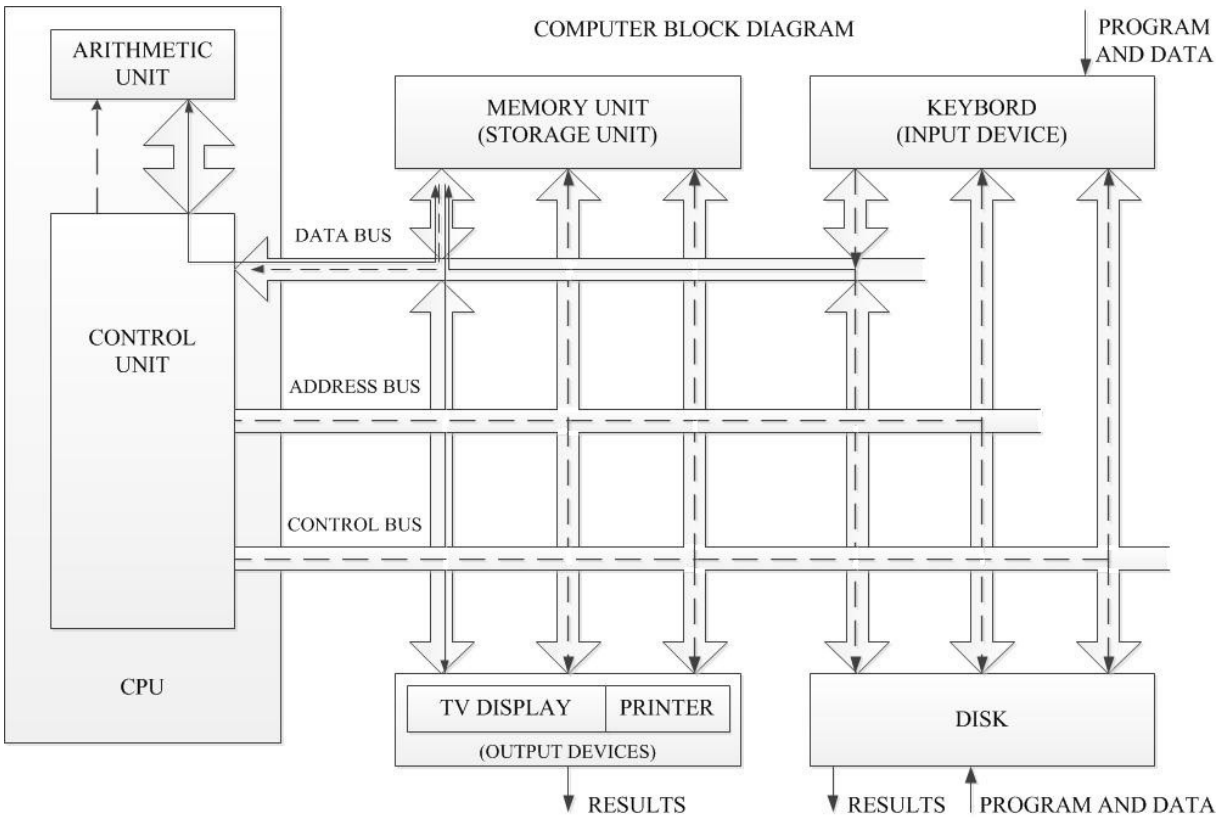


Fig. 1

THE ARCHITECTURE OF A CPU

A typical central processor unit (CPU) consists of the following interconnected functional units:

- Registers
- Arithmetic/logic unit (ALU)
- Control unit

Registers are temporary storage unit within the CPU. Some registers, such as the program counter and instruction register, have dedicated uses. Other registers, such as the accumulator, are for more general-purpose use. One of the key elements of any CPU is the program counter (Pc) which is up-dated for each instruction and provides temporary storage for the instruction number. When the program indicates a jump to an entirely different instruction number, the Pc will be set through the memory address register (MAR) to that new number. At the same time this new number will be sent to the memory to fetch the desired program instruction which will then be entered into the instruction register (IR).

The CPU Block diagram is shown in Fig. 2. It shows the essential elements that comprise a CPU.

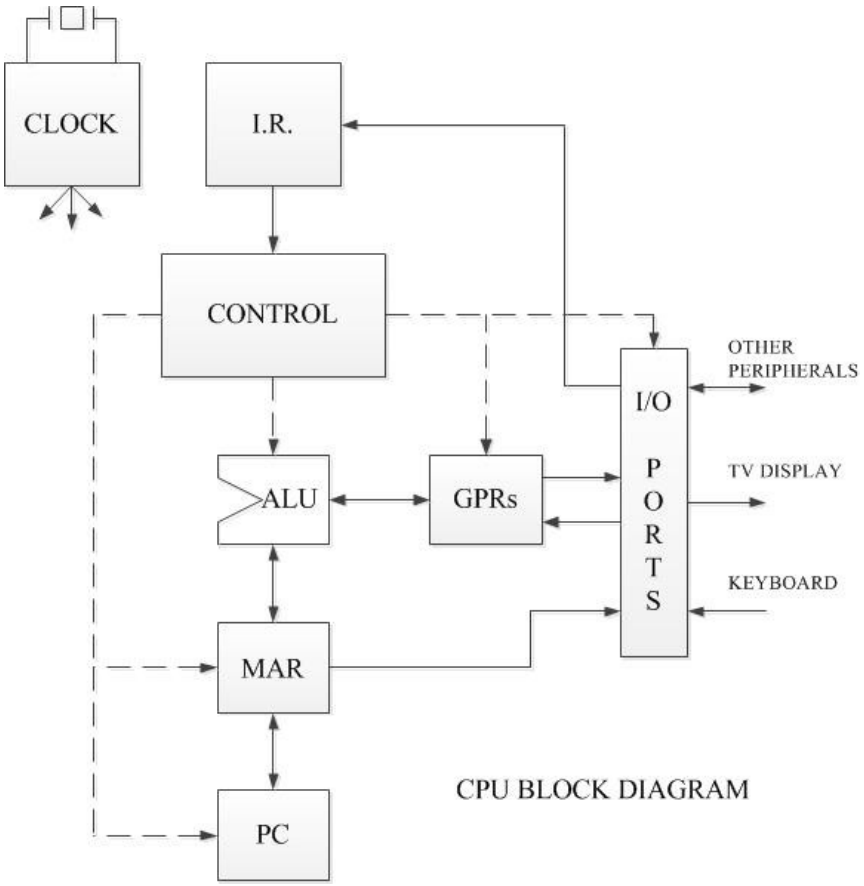


Fig. 2

The input/output parts presented in the block diagram are used for entering information from the outside world. In other words information enters from the outside world via the I/O ports. The data that will be used enters from the I/O ports to the general-purpose register (GPR). The GPRs are used for the temporary storage of data.

COMPUTER BUSES

Three sets of lines called buses link together the processor and the memory; three buses are called the address bus, the control bus and the data bus. Bus is a passive device, just a bundle of wires. “Bus” is a contraction of Latin “onnibus”, which means “for all” indicating that the bus is used for all data transfers between subsystems. The address bus is a unidirectional group of lines that identify a particular memory location or I/O device. Data bus is bi-directional path on which data can flew between the CPU and memory or I/O device. The control bus is a unidirectional set of signals that indicate the type of activity in the current process. The data bus carries all information that passes between the processor and the memory.

The processor and other system components and signals along these buses. The simplest signal that might be sent along these metallic conductors is the presence or absence of a voltage level or a current flow. Such signal is called a binary signal because it can assume only two states-present or absent (one or zero).So buses are simply sets of parallel conductors upon which binary signals are impressed. Subsystems of a computer are usually connected together by a common bus, instead of by connecting each subsystem to every other one individually.

PERIPHERAL EQUIPMENT

A complete computer system, of course, is not composed merely of a processor and memory. It must also include peripheral equipment – a keyboard, a display, a printer, a magnetic tape memory, etc. The peripherals connect the computer to the outside world. The keyboard, display and printer allow communication with a human operator, while the memory provides for the storage and retrieval of programs. A modern computer can process a great amount of information or make thousands of decisions per second. But without communication to the outside world the computer`s capabilities are of little use. The input/output unit, abbreviated I/O provides much communications. Input is the food of the computer. The main function of the input unit is to accept information. The information to be processed by the computer must be represented by asset of symbols consisting of the digits zero and one. This is the basis of the binary code. The function of the output unit is to display information. Programs and data are fed into the computer as input, the results appear as output.

The sequence of operations in the execution of a program is as follows:

- *Step 1*. First, the method of solution of profiles is programmed. That is, it is converted into sequence of machine language instructions, which becomes the program to be executed. The program along with the data to be used for obtaining a solution, is then entered into storage unit of the computer via he input device. This is indicated in Figure 1 by the heavy arrows from program and data to storage. Entering the program and data into storage is accomplished under the supervision of the control unit, which is indicated by the broken arrow in Fig.1 from control to input/output.

- *Step 2.* Once in storage, the program is then made available to the control unit for interpretation and eventual execution of the instructions. This is indicated in Fig.1 by the broken arrows between storage and control.

- *Step 3.* Next, under supervision of the control unit the arithmetic unit performs the following two operations:

a) It obtains the data from storage. This is indicated in Fig.1 by the heavy arrow from storage to arithmetic.

b) It operates on the data in accordance with the method of solution prescribed by the program. This is indicated by the broken arrow from control to arithmetic in Fig.1.

- *Step 4*. Finally, under instruction from the program, the results of operating upon the data are transferred to the output medium. This is indicated in Fig.1 by the heavy arrows from storage to results.

Exercise 4. *Answer the following questions:*

1 What is the storage (memory) unit*?*

2 What does the abbreviation "CPU" mean?

3 Do you know the main functional units of CPU?

4 What does the memory unit store?

5 Which computer buses are there?

6 What is a binary signal?

7 Is a complete computer system composed only of a processor and memory unit?

8 Do you know the function of the output unit?

9 Which device provides communication the computer with outside world*?*

Exercise 5. *Translate from Ukrainian into English the following sentences:*

1 Головна мета запам'ятовуючого пристрою – це збереження інформації.

