CLASS –VII

Computer   **Date:-29/04/2020**

➔ Read the chapter Fundamentals of computers (Image attached)carefully and do the Q.No A,B and C.

Please check next page.

Fundamentals of Computers

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A computer is an electronic machine that processes raw data to convert it into meaningful information depending on the instruction given by us. It consists of number of components which work together. These components are hardware and software. Let's discuss about them in detail.

◆ HARDWARE

The parts of a computer system which we can see and touch are hardware. They are the physical components that constitute a computer system. All input, output, processing and storage devices fall under the category of computer hardware.

Input Devