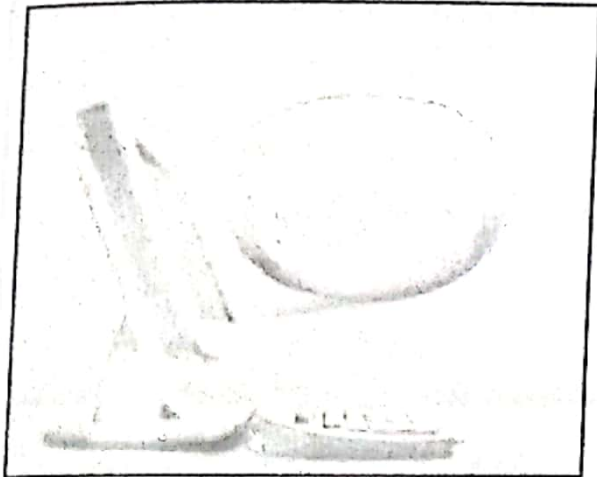


Chapter

1



INTRODUCTION TO COMPUTERS

MULTIPLE CHOICE QUESTIONS

1. PC stands for:
(a) Private Computer
(b) Portable Computer
(c) Personal Computer
(d) None of these
2. Computer's Intelligence is:
(a) more than human being
(b) more than a machine
(c) more than that of cockroach
(d) computer does not have any intelligence
3. Computers are helpful in _____.
(a) Teaching
(b) Learning
(c) Business
(d) All of the above
4. Computer can work continuously without getting tired. This property of computer is called:
(a) Diligence
(b) Reliability
(c) Versatility
(d) Accuracy
5. What do you get after processing of data?
(a) Information
(b) Input
(c) Output
(d) Data
6. Information Technology refers to:
(a) storing information
(b) transferring information
(c) processing information
(d) All of these

7. The computer that process both analog and digital signal is called:
 - (a) Analog computer
 - (b) Hybrid computer
 - (c) Digital computer
 - (d) Mainframe computer
8. Which computer is the smallest in size among the following?
 - (a) Palmtop
 - (b) Micro computer
 - (c) Mainframe
 - (d) Laptop
9. Component of computer system _____.
 - (a) Processing Unit
 - (b) Input Unit
 - (c) Output Unit
 - (d) All of these
10. The brain of any computer system is:
 - (a) ALU
 - (b) Memory
 - (c) CPU
 - (d) Control Unit
11. Which is not a main component of computer?
 - (a) Main memory
 - (b) Input Unit
 - (c) Output Unit
 - (d) Data
12. Which operation is not performed by computer?
 - (a) Inputting
 - (b) Processing
 - (c) Controlling
 - (d) Understanding
13. The arranging of data in a logical sequence is called:
 - (a) Sorting
 - (b) Classifying
 - (c) Reproducing
 - (d) Summarizing
14. Information is the processed form of:
 - (a) Instruction
 - (b) Output
 - (c) Data
 - (d) Knowledge
15. Knowledge is derived from:
 - (a) Input
 - (b) Output
 - (c) Information
 - (d) Instruction

Answers (MCQs)

1.	c	2.	d	3.	d	4.	a	5.	a
6.	d	7.	b	8.	a	9.	d	10.	c
11.	d	12.	d	13.	a	14.	c	15.	c

FILL IN THE BLANKS

1. _____ is an electronic device which accepts the data from the keyboard and result out to the monitor.
2. The word computer comes from the word _____ which means, "to calculate".

3. _____ is considered as the father of the computer.
4. A machine that works itself without any human involvement is said to be an _____ machine.
5. _____ is raw material used as input and _____ is processed data obtained as output of data processing.
6. _____ refers to the data and instructions given to the computer.
7. Analog computer uses _____ as input.
8. _____ are the computers that work on discontinuous or discrete data.
9. The heart of the computer is _____.
10. C.P.U consists of _____, _____ and memory.
11. CPU is also called as _____.
12. The component of CPU that is responsible for performing the calculations is called _____.
13. The temporary storage area of CPU is called _____.
14. The tangible component of a computer system is called _____.
15. Meaningful output is called _____.

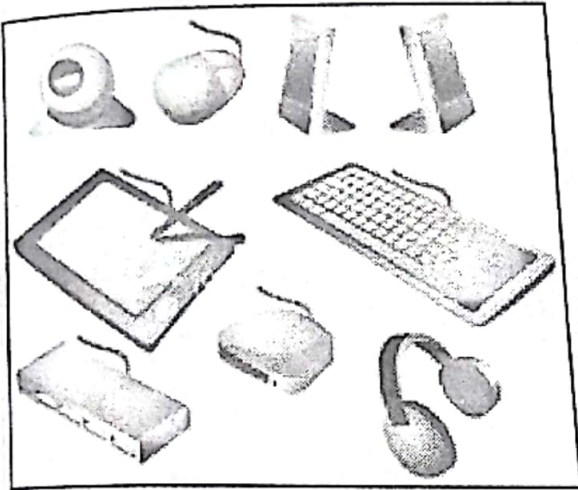
Answers (Fill in the blanks)

- | | |
|-----------------------|--|
| (1) Computer | (2) compute |
| (3) Charles Babbage | (4) automatic |
| (5) Data, Information | (6) Input |
| (7) Signals | (8) Digital computers |
| (9) CPU | (10) A.L.U, Control Unit |
| (11) Microprocessor | (12) ALU (Arithmetic and Logical Unit) |
| (13) Register | (14) Hardware |
| (15) information | |

TRUE/FALSE

2

INPUT AND OUTPUT DEVICES



MULTIPLE CHOICE QUESTIONS

1. Which of these is not an input device?

(a) MICR

(b) Mouse

(c) OMR

(d) Printer



2. Which of these is not an output device?
(a) Printer (b) Plotter
(c) Microphone (d) Speaker
3. Regarding a VDU, Which statement is more correct?
(a) It is an output device (b) It is an input device
(c) It is a peripheral device (d) It is a hardware item
4. Which input device is used to supply sound inputs to computer?
(a) Light Pen (b) Microphone
(c) Amplifiers (d) Speakers
5. A computer cursor control device used in many notebook and laptop computers, known as:
(a) Keyboard (b) Microphone
(c) Scanner (d) Trackball
6. Which input device can capture and transfer pictures?
(a) Digital Camera (b) MICR
(c) Scanner (d) OCR
7. A pointing device that can be directly used to draw lines on the screen is called:
(a) Trackball (b) Light Pen
(c) Joystick (d) Mouse
8. An Input device used to interact with various computer devices without using any wire, is known as:
(a) OMR (b) Barcode Reader
(c) Digitizer (d) Infrared Remotes
9. Which device can sense a touch on the screen?
(a) OMR (b) Touch screen
(c) Bar Code Reader (d) Light Pen
10. Dot-matrix is a type of:
(a) Tape (b) Printer
(c) Disk (d) Plotter
11. A hardcopy output device:
(a) VDU (b) Plotter
(c) Speakers (d) All of these
12. The monitors that use cathode ray tube for producing the output are known as:
(a) LCD monitors (b) TFT monitors
(c) CRT monitors (d) All of these

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- 13. TFT stands for:
 - (a) Thin Film Tube
 - (c) Thick Film Tube
 - (b) Thin Film Transistor
 - (d) Thick Film Transistor
- 14. MICR stands for:
 - (a) Magnetic Ink Code Reader
 - (c) Magnetic Ink Cases Reader
 - (b) Magnetic Ink Character Reader
 - (d) None of above
- 15. The output quality of a printer is measured by:
 - (a) Dots printed per unit time
 - (c) Dots per square inch
 - (b) Dots per inch
 - (d) All of the above

Answers (MCQs)

1.	D	2.	c	3.	c	4.	b	5.	d
6.	a	7.	b	8.	d	9.	b	10.	b
11.	b	12.	c	13.	b	14.	b	15.	b

FILL IN THE BLANKS

1. Smart card is an _____ device.
2. _____ is used to mainly recognize marks made by pencil or pen.
3. _____ can be used to scan images, posters, magazine pages etc.
4. The devices used to take the output from the computer are known as _____.
5. VDU is an _____ device.
6. In _____ printer, there is no direct contact between the print and paper.
7. Non-impact printers generate much _____ than impact printers.
8. The _____ printers are used for DTP application.
9. _____ is used for drawing on the screen.
10. OCR is the acronym for the _____.
11. _____ is normally used for playing computer games.
12. An output produced on a printer or a plotter is called _____.
13. _____ is an output device that produces softcopy output.
14. Speaker is an _____ device.
15. _____ contains various additional keys to perform functions like- volume control, launching Internet explorer, changing song and video tracks etc.

Answers (Fill in the blanks)

- (1) input
- (2) Optical Mark Reader
- (3) Scanner
- (4) output devices
- (5) output
- (6) non-impact
- (7) less noise
- (8) laser

INPUT AND OUTPUT DEVICES

- (9) Light Pen
- (11) Joystick
- (13) Monitor
- (15) Multimedia keyboard

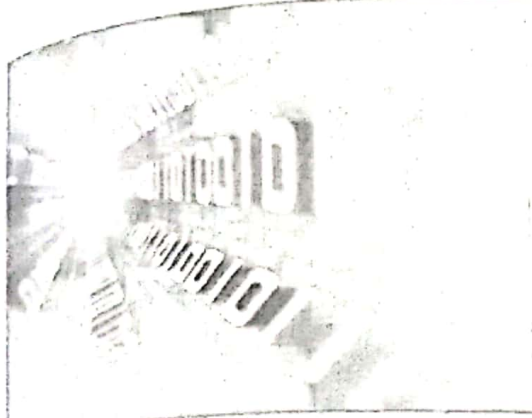
- (10) Optical Character Recognition
- (12) Hardcopy
- (14) Output

2.35



Chapter

3



COMPUTER ARITHMETIC



MULTIPLE CHOICE QUESTIONS

1. Convert binary 010101 to octal.

(a) 25_8

(c) 21_8

(b) 5_8

(d) 15_8

2. Convert octal 377 to binary.

(a) 11101101

(c) 10110111

(b) 01111011

(d) 11111111

3. Convert the binary number 0000.1010 to decimal.

(a) 0.10

(c) 0.50

(b) 0.55

(d) 0.625

4. Convert octal 36 to binary.

(a) 110110

(c) 110011

(b) 100110

(d) 011110

5. Convert octal 701 to binary.
- (a) 11000001 (b) 111000001
(c) 1000111 (d) 111000100
6. Convert the decimal number 6.75 to binary.
- (a) 0110.1100 (b) 0111.1100
(c) 0110.0110 (d) 0110.1010
7. How many symbols are used in the hexadecimal number system?
- (a) Sixteen (b) Six
(c) Ten (d) Twelve
8. Convert octal 12 to binary.
- (a) 010001 (b) 001111
(c) 001010 (d) 001100
9. The binary equivalent of hexadecimal 2E is _____.
- (a) 110001110 (b) 00110111
(c) 00101110 (d) 00100111
10. Convert decimal 31 to octal.
- (a) 37_8 (b) 43_8
(c) 33_8 (d) 30_8
11. Convert hexadecimal value 16 to decimal.
- (a) 22_{10} (b) 16_{10}
(c) 10_{10} (d) 20_{10}
12. Convert binary value 01011 to decimal.
- (a) 11_{10} (b) 35_{10}
(c) 15_{10} (d) 10_{10}
13. Convert binary value 1001.0010 to decimal.
- (a) 90.125 (b) 9.125
(c) 125 (d) 12.5
14. The voltages in digital electronics are continuously variable.
- (a) True (b) False
(c) ON (d) None of these
15. Widely used character codes are:
- (a) BCD (b) ASCII
(c) EBCDIC (d) All of these

Answers (MCQs)									
1.	a	2.	d	3.	d	4.	d	5.	b
6.	a	7.	a	8.	c	9.	c	10.	a
11.	a	12.	a	13.	b	14.	b	15.	d

FILL IN THE BLANKS

- The binary equivalent of 39 is _____.
- The hexadecimal equivalent of a decimal 13 is _____.
- The hexadecimal equivalent of a binary 001011110111110 is _____.
- The hexadecimal equivalent of a binary 00100011 is _____.
- The decimal equivalent of hexadecimal C9 is _____.
- The decimal equivalent of hexadecimal 102 is _____.
- The decimal equivalent of the BCD value 0010 0011 is _____.
- The decimal equivalent of hexadecimal AA is _____.
- The decimal equivalent of binary 10010 is _____.
- The decimal equivalent of binary 00101011 is _____.
- In _____ number system, each symbol represents the same value regardless of its position in the number.
- Representation of alphanumeric characters in bits 0 and 1 is done by _____.
- Computers use a fixed number of bits to represent an _____.
- 1024 GB = _____.
- Real number has _____ and _____ separated by a decimal.

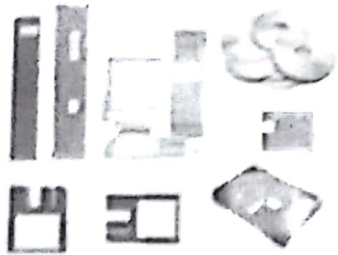
Answers (Fill in the blanks)

- | | |
|-----------------------------------|----------------------|
| (1) 100111 | (2) D |
| (3) 2F7E | (4) 23 |
| (5) 201 | (6) 258 |
| (7) 23 | (8) 170 |
| (9) 18 | (10) 43 |
| (11) non-positional | (12) character codes |
| (13) integer | (14) 1TB |
| (15) mantissa part, exponent part | |

Chapter

4

COMPUTER MEMORY AND SECONDARY STORAGE DEVICES



MULTIPLE CHOICE QUESTIONS

1. A Byte consists of:
(a) One bit (b) Four bits
(c) Eight bits (d) Sixteen bits
2. The term Gigabyte refers to:
(a) 1024 bytes (b) 1024 kilobytes
(c) 1024 megabytes (d) 1024 gigabyte
3. CD-ROM is a:
(a) Magnetic storage device (b) Optical storage device
(c) Magneto optical drive (d) None of these
4. The capacity of 3.5 inch floppy disk is:
(a) 1.40 MB (b) 1.40 GB
(c) 1.44 MB (d) 1.44 GB
5. Which of the following memories allows simultaneous read and write operations?
(a) ROM (b) RAM
(c) EPROM (d) None of above
6. The two kinds of main memory are:
(a) Primary and secondary (b) Random and sequential
(c) ROM and RAM (d) All of above
7. Storage in Floppy disk is:
(a) Internal (b) External
(c) Both (d) None of these
8. Which of the following storage devices can store maximum amount of data?
(a) Floppy Disk (b) Hard Disk
(c) Compact Disk (d) DVD
9. Which of the following disk is a fixed disk?
(a) Hard Disk (b) Flash Disk
(c) Bluray Disk (d) DVD
10. Which of the following is having highest data density?
(a) Floppy Disk (b) Hard Disk
(c) Tape Drive (d) DVD

11. Which of the following disk is a fixed disk?
 (a) Hard Disk (b) Flash Disk
 (c) Blu-Ray Disk (d) DVD
12. Which of the following is having highest data density?
 (a) Floppy Disk (b) Hard Disk
 (c) Tape Drive (d) DVD
13. What is the storage capacity of a compact disk?
 (a) 780 MB (b) 700 MB
 (c) 1.44 MB (d) 1024 MB
14. RAM is a block of _____ memory locations where data elements are stored.
 (a) sequential (b) random
 (c) fixed (d) none of these
15. Which computer memory is also known as Firmware?
 (a) RAM (b) ROM
 (c) Cache memory (d) Virtual memory

Answers (MCQs)

1.	c	2.	c	3.	b	4.	c	5.	b
6.	c	7.	b	8.	b	9.	a	10.	d
11.	a	12.	d	13.	b	14.	a	15.	b

FILL IN THE BLANKS

1. _____ is the storage area of computer where all the inputs as well as outputs are stored.
2. The storage of a computer can be divided into two main categories: _____ and _____ storage.
3. Primary storage is also called _____ memory.
4. Secondary storage is also called _____ memory.
5. Each location in the storage has a unique number, called _____.
6. RAM stands for _____.
7. RAM stores the data purely on _____ basis.
8. ROM stands for _____.
9. _____ in ROM are permanent.
10. Optical storage devices use _____ technique to access data.
11. The data transmission rate of a DVD is faster than _____.
12. A portable data storage device which is mainly used to transfer files from the hard disk of one computer to another is _____.
13. To store data on hard disks, it should be _____.

14. Optical storage devices are _____ and they retain their contents if power supply is off.
15. A typical CD can store data unto _____ MB.

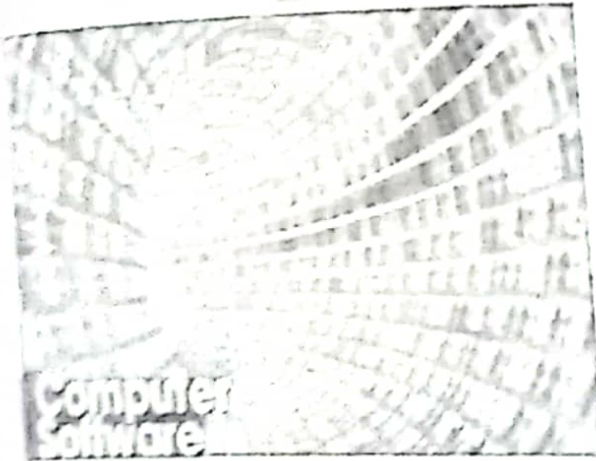
Answers (Fill in the blanks)

- | | |
|---------------------|--------------------------|
| (1) Memory | (2) primary, secondary |
| (3) internal | (4) external |
| (5) Storage Address | (6) Random Access Memory |
| (7) temporary | (8) Read Only Memory |
| (9) Instructions | (10) optical |
| (11) CDROM | (12) Pen drive |
| (13) formatted | (14) non-volatile |
| (15) 700 | |

Chapter

5

SOFTWARE AND PROGRAMMING LANGUAGES



QUESTIONS**MULTIPLE CHOICE QUESTIONS**

1. Software is a set of:
(a) Instructions (b) Software
(c) Programs (d) Bytes
2. Software that controls the internal operations of computer is called as:
(a) Utility software (b) Application software
(c) System software (d) Interpreter
3. The personnel who deals with the computer and its management put together are called:
(a) Software (b) Hardware
(c) Firmware (d) Humanware
4. Software is _____ component of the computer system.
(a) intangible (b) tangible
(c) physical (d) virtual
5. Software can be purchased or obtained as:
(a) Shareware (b) Freeware
(c) Liteware (d) All of these
6. Software that is designed to satisfy a particular need of a particular environment is called as:
(a) Utility software (b) Application software
(c) System software (d) Language translator
7. Software that comes with some application software or with system software is called as:
(a) Utility software (b) Application software
(c) System software (d) Language translator
8. Tangible component of computer is called:
(a) Program (b) Software
(c) Firmware (d) Hardware
9. Which of the following is a hardware component?
(a) Program (b) Virus
(c) Antivirus (d) Printer

10. Computer professionals working in a computer centre are called:
 (a) Hardware (b) Software
 (c) Firmware (d) Humanware
11. Which of the following is not a type of Software?
 (a) System software (b) Utility software
 (c) Application software (d) Entertainment software
12. The hardware that is used to supply input to the computer is called:
 (a) Processing devices (b) Output devices
 (c) Input devices (d) Storage devices
13. The hardware that is used to store input or output in the computer is called:
 (a) Processing devices (b) Output devices
 (c) Input devices (d) Storage devices
14. A computer language that is used to write instructions for the computer in a well-defined format is called:
 (a) Machine language (b) Programming language
 (c) Natural language (d) None of these
15. Which of the following is not a type of Hardware?
 (a) Monitor (b) CPU
 (c) Windows (d) Printer

Answers (MCQs)

1.	c	2.	c	3.	d	4.	a	5.	d
6.	b	7.	a	8.	d	9.	d	10.	d
11.	d	12.	c	13.	d	14.	b	15.	c

FILL IN THE BLANKS

1. A _____ is a sequence of instructions written to solve a particular problem.
2. _____ is the set of computer instructions or programs that enables the hardware to perform different tasks.
3. All the computer applications or programs, which run behind the monitor's screen, are known as _____.
4. Software permanently embedded in hardware is called _____.
5. _____ is the software used for controlling the internal operations of the computer.
6. The main job of the system software is to act as an _____ between the user and the computer.
7. The hardware that is used to present output of the computer is called _____.
8. Hardware and Software are mutually _____.

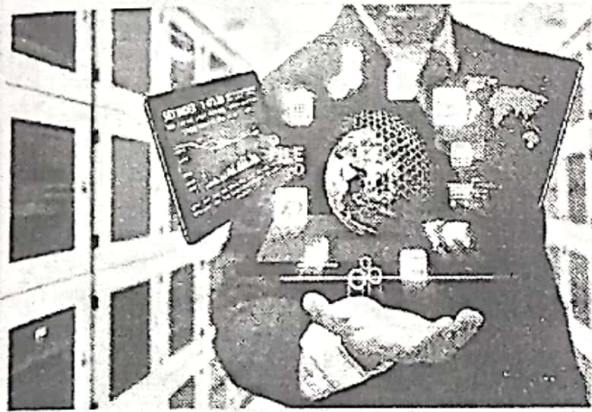
9. _____ are special programs which controls the execution of a particular hardware device.
10. A programming language is a computer language used to write _____ for the computer in a well-defined format.
11. Like human languages, each programming language has its own _____ and _____.
12. Computer languages are classified into two types: _____ and _____.
13. Examples of low-level languages are _____ and _____ languages.
14. _____ are the type of system software that is used to convert the instructions written in one type of language into another type.
15. The program written in high-level language is called _____ program.

Answers (Fill in the blanks)

- | | |
|------------------------|--|
| (1) program | (2) Software |
| (3) softwares | (4) Firmware |
| (5) System software | (6) Interface |
| (7) Output device | (8) Dependent |
| (9) Device drivers | (10) Instructions |
| (11) grammar, syntax | (12) low level languages, high level languages |
| (13) assembly, machine | (14) Language translators |
| (15) source | |

Chapter

6



OPERATING SYSTEM

MULTIPLE CHOICE QUESTIONS

- 1. Which of the following is a category of System software?**
 - (a) Operating system
 - (b) Programming language
 - (c) Utility program
 - (d) All of the above
- 2. Which of the following is an Operating System?**
 - (a) MS-DOS
 - (b) UNIX
 - (c) Windows NT
 - (d) All of the above
- 3. Which of the following is not an Operating System?**
 - (a) Windows 98
 - (b) Windows NT
 - (c) Turbo C
 - (d) Linux
- 4. Which is not the function of Operating System?**
 - (a) Process management
 - (b) Memory management
 - (c) Acting as interface
 - (d) Supplying input

5. Which of the following is a text-based Operating System?
 (a) Windows XP (b) Windows NT
 (c) Linux (d) MS-DOS
6. Which of the following can execute multiple processes simultaneously?
 (a) Real Time Operating System (b) Multiprocessing Operating System
 (c) Multitasking Operating System (d) Multi-user Operating System
7. Which of the following operating system can support multiple CPUs?
 (a) Real Time Operating System (b) Multiprocessing Operating System
 (c) Multitasking Operating System (d) Multi-user Operating System
8. The operating system serves as a link between user and _____.
 (a) Memory (b) Devices
 (c) Hardware (d) Software
9. Which of the following is not managed by O/S?
 (a) Memory Usage (b) I/O Management
 (c) Network Communications (d) Syntax checks
10. FAT stands for:
 (a) File Allocation Terminal (b) File Allocation Test
 (c) File Allocation Table (d) File Access Table
11. An Operating system is a kind of:
 (a) System software (b) Application software
 (c) Programming language (d) Utility software
12. DOS is a product of which company?
 (a) Sun Microsystems (b) INTEL
 (c) Microsoft (d) Sybase Inc.
13. Which of the following is a GUI operating system?
 (a) DOS (b) UNIX
 (c) Windows (d) Novel Netware
14. NTFS stands for:
 (a) New Technology File System (b) New Transfer File System
 (c) New Technical File Server (d) New Technology File Set
15. Time sharing is an example of _____.
 (a) Multi-processing (b) Offline processing
 (c) Online processing (d) Multitasking

Answers (MCQs)

1.	a	2.	d	3.	c	4.	d	5.	d
6.	c	7.	b	8.	c	9.	d	10.	c
11.	a	12.	c	13.	c	14.	a	15.	c

FILL IN THE BLANKS

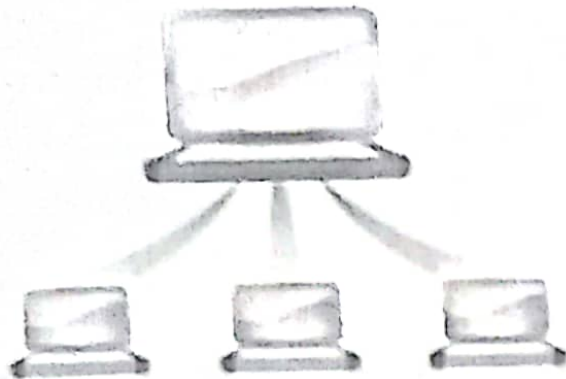
1. _____ is a set of programs written specially to manage all the resources and operations of a computer.
2. _____ is an example of single user operating system.
3. Dividing the time in to CPU to different user is called _____.
4. LINUX is an example of _____ operating system.
5. _____ is a program which loads the operating system.
6. Multiprocessing systems have _____ CPUs.
7. Acronym of POST is _____.
8. _____ is the heart of the operating system.
9. A _____ is basically a program in execution.
10. _____ is the command interpreter for the operating system.
11. A _____ generally means an instruction to a computer or device to perform a specific task.
12. Operating system uses a _____ to control access to files.
13. An example of multi-users operating system is _____.
14. _____ refers to execution of two or more different and independent programs by the same computer.
15. _____ refers to processing of multiple processes at same time by multiple CPUs.

Answers (Fill in the blanks)

- | | |
|------------------------|------------------------|
| (1) Operating system | (2) MS-DOS |
| (3) time-sharing | (4) open source |
| (5) Boot-strap | (6) Multiple |
| (7) Power On Self Test | (8) Kernel |
| (9) Process | (10) Shell |
| (11) command | (12) file manager |
| (13) WINDOWS | (14) Multi-programming |
| (15) Multiprocessing | |

Chapter

7



DATA COMMUNICATION

QUESTIONS**MULTIPLE CHOICE QUESTIONS**

1. **Computer Network is:**
 - (a) Collection of hardware components and computers
 - (b) Interconnected by communication channels
 - (c) Sharing of resources and information
 - (d) All of the above
2. **What term is used to describe two or more computers that are linked to each other?**
 - (a) Star connection
 - (b) Computer system
 - (c) Computer network
 - (d) Net
3. **What interface card do you need to connect to a network?**
 - (a) ISP card
 - (b) Wireless card
 - (c) Router
 - (d) NIC
4. **LAN stands for:**
 - (a) Local Area Node
 - (b) Local Area Network
 - (c) Local Access Node
 - (d) Light Access Node
5. **A type of Network:**
 - (a) LAN
 - (b) MAN
 - (c) WAN
 - (d) All of these
6. **To connect two networks of similar systems you'll use**
 - (a) Bridge
 - (b) Gateway
 - (c) Switch
 - (d) Router
7. **Which of the following might not be present in a computer network?**
 - (a) NIC
 - (b) Switch
 - (c) Modem
 - (d) NOS
8. **Which of the following is not described as a typical network classification?**
 - (a) Local area network
 - (b) Wide area network
 - (c) Metropolitan area network
 - (d) County area network
9. **What is the use of Bridge in Network?**
 - (a) to connect LANs
 - (b) to separate LANs
 - (c) to control Network Speed
 - (d) All of these

10. Which of the following is not a transmission medium?
 (a) Telephone lines (b) Coaxial cables
 (c) Modem (d) Microwave systems
11. IP stands for:
 (a) Internet Programming (b) Internet Protocol
 (c) Internal Protocol (d) Internal Programming
12. Internet is a kind of:
 (a) LAN (b) MAN
 (c) WAN (d) None of these
13. Which of the following is not a requirement for availing internet services?
 (a) Computer (b) Window interface
 (c) Internet service (d) U.P.S
14. Internet enabled computers are helpful in:
 (a) Booking and cancellation of railway tickets
 (b) Obtaining information regarding time table of trains
 (c) Knowing the distance between two stations
 (d) All of the above
15. Today, networking has been implemented in:
 (a) Banking (b) Education
 (c) Trading (d) All of these

Answers (MCQs)

1.	d	2.	c	3.	d	4.	b	5.	d
6.	a	7.	c	8.	d	9.	a	10.	c
11.	b	12.	c	13.	d	14.	d	15.	d

FILL IN THE BLANKS

- Communication devices are the machines that help in _____ of data.
- _____ is a very important component of the computer system without which a computer cannot be connected over a network.
- _____ is a small hardware device that joins multiple computers together within one local area network (LAN).
- _____ is a network communication device that forwards data packets from one network to another.
- A _____ is a data communication device used to connect two or more dissimilar networks.

6. _____ is a network device that works as a bridge and as a router.
7. _____ define rules and conventions for communication between network devices.
8. _____ is an industry standard most common internetworking protocol.
9. _____ handles the address part of each packet so that it gets to the right destination.
10. _____ provide interconnectivity without any distance limit.
11. _____ is a global "network of networks".
12. _____ is a standard internet protocol used to transfer files from one computer to another over the internet.
13. _____ refers to a network within an organization.
14. The graphical interface of internet is known as _____.
15. PPP stands for _____.

Answers (Fill in the blanks)

- | | |
|----------------------------|----------------------------|
| (1) Transmission | (2) Network Interface Card |
| (3) Switch | (4) Router |
| (5) Gateway | (6) Brouter |
| (7) Network Protocols | (8) TCP/IP |
| (9) IP (Internet Protocol) | (10) WAN |
| (11) Internet | (12) FTP |
| (13) Intranet | (14) World Wide Web (WWW) |
| (15) Point-to-Point | |