2 Частина комп'ютера, яка приймає інформацію називається приладом введення.

3 Арифметичний прилад виконує головні арифметичні операції.

4 Результатом оперування інформацією є передача ii на прилад виведення.

5 Периферійні прилади зв’язують комп’ютер із зовнішнім світом.

6 Пристрій пам`яті зберігає і інформацію і дані.

7 Число, яке ідентифікує комірку пам`яті називається його адресою.

8 Сучасний комп’ютер може оброблювати велику кількість інформації за секунду.

Exercise 6. *Read the titles and the first paragraph of the text. Make up forecasting the contents of the text. Discuss it with your partner.*

Exercise 7. *Using information from the text discuss the questions connected with the structure of the computer and functions of its basic units.*

I Ask your partner information about basic units of the computer.

Key words: the central processor unit (CPU), the memory unit (storage unit), the input/output unit, the arithmetic/logic unit (ALU), the control unit, buses.

II Ask your partner information about the functions of the basic units of the computer.

III Ask your partner about the classification of the buses and their functions.

Exercise 8. *Agree or disagree with following statements using such conversational formulas as:*

- Yes, you are quite right.
- Yes, that`s quite right/wrong.
- I quite agree with you. (I fully agree with you)
- Well, I suggest you may be right.
- Do you really think so?
- Are you sure that`s right?
- No, I`m sorry but I disagree with you.
- No, I`m afraid, I can`t agree with you.
- That`s an interesting point of view, but I am not sure if…
- I`d like to support your point of view,
- Well, let us see…
- Let`s think for a moment.

1 The central unit is the engine of the computer.

2 The memory unit stores both instructions and data.

3 The number which identifies a memory location is called is register.

4 The program tells the computer what functions to perform and in what sequence.

5 The main function of the output unit is to accept information.

Exercise 9. *Learn and play the dialogue given below.*

Visitor – Hallo, Mary.

Mary – Hello, Peter. I`m very glad to see you.

Peter – So am I.

M. – Are you busy?

P. – Not right now. What can I do for you?

M. – Can you help me with this block-diagram?

P. – Of course, with pleasure. What`s the matter?

M. – I don`t understand what the abbreviation IR, MAR, GPR, Pc mean.

P. – Let`s have a look at the block diagram. Just a minute .Now I see. The abbreviation IR means *instruction register*. Look attentively at the CPU Block Diagram. Note that the two arrows go from I/O ports. One of them carries instructions to the instruction register (IR). The abbreviation GPR means *general-purpose register* (GPR).

M. – What are they used for?

P. – They are used for temporary storage of data. MAR means *memory address register*. It sends out the memory address for the next program instruction.

M. – And what does the abbreviation Pc mean?

P. – Pc means *program counter.*

M. – I see. The program counter is one of the key elements of any CPU, isn`t it?

P. – yes, you are right.

M. – Thank`s a lot. Now I understand the CPU Block Diagram. But I`m afraid I have taken too much of your time.

P. – That`s all right. It was a pleasure for me to help you. So long. Good luck.

M. – So long. See you soon.

Exercise 10. *Imagine the situation. You are the young specialists and now you are applying for a job in a big international joint-stock company.*

Mr Smith – Let`s have a talk on your specialty. Besides, I`d like to test your competence in the English language. Look at the Block Diagram, please. What does it represent?

Victor Boyko. – The Block Diagram presented here shows a typical organization of the functional units of a digital computer.

Mr Brown – How are the functional units of a digital computer interconnected in the execution of the program? Who wants to answer this question?

Sergei Smirnov – I suppose that the first of all the problem is programed, that is, it is converted into a sequence of machine language instructions. The program and the data to be used for obtaining a solution are then entered into the storage unit of the computer.

Mr Brown – Well, that`s right. And what is the function of the control unit?

Helen Glushko – As far as I know the control unit controls the flow of information. It obtains and interprets instructions.

Mary Stepanova – I`d like to add: one may say that the control unit tells the arithmetic unit what operations to perform and in what sequence.

Mr Brown – I`m pleased with your answers.

Mr Smith – One more question: what about the last step in the execution of the program.

Boris Sidorov – The results of operating upon the data are transferred to the output unit.

Mr Smith – Right you are. Look at the Block Diagram once more. What do the heavy and broken arrows represent?

Vladimir Gusev – It seems to me that the heavy arrows represent control signals while the broken arrows represent data flow.

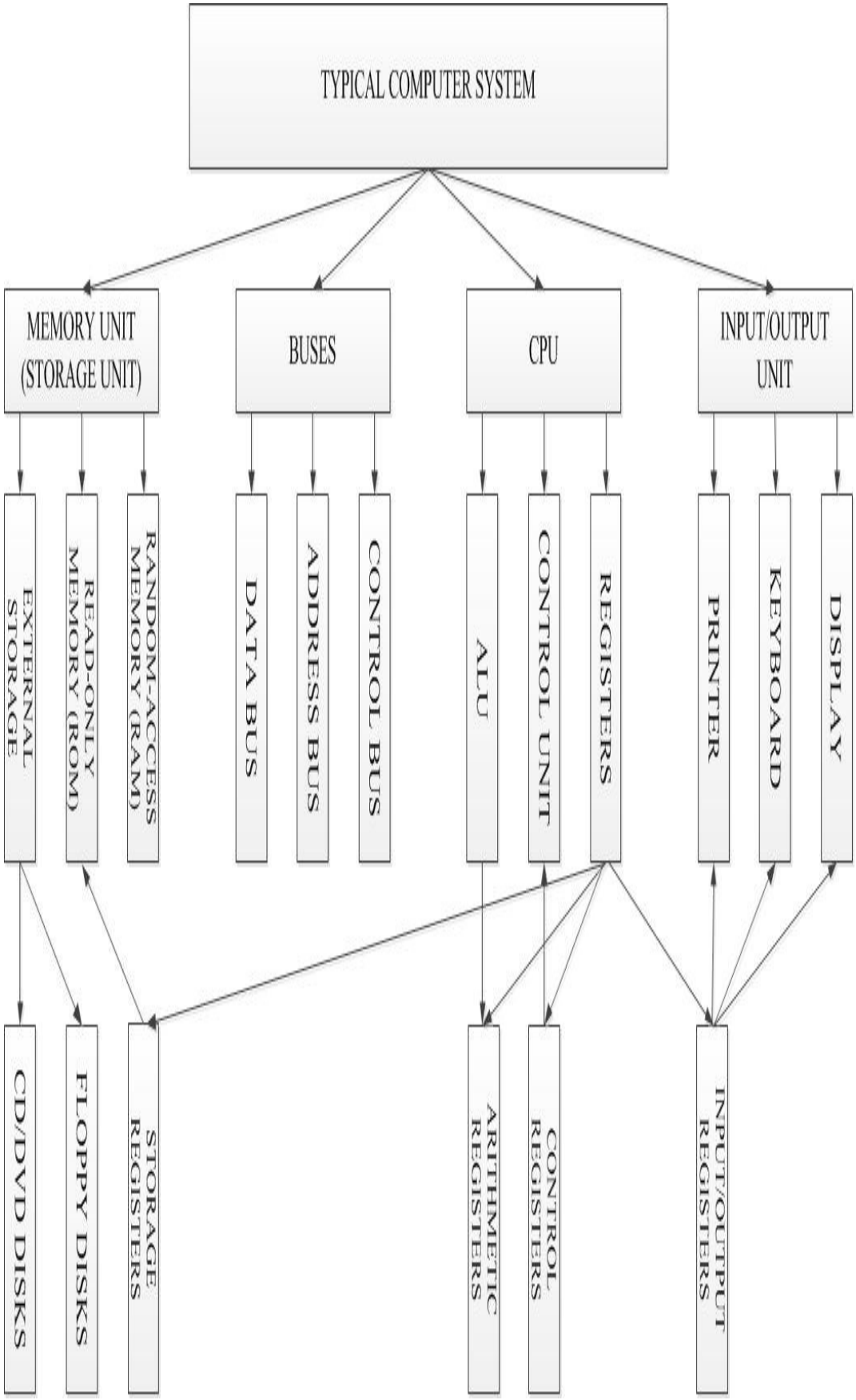
Mr Smith – Do all of you agree with such a statement?

Sergei Smirnov – I disagree. On the contrary I suppose that the heavy arrows represent data flow while the broken arrows represent control signals.

Mr Smith – That`s right. Thank you. We`ll recommend all of you for probation in the USA.

Exercise 11. *Make up oral annotation to the text using the following table 1.*

Table 1



UNIT 2

Exercise 1. *Study the following words and word combinations:*

generation of computers	- покоління комп`ютерів
small-size electronic computer	- малогабаритна лічильна машина
superconducting device	- пристрій на надпровідних елементах
discrete semiconductor device	- дискретний напівпровідниковий прилад
integrated circuit	- інтегральна схема
printed circuit	- друкована схема
semiconductor computer	- напівпровідникова лічильна машина
chip	- кристал, чіп
large-scale computer	- велика лічильна машина
keyboard	- клавіатура
goods traffic management	- управління вантажними перевезеннями
high speed computer	- швидкісна лічильна машина
data processing	- обробка даних
traction data	- тягові дані
rolling stock data	- дані рухомого складу
train movement graph	- графік руху потягів
railway terminal	- залізничний вокзал
traffic management	- керування перевезеннями

TEXT 2

SOME FACTS ABOUT EVOLUTION OF COMPUTERS IN UKRAINE

In Ukraine the first generation of computers appeared in the 1950s. It was designed on the basis of electronic vacuum tubes The first Ukrainian computer, a small-size electronic computing machine (MESM) was tested at Kyiv Electrical Engineering Institute in 1950 under the guidance of academician S. Lebedev. It was put into operation in 1951. MESM was followed BESM (a large size electronic computing machine. It performed 8000 operations per second.

The first generation of electron tube computers was followed by the second generation of transistor computers in which discrete semiconductor devices were used. One of the best of these second generation computers is the BESM-6 (big electronic counting machine). In the 1960s 30 models of semiconductor computers were developed.

The third generation of computers is based on integrated circuits (IC) containing hundreds of transistors and other devices in one tiny package. EC series computers belong to the third generation computers.

The fourth generation computers are based on very high-capacity integrated circuits containing tens of thousands of active electronic devices in tiny elements. The speed has been increased 5 times as compared with the speed of the third generation computers thanks to using the multilayer printed circuits.

Railways are especially suited for the use of computers because of their comprehensive communication network. Computerization takes place on a large scale on the Ukrainian railways. Electronic digital computers are used first and foremost for collecting, transmitting and processing data for goods traffic management. They are utilized to prepare daily reports about the operation of the railway network. Computers are also used for the calculation of traction data, for automatic processing of rolling stock data, f or the preparation of train movement graphs, for electronic seat reservation and other calculations.

Computer based seat reservation systems are being used on the Ukrainian railways on a constantly increasing scale. The first electronic seat reservation was put into operation in Ukraine in April, 1972. This system has been in operation till 1985. And over 500 million passengers had been serviced. The operational experience gained with that system has been used to develop a standard network wide electronic Express-2 seat reservation and ticket selling system in December 1982. It makes service of passengers much more efficient and improves distribution and use of places on trains. The availability of a computer network for seat reservation does not only improve the level of servicing passengers but it likewise changes the way the passenger service staff are communicating between themselves. The display has become one of the main components of communication.

Modern smart automated systems for current control of transportation is designed for automation of workplaces used by station masters, train and railway administration dispatchers. This system provides preparation of train documents, information exchange between certain automated workplaces at stations. The personal computers can interact with the railway automatic facilities.

Exercise 2. *Make up 10 questions to the text and answer them:*

Exercise 3. *Give Ukrainian equivalents to the following English words and word-combinations:*

Designer, basic, vacuum tube, guidance, discrete semiconductor device, integrated circuit, fifth generation computer, superconductor, large scale using, to collect data, transmitting information, processing data, f goods traffic management, to prepare daily reports.

Exercise 4. *Find all the dates presented in the text. What happened on those dates? Present this information to your partner in English.*

Exercise 5. *Work in pairs. Fill in the table given below and ask and answer the questions about the information from the text.*

Table 2

Generation of Ukrainian computers

Generation of computers	Year of Designing	Type of Computer	Main features	Field of application
First Generation				
Second generation				
Third Generation				
Fourth generation				

Exercise 6. *Situation – the Ukrainian specialists in the field of computer technology are meeting the American colleagues for the Round Table and answering their questions.*

Mr Smith – Our first Round Table is devoted to the development of computer technology in Ukraine. First of all let me introduce to you all the participants of this Round Table. My name is John Smith. I am engaged in implementing computers on railways. Let me introduce to you my colleagues: James Brown – a programmer; George Dawson – an electronics engineer. And now I want the head of the Ukrainian group to introduce all the Ukrainian participants of our Round Table.

Sergei Smirnov – First of all allow me introduce myself. I am Sergei Smirnov, a graduate of the Ukrainian State Academy of Railway Transport. I specialized in the field of computer-based systems. Let me introduce to you my colleagues – young specialists of our Academy and transport enterprises: Helen Glushko, Mary Stepanova, Oleg Petrov and Victor Kovalenko.

Mr Smith – We are very glad to meet all of you. Let`s begin our work. Could you tell me about progress of computer technology in your country? I want you to dwell on this problem in details.

Sergei Smirnov – Allow me to say a few words about the early days of computers in our country. I`m sure you know that in Ukraine the first generation of computers appeared somewhat later than in the USA. One may say that the year of its birth was 1950.

Mr Brown – When and where was the first Ukrainian computer tested?

Sergei Smirnov – To my knowledge the first Ukrainian electronic computer was named MESM. It was tested at the Kyiv Electrical Engineering Institute in 1950.

Mr Dawson – MESM? What does this abbreviation mean?

Mary Stepanova – It is an Ukrainian abbreviation for Small Electronic Computing Machine.

Mr Dawson – So in English it would sound SECM?

Mary – Indeed, you are right.

Mr Brown – When was MESM, in other words SECM put into operation?

Helen Glushko – In 1951.

Mr Smith - What was MESM followed by?

Victor Kovalenko – MESM was followed by BESM in 1952.

Mr Dawson – I see. What are essential features of BESM?

Sergei Smirnov – BESM was a high-speed electronic machine. It performed 8000 operations per second, its size was very large because it was designed, its size was very large because it was designed on the basis of electronic vacuum tubes.

Mr Smith – And what about the second generation of transistor computers?

