Л. Л. РЯБОВА

COMPUTERS

For intermediate learners

Практикум

LESSON I

Text A. What is a Computer System?

5 elements of a computer system:

- Software
- People
- Hardware
- Procedures
- Data/Information

Text B. The Evolution of Computers

- Generations of Computers

LESSON II

Types of Computer Systems:

- A supercomputer
- A mainframe computer
- A minicomputer
- A microcomputer

LESSON III

Delete Keys – Clipboard Technology:

- a liquid crystal display and an electronic stylus are used instead of the keyboard

LESSON IV

Computer Software:

- Systems Software
- Applications Software

Graphical User Interface

LESSON V

- **Programs and Programming Languages (a brief history)**:
    - FORTRAN
    - COBOL
    - ALGOL
    - PL/1
    - PASCAL
    - BASIC
    - C

LESSON VI

Input Hardware:

- Using a Keyboard (with keyboard entry)
- Not using a keyboard
- **Terminals:**
- A dumb terminal
    E.g. A financial transaction terminal
- A smart terminal
    E.g. A point-of-sale terminal
- An intelligent terminal
    E.g.An integrated workstation
- A portable terminal, a handheld terminal

Keyboard Entry Input Hardware

MainTypes of Terminals:

- A dumb terminal
- A smart terminal
- An intelligent terminal

Popular Types of Computer Terminals

- Point-of-sale terminals (POS)
- Financial transaction terminals
- Executive workstations or integrated workstations
- Portable terminals
- Microcomputers used as terminals

LESSON VII

Storage Hardware:

- Primary Storage - the main memory of a computer *(a volatile form of storage , i.e. the data and instructions are lost when the computer is turned off.)*

- Secondary (Auxiliary) Storage (a file cabinet) *(a nonvolatile form of storage, i.e. the data and instructions remain intact whien the computer is turned off.)*

Function of
Main Memory or RAM

- To act as a buffer between the CPU and the rest of the computer system components

  The amount of RAM in a minicomputer directly affects the level of sophistication of the software used.

Data Representation:

- in a binary form or a binary code

Two most commonly used codes:
- **ASCII** (the American Standard Code for Information Interchange)
- **EBCDIC** (Extended Binary Coded Decimal Interchange Code) – the most popular code used for IBM and IBM-compatible mainframe computers

TEXT VIII

The Anatomy of a Microcomputer

- Keyboard
- Monitor (VDU- visual display unit)
- System Unit which houses:
  - the power supply
  - the system board
  - the storage devices
  - additional components

LESSON IX

General Features of Operating Systems

- **An operating system -** a master control program which controls the functions of the computer system as a whole and the running of application programs.

- All computers do not use the same operating systems. Some software is only designed to run under the control of specific operating systems. Some operating systems are adopted as 'industry standards".

- Mainframe computers usually process several application programs concurrently, this is known as multiprogramming (multi-tasking in the context of microcomputers). It requires a powerful operating system incorporating work scheduling facilities to control the switching between programs. This entails reading in data for one program while the processor is performing computations on another and printing out results on yet another.

- In multi-user environments an operating system is required to control terminal operations on a shared access basis as only one user can access the system at any moment of time. The operating system allocates control to each terminal in turn.

- Some environments operate in concurrent batch and real-time mode.

- An operating system is stored on disk and has to be booted into the internal memory (RAM)

LESSON X

Computer Networks

Link computers by communication lines and software protocols.

Text A.Types of Networks:

- **LAN- Local Area Network** *(a localized network usually in one building or a group of buildings close together, but now it is possible to connect LANs remotely over telephone links so that they look as though they are a single LAN)
- **WAN – Wide Area Network** (a network connected over long distance by telephone lines)

Text B: Network Configurations

- **Star** - all access devices are linked directly to the central computer

- **Switched** – the central switch is used to connect different devices on the network directly

- **Ring** – each device is attached to a network shaped as a continuous loop

- **Bus/Ethernet** – consists of one piece of cable terminated at each end to which all devices are connected. Each device is able to broadcast a message when it has detected silence for a fixed period of time.

LESSON XI

Text A. A Brief History of the Internet.

Text B. How to Plug to the Internet

LESSON XII

Computer Viruses

- **A computer virus** – an unwanted program that has entered your system without you knowing about it. Generally consists of two parts: *the infector* and *the detonator*. Computer virus like a disease can spread (via floppies transported from computer to computer, or networks) to other computers.

  Generally, the work of the virus 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.

LESSON XIII

Repairs

- **Uni-medium devices**
- **Multimedia**
- **High-end multimedia**
- **a variety of media through our television:** full-motion video, still images, graphics, sound, and animation
- **School media:** the instructor's words, text, audiotapes, graphics, and a variety of visuals and video

LESSON XIV

Machine Translation (MT):

- History of development of machine translation systems
- Problems and achievements

LESSON XV
Multimedia

- **multimedia** the combination of text, graphics, animation, sound, and video
- **multimedia computer** a computer suitable for running multimedia programs. It usually has a sound card and a CD-ROM drive.

  Computer-to-Video Conversion. How they work.

LESSON XVI

Text A. Laptops, notebooks, flybooks

Types and comparison of modern portable personal computers

Text B. Wired Room

Computer facilities in modern foreign hotels

SUPPLEMENTARY TEXTS

- Internet Words
- Conversion
- Computer Security
- Working with Victims of Computer Network Hacks
- The Case for Reporting
- Debunking the Myths and Explaining the Basics
- Desktop replacements - CNET reviews

Glossary of computing terms and abbreviations

Explanations of the terms and abbreviations which are used in the texts

Examples:

- **systems program** a program that is part of a computer operating system and controls a basic function of a computer
- **systems programming** the writing of systems programs

USEFUL LANGUAGE FOR TECHNICIANS

- Names of tools, terms and directions which are used in manuals and in captions supplied with the drawings

- Useful for technicians, users and operators of PCs