Chapter 2: Exploring Computer Components

Assignment Solutions

Multiple-Choice Questions (MCQs)

1. The ..... key helps you in typing letters in uppercase.

a. Caps Lock b. Num Lock
c. Alt d. F1

Ans. a

2. The ..... does not control the movement of cursor.

a. Keyboard b. Joystick
c. Printer d. Mouse

Ans. c

3. The name ..... comes from the first six letters of the top-left alphabet row (the one just below the numbers) of a keyboard.

a. QWERTY b. Mechanical
c. Function d. Universal

Ans. a

4. A ..... is not a pointing device.

a. Light pen b. Joystick
c. Scanner d. Keyboard

Ans. c

5. ..... is also known as USB flash drive.

a. CD b. DVD
c. Pen drive d. Memory stick

Ans. c

Very Short Answer Questions

6. State the names of various keys that are available in a standard keyboard.

Ans. The names of various keys available in a standard keyboard are Typewriter keys, Function keys, Cursor Control keys, Numeric keys, Page Up and Page Down keys, Home and End keys, Caps Lock key, Shift key, Ctrl key, Alt key, Enter key, Tab key, Esc key, Delete and Backspace keys, Insert key, and Print Screen key.

7. List various types of mouse available in the market.

Ans. The various types of mouse available in the market are Mechanical mouse, Optical mouse, Laser mouse, and BlueTrack mouse.

8. List various units of computer memory.

Ans. The following are the units of computer memory:

- Byte
- Kilobyte
- Megabyte
- Gigabyte
- Terabyte

9. Define ASCII.

Ans. ASCII (American Standard Code for Information Interchange) is a character-encoding scheme that assigns a unique number or code to all the alphabets and special characters.

10. Explain RAM. Is RAM volatile?

Ans. RAM stands for Random Access Memory, and is a form of primary data storage in a computer. RAM is an integrated circuit that enables users to access stored data in a random order constantly. RAM is a volatile memory.

11. Name any three input and output devices.

Ans. Keyboard, mouse and microphone are input devices. Printer, monitor and speaker are output devices.

12. List various types of scanners.

Ans. Handheld scanner, flatbed scanner, and drum scanner are various types of scanners.

Short Answer Questions

13. Explain the functioning of two main components of CPU.

Ans. The main components of CPU are as follows:

- **The Arithmetic Logic Unit (ALU):** It performs arithmetic and logical operations.
- **The Control Unit:** It extracts instructions from the computer memory, decodes and executes instructions, and takes the help of ALU, if required.

14. What is a pen drive? Explain its usage.

Ans. Pen drive is a data storage device. It is also known as a Universal Serial Bus (USB) flash drive, which is typically a small, lightweight, removable, and rewritable device.

15. What is the main difference between non-impact printers and impact printers?

Ans. Impact printers establish a mechanical contact between the print head and the paper, whereas, non-impact printers do not establish any mechanical contact between the print head and the paper.

16. Define plotters. Name two types of plotters.

Ans. A plotter is similar to a printer and produces a hard-copy output. Plotters are generally more expensive than printers. Plotters are ideal for engineering, drafting, and many other applications that require intricate graphics. Plotters do not use toner or ink to draw an image. Instead, it uses a special kind of pen, controlled by the motors, that draws an unbroken line on the paper.

There are two types of plotters:

- Drum plotter
- Flatbed plotter

17. State the usage of hard disk and floppy disk.

Ans. The hard disk in the computer system is known as the data center of the PC. It is used to store all the programs and data of a computer system. The hard disk is the most important storage type among various types of secondary storage devices used in a PC. On the other hand, a floppy disk is the oldest type of secondary storage device that is used to transfer data between computers. It is also used to store data and information.

18. Discuss about the speed of a CPU.

Ans. The speed of a CPU decides the performance of a computer. CPU controls all the operations performed by a computer system. Generally, the CPU speed is measured in Megahertz (MHz) or Gigahertz (GHz). To improve the computer performance, upgradation of the CPU is required.

19. Differentiate between RAM and ROM.

Ans. Random Access Memory (RAM) is a form of data storage in a computer. It is an integrated circuit that enables CPU to access stored data in a random order constantly. It stores instructions from the operating system, application programs, and data to be processed, so that they can be quickly accessed by the computer's processor. Data stays in RAM only as long as the computer is running. When the user turns the computer off, RAM loses its data. On the other hand, Read Only Memory (ROM) is a built-in computer memory containing data that normally can only be read but not changed. ROM contains the start-up instructions for the computer. Unlike RAM, the data stored in ROM is not lost when the computer power is turned off. ROM is sustained by a small long-life battery in the computer.

Long Answer Questions

20. List the factors that affect the performance of a computer.

Ans. Following are the factors that affect the performance of a computer:

- **CPU Speed:** All the operations performed by a computer system are controlled by CPU. Therefore, the computer performance depends on the CPU speed. Generally, the CPU speed is measured in Megahertz (MHz) or Gigahertz (GHz). To improve the performance of the computer, upgradation of CPU is required.
- **Memory Size:** The computer has a memory to store or retrieve data. The CPU stores the frequently accessed data in Random Access Memory (RAM). Therefore, if a user opens an excel sheet, the Internet, and a music player simultaneously, these all get stored in the RAM, and the CPU controls them. Nowadays, personal computers have up to 32GB RAM. However, extra RAM chips may be added, if it is required to improve the performance of the computer.
- **Number of Applications Running:** All the opened applications are stored in RAM. This implies that the speed of a computer slows down with an increase in the number of opened applications.

21. Give advantages and disadvantages of a floppy disk.

Ans. Advantages of a floppy disk are as follows:

- It is portable
- It is not expensive
- It is reusable

Disadvantages of floppy disk are as follows:

- It is not very durable
- It has a limited storage capacity
- It is slow in retrieving data

22. What is a Blu-ray disc? How is it different from a compact disc?

Ans. Blu-ray (also known as Blu-ray disc or BD) is an optical disc storage medium. The Blu-ray disc was developed by Blu-ray Disc Association (BDA). It is used to record, store, and playback high-definition video (video system of higher resolution), digital audio, and computer data. To read and write data, the Blu-ray disc uses blue-violet laser instead of red laser beam used by other optical drive technologies. Blue-violet laser uses the shorter wavelength than the red laser. Therefore, the Blu-ray disc stores more data in spite of having the same disc diameter as CD/DVD. The Blu-ray disc has the storage capacity to hold data up to 25 GB on its single-layer disc and 50 GB on its dual-layer disc. It has a higher data transfer rate of 36 Mbps (megabits per second) as compared to CD.

23. State the names of three different types of monitors and describe them.

Ans. The following are the three different types of monitors:

- **Cathode Ray Tube (CRT) Monitor:** This monitor is heavy, thick, and has a picture tube. It is an economical monitor. In the CRT monitor, a beam of electrons strikes the CRT and the collision of electrons with phosphorus (which is coated on the inside of a CRT screen) produces light. This type of monitor is useful for displaying images and working with graphics and photographs in which colors play an important role. CRT monitors are generally available in flat and curved shapes.
- **Liquid Crystal Display (LCD) Monitor:** An LCD monitor is one of the most widely used flat panel monitors. It is more popular as a display device as compared to the CRT monitor because of its low power consumption, thinness, and high resolution. The pixels on an LCD screen are created by a liquid crystal material. This material polarizes light to create pixels on the screen, depending upon the electric charge passed through it. LCD monitors take up less desk space and are lighter than CRT monitors.
- **Light Emitting Diode (LED) Monitor:** An LED monitor is one of the most widely used monitors nowadays. It uses LED technology for generating images on the monitor screen. When an electric current is passed through LEDs, they emit light. The emitted light forms the pixels on the screen. The ability of a standard LED monitor to consume up to 40% less power than a standard LCD monitor makes it more efficient to use nowadays.

24. Differentiate between primary and secondary memory.

Ans. The primary (or main) memory is also known as Immediate Access Store (IAS). An IAS stores only the data that is required by the CPU at a particular time. The CPU is associated with two types of primary memories – Read-Only Memory (ROM) and Random-Access Memory (RAM). The data kept in the secondary memory is temporarily transferred into the main memory until the CPU processes the data. CPU accesses the data from IAS because the speed of the secondary storage is slower than the main memory. Therefore, the data, which is available in the main memory, is processed much faster than that in the secondary memory. Some

examples of secondary memory are Hard disks, USB flash drives, and DVDs.

25. Discuss various advantages and disadvantages of a hard disk.

Ans. The following table lists the advantages and disadvantages of a hard disk:

ADVANTAGES	DISADVANTAGES
Large storage capacity	Slower than RAM/ROM
Retrieving and storing speed of data is faster than the floppy disk	It is more prone to damage
Hard disk can be upgraded whenever required	It is expensive

26. a. Explain RAM and ROM.

b. State advantages of using RAM.

Ans.

a. **RAM:** RAM (Random-Access Memory) is the main memory used in a computer system. It is an integrated circuit that enables you to access stored data in a random order. RAM stores instructions from the operating system, application programs and data to be processed, so that they can be quickly accessed by the computer's processor. When you turn the computer off, RAM loses its data.

ROM: ROM is a built-in computer memory containing data that normally can only be read but not changed. ROM contains the start-up instructions for the computer. The data stored in ROM is not lost when the computer power is turned off. ROM is sustained by a small long-life battery in your computer. Besides computers, ROMs are used extensively in calculators and peripheral devices, such as laser printers, whose fonts are often stored in ROMs. A variation of ROM is PROM (Programmable ROM).

b.

- RAM is much faster to read from and write to than other kinds of storage, such as hard disk, and CD-ROM in your computer.
- Data stays in RAM only as long as your computer is turned on.

Application-Oriented Questions

1. A shopkeeper wants to fetch information of products, such as its name, price, product code, etc. swiftly in his computer. Suggest the device he should use to enter this information. Also, explain the working of this device.

Ans. The shopkeeper should use a barcode reader. It is an input device that is used to read information encoded on a bar code. It is an optical machine-readable code, which is printed on various types of products. It holds necessary information about the product. Today, it is used to update inventory and ensure correct pricing. The bar code reader reads the Universal Product Code (UPC), a pattern of bars printed on the product to be sold, with the help of a laser beam. As the laser beam reflects on the barcode image on the product, a light-sensitive detector of the barcode reader gets activated and recognizes the image by its special bars. Once the barcode is recognized, the barcode pattern is changed to the numeric code.

2. You have been assigned the task of taking the photographs of the Teacher's Day function in the school. After taking the photographs, explain the steps you will perform to:

a. Save the photographs in a computer as a digital file.

b. Generate the hard copies of the selected photographs.

Ans. The steps for saving the photographs in a computer as digital files are as follows:

1. Connect the camera to the computer through the USB cable.
2. Open the location of the photographs.
3. Copy the photographs to the computer.

The steps for generating the hard copies of the selected photographs are as follows:

1. Open the photograph to print.
2. Give the print command, select a printer and then click Print.

3. State different physical drive techniques and their disk types, which are used to store data.

Ans. The following are the different physical drive techniques and their disk types:

- **Magnetic:** Floppy disks, Hard disks, SyQuest disks
- **Optical:** CD, DVD, Blu-ray disks
- **Magnetic Optical:** Fujitsu DynaMO, LS-120 disks

4. State the reasons that led to the development of non-impact printers.

Ans. Non-impact printers were introduced to overcome the low speed and high cost of impact printers.

5. Explain the functioning of Control Unit with the help of a flowchart.

Ans. The control unit of the CPU supervises and monitors the functions performed by the entire computer system. A special program called supervisor is responsible for controlling the system operations. The instructions in each program are transferred, one at a time, to the control unit. The circuitry of the control unit, in turn, interprets and executes the instructions. When a user provides any input, the control unit determines the type of instruction and, according to the nature of instruction, the control unit guides the ALU or input/output devices.

The following flowchart depicts the functioning of the control unit:

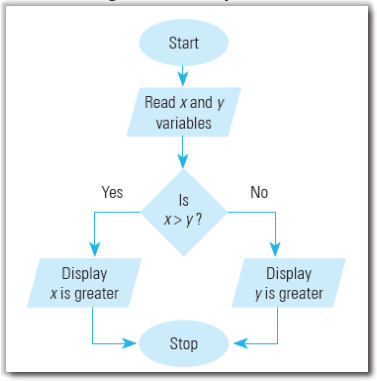

Figure 1: Functioning of a Control Unit

Let us now learn how a control unit compares two numbers, say *x* and *y*, as shown in Figure 1:

1. The control unit determines the type of instruction by the 'Read *x* and *y* variables' instruction. Once it makes sure that the instruction is an input type, it instructs input devices, such as keyboard or mouse to provide the appropriate value for *x*, say 10.
2. As the control comes to the next statement, if *x*>*y*?, the control unit determines the nature of the statement – whether it is a comparison statement or some other statement.
3. Once the control unit makes sure that it is a comparison statement, it instructs the ALU to check the comparison and produce the results. Then, the ALU returns the result to the control unit.
4. The control unit returns the result '*x* is greater' when *x*>*y* statement is Yes. Otherwise, it returns the result '*y* is greater'.

6. What are the main factors on which the performance of a computer depends?

Ans. The three factors that affect the performance of a computer are: CPU speed, memory size, and number of applications running.

7. You want to buy a printer for your home. What are the typical characteristics of a printer that you should take care of while buying a printer?

Ans. The typical characteristics of a printer would be:

- Low printing cost
- No noise
- High-quality prints
- Fast printing
- Continuous sheet prints

8. Why are plotters not recommended for use at home?

Ans. Plotters are not recommended for use at home as they are ideal for engineering, drafting, and many other applications that require intricate graphics. Moreover, plotters are expensive than printers.