Victor Kovalenko – If you don`t mind I`ll try to answer this question. BESM-6 was one of the best of these second generation computers. It was put into operation in 1960s.

Mr Brown – It appears that all your computers were BESM?

Sergei Smirnov – Oh, no. about 30 models of semiconductor computers were developed in Ukraine.

Mr Smith – Thank you ever so much. Your English really sounds fine. If you don`t mind we`ll interrupt our work for lunch now. We`ll resume our work at two o`clock.

After lunch

The clock shows 2. The participants of the Round Table are taking their seats.

Mr Smith – Let`s resume the work. I believe that the development of modern computers won`t stop at the present stage, will it?

Sergei Smirnov – Surely. High seed computers and personal computers for individual application are now being developed and used in Ukraine.

Mr Smith – What about the use of computers on railways in your country?

Oleg Petrov – It`s a very interesting problem but as we are short of time I`ll try to answer this question very briefly. Computerization takes place on a large scale in Ukraine. Computers are used first nd foremost for collecting, transmitting and processing data for goods traffic management. It should be mentioned that computers are widely used for electronic seat reservation.

Mr Smith – What seat reservation system has been developed in Ukraine?

Oleg Petrov – A standard automated seat reservation and ticket selling is called “Express-2”.

Mr Brown – Why is it named so?

Oleg Petrov – The first electronic seat reservation and ticket selling "Express-1" system was put into operation on Ukrainian railways in 1971. It had been in operation till 1985. Then it was followed by the "Express-2".

Mr Smith – I`d like to express our gratitude to all the participants of this Round Table. Our second Round Table will be held on Friday at ten o`clock. See you on Friday.

UNIT 3

Exercise 1. *Study the following words and word-combinations.*

promising	- перспективний
challenge	- викликати вимагати
computer systems engineer	- інженер з комп'ютерних систем
general education subject	- загальноосвітній предмет
general engineering subject	- загально технічний предмет
drawing	- креслення
data base	- база даних
protection	- захист
relay system	- релейна система
software	- програмне забезпечення
hardware	- апаратні засоби
distributed microprocessor	- розподілена мікропроцесорна система
service	- служба
apparatus	- пристрій, обладнання
computer net	- комп'ютерна мережа
working place	- робоче місце
microprocessor system of train movement controlling	- мікропроцесорна система управління рухом потягів
designing base of elements	- конструювання елементної бази
remote control system	- система дистанційного керування

TEXT 3
MY SPECIALTY

I study at the Ukrainian State Academy of Railway Transport Engineers. This institution of higher learning trains specialists for one of the most important branches of Ukrainian national economy – railway transport. Founded in 1930 our Academy has a long history and rich traditions.

I`ve chosen the department of Automation, Telemechanics and Communication (ATC). It is rather young because it was established in 1960. The ATC department trains electrical engineers for the railway transport in three fields – the field of automation and automation on transport, the sphere of remote control systems and nets, and specialized computer systems. Since the date of establishment more than 10 000 specialists have graduated from our department.

My specialty is specialized computer systems. There is no doubts that it is very interesting, promising and important. Intensive introduction of new information and computer techniques into automatic systems of trains movement controlling has challenged the demand for specialists of new qualification – computer systems engineers. To successfully manage this challenge any future specialist in this field must get profound knowledge in general education and general engineering subjects such as physics, mathematics, philosophy, foreign languages, drawing, discrete mathematics and others. Besides, senior students of my specialty are delivered special courses in organization of data base, peripheral devices, operational systems, computer architecture, computer systems, information protection in computer systems, control and diagnostics of the computer systems network, etc. These specialized and profession-oriented disciplines help students to learn theoretical and operational basis for designing of relay and computer control systems of the railway automatics, functioning information control systems, general methods of technical diagnostics of relays and computer systems, controlling railway automatics, operational systems and data base, designing software and hardware of the microprocessor systems. Future specialists in the field of specialized computer systems will deal with designing apparatus, algorithmic and program products for

distributed microprocessor systems of railway automatics and controlling different technological objects.

The graduates of our specialty are required to different enterprises of railway transport and metropolitan, depots, information-statistics centers, services of signaling and communication where our specialists can create and serve computer nets, automatic working places, microprocessor systems of train movement controlling and design corresponding software which is necessary for providing function of controllers, distributed computer networks and systems.

Exercise 2. *Work in pairs. Ask your student-mate:*

1 what faculty he study at;
2 what specialty he`s chosen and why;
3 what specialties his faculty offers;
4 what general education subjects the students of the ATC department are delivered;
5 what special courses the senior students study;
6 what scientific problems computer engineers deal with;
7 what technological researches are connected with your specialty;
8 where the graduates of your specialty are required.

Exercise 3. *Give English equivalents to the following Ukrainian word-combinations.*

Релейна система, захист інформаційних систем, інженер з комп'ютерних систем, периферійна система, розподілена мікропроцесорна система, програмне забезпечення, управління рухом потягів, контроль і діагностика комп'ютерної системи, організація бази даних, комп'ютерна архітектура, конструювання елементної бази, система дистанційного керування.

Exercise 4. *Find synonyms in the columns of the words and translate them.*

device	require
management	running
challenge	tie
movement	apparatus
data	goods

general	terminal
freight	controlling
station	information
sleeper	main

Exercise 5. *In right column find the Ukrainian equivalent to the corresponding English word-combination in the left column.*

інженер з комп'ютерних систем	- organization of data base
інтенсивне впровадження	- software
інформаційно-статистичний центр	- protection of information system
автоматизоване робоче місце	- peripheral devices
програмне забезпечення	- information statistics center
функціонування контролерів	- computer systems engineer
розподілена комп'ютерна мережа	- intensive introduction
захист інформації	- automated working place
периферійні пристрої	- controllers functioning
операційні системи	- distributed computer network
організація бази даних	- operational systems

Exercise 6. *Look through the following conversational formulas and try to memorize them. Use these expressions in your own short dialogues.*

- How have you been? (How are you?)
- For all I know
- I`ll be in touch
- Excuse my curiosity
- It depends
- By the way
- Any time you like
- So nice to see you
- It`s been a long time (Haven`t seen you for ages)

Now role play the following dialogue.

Two friends (the former student of our Academy, now – a specialist in the field of computer technology and a fifth-year student of the ATC department) meet in the café.

Peter – Wow, Alex! It`s great to meet you. We haven`t seen for ages!

Alex – Hallo, Peter! I`m impressed so much! How are you?

P – Rather good. And what`s about you? For all I know, you have already graduated from the Academy, haven`t you?

A – You are right. Now I work in a big computer firm.

P – Really? Do you tell more about it? What`s your position there?

A – I`m just a beginner, you know it. Work as a trainee program specialist for the time being.

P – And how do you like your job there?

A – You are so curious, aren`t you?

P – Surely. I`m graduating this year, so it`s time to look for a job. I`m interested in possibilities.

A – I see. It`s very serious moment in the life of each of us.

P – How long does your working day last?

A – It depends upon different things. If I begin to work at 9 sharp, my working day is over at 18 p.m. But sometimes there is an urgent work to do and we stay overtime.

P – Do you often go on business trip?

A – Rather. Our employees go to various places in our country and even abroad.

P – Have you already been abroad?

A – Not yet. But there`s a chance to go on a business trip soon. We are going to share experience and learn new hi-tech technologies.

P – It sounds quite promising.

A – Well, it`s pity but now I have to leave. It was so pleasant to have a short talk with you.

P – So do I. Good-bye!

A – See you later.

Exercise 7. *Make up your own dialogues based on the one above. Use some information.*

1 You and your group-mate are the graduates of our Academy. You meet by chance after a year and discuss your life and job. Don`t

forget to ask each other: a) where you work; b) what your position is; c) whether you like your job; d) how long you work there; e) how long your working day last; f) what you deal with; g) what you are responsible for; h) whether you go on business trips.

2 A representative of a big computer firm comes to the Academy to invite the graduates and offer them different jobs. Ask him as many questions as you can about your future work.

Exercise 8. *Try to explain the choice of your specialty.*

- What do you want to be? Why? How did you decide what to be?
- Was it always your ambition to do this?
- What do you to do to get this job?
- Are you well-suited to your job? Why do you think so?
- What position would you like to get?

Exercise 9. *Be ready prepared and ready for the oral presentation of your specialty.*

TEXTS FOR DISCUSSING:

WHAT IS THE INTERNET

The roots of the Internet lie in a collection of computer networks that were developed in the 1970s. They started with a network called the Arpanet that was sponsored by the United States Department of Defense. The original Arpanet has long since been expanded and replaced, and today its descendants form the global backbone of what we call the Internet.

The first experimental network using Internet-like technology was built in 1969. This was 56 years after the invention of the *zipper,* 37 years after the introduction of the first *parking meter*, and 13 years prior to the development of the first *IBM* personal computer.

It would be a mistake, though, to think of the Internet as a computer network, or even a group of computer networks connected to one another: the computer networks are simply the medium that carries the information. The beauty and utility of the Internet lie in the information itself.

So, we want you to think of the Internet not as a computer network, but as a huge source of practical and enjoyable information.

The Internet resources have already become as important to you as your telephone. But, overall, what is the most important for the people is that the Internet is the first global forum and the first global library. Anyone can participate at any time: the Internet never closes. Moreover, no matter who are you, you are always welcome. You will never be excluded for wearing the wrong clothes, having the wrong colored skin, being the wrong religion, or not having enough money.

The Internet has no laws, no police, and no army. There are no real ways to hurt another person, but there are many ways to be kind.

zipper – застібка-блискавка

parking meter – лічильник часу стоянки автомобіля, який треба оплатити

IBM – International Business Machines

Task. *Discuss the following questions:*

1 When was the first experimental network using Internet-like technology built?

2 Is the Internet just a computer network or a group of computer networks connected to one another?

3 What is the Internet?

UNIX

Unix is a family of operating systems (master control programs) that are used to control computers. Virtually all types of computers can run Unix.

Conversely, there are many variations of Unix that run all sizes of computers.

To many people the Unix culture is intimately connected to the Internet. Some people consider Unix to be a part of the Internet culture. The truth of it is that the Internet very much has a life of its own. Most of the Internet computers use Unix, but the details are hidden from you.

However, you must know how to start work, enter commands, use the keyboard (and a mouse if you have one), and stop work when you are finished. It is also important to know how to manipulate data files, so you can save and retrieve information, and create and edit your own information. For example, when you send someone a

message using an electronic mail, it is convenient to be able to use a text-editing program to compose the message ahead of time.

Task. *Discuss the following questions:*

1 Can all types of computers run Unix?
2 What is the truth of the Internet?
3 What must people know about the Internet Unix?

OUR FRIENDS THE INTERNET

The network is two or more computers connected together. This is done for two reasons:

- to allow human beings to communicate;
- to share resources.

A Local Area Network (LAN) is a network in which the computers are connected directly, usually by some type of cable. When LANs are connected together, it is called then *a Wide Area Network (WAN)*. Most WANs are connected via telephone lines, although the bottleneck in establishing Internet service within developing countries is usually due to the lack of a reliable telephone system.

Examples of LANs and WANs are following. Imagine yourself sitting in a room full of computers in the Computing Centre of your Academy. Your computer is connected in a LAN to all other computers in the room and to the computers within private offices throughout the building. Or, for instance, each department of your Academy has its own network of computers, as does the other department. Each of these LANs is connected to a high-speed link, called a backbone, to form a *campus*-wide WAN.

The LANs are connected by *special-purpose computers* called *routers*. The job of a router is to provide a link from one network to another. Routers are used to connect LANs to form WANs and to connect WANs to form even larger WANs. In other words, we can consider the computers within the Internet to be connected into LANs and WANs by a large number of routers.

a Local Area Network – локальна обчислювальна мережа
a Wide Area Network – широка обчислювальна мережа
special-purpose computers – спеціалізовані комп`ютери
router – маршрутизатор, роутер

Task. *Discuss the following questions:*

1 What are two reasons for connecting two or more computers together?

2 What is LAN/WAN?

3 What kinds of computers are called routers?

HOSTS AND TERMINALS

The word *host* has two meanings that you should know about: within the Internet each separate computer is called a host, besides it may be your own computer, your host, even though you may not share any resources with the rest of the Internet.

When you have your own computer, you interact by using the keyboard, screen, and a mouse. These devices are parts of the computer. With a multi-user computer, each person has his (her) own *terminal t*o use. A terminal has a keyboard, screen, perhaps a mouse, and not much more. All the terminals are connected to the host, which provides the *computing power* for everybody. This arrangement is called a *time-sharing system.*

So, within the Internet each computer is called a host. Within a time-sharing system, the main computer that supports each user on a separate terminal is also called a host.

host – головний комп`ютер
multi-user computer – багатокористувацький комп`ютер
computing power – обчислювальна потужність
time-sharing system – система поділу часу

Task. *Discuss the following questions:*

1 What are two meanings of the word “host”?

2 What kind of arrangement is called a time-sharing system?

3 What does each person have for a multi-user computer?

CLIENT/SERVER SYSTEMS

One of the principal uses of a network is to allow the sharing of resources. Much of time, this sharing is implemented by two separate programs, each running on different computers,

One program, called the server, provides a particular resource. The other program, called the client, makes use of that resource.

For instance, you are working with a word processing program that is running on your own personal computer. You tell the program that you want to edit a particular file that is stored on another computer on your network. Your program will pass a message to that computer asking it to send the file. In this case, your word processing program is the client while the program that accepts the request and sends the file is the server.

On the Internet the hardware is normally not visible, and so the terms “client” and “server” usually refer to the programs that ask for and provide services.

Here is an important example. Many Internet sites provide a service called a “Gopher”. Briefly, a Gopher allows you to select items from menus. Each time you select an item, the Gopher performs the required task. For instance, if the item describes a particular piece of information, the Gopher will retrieve this information and display it for you.

When you use a Gopher, two different programs are involved. First, there is the program that provides your interface. This is the program that interprets your keystrokes, display the menus and generally makes sure your requests are carried out. This program is called the Gopher client.

The other program is the supplies the Gopher client and is called the Gopher server.

The Gopher client is a program running on your PC, while the Gopher server is a program running on a supercomputer on the other side of the country.

All of the Internet services make use of the client/server relationship. Learning how to use the Internet actually means learning how to use each of the client programs. Thus, in order to use an Internet service, you must understand:

- how to start the client program for that service;
- how to tell the client program which server to use;
- what commands you must use with that type of client.

Your job is to start the client and tell it what to do. The client`s job is to connect to the appropriate server and to make sure that your commands are carried out correctly.

Task. *Discuss the following questions:*

1 What program do we call “client”? “The server”?

2 What does a Gopher allow you to do?

3 What program is called the Gopher client? The Gopher server?

4 What must we understand in order to use an Internet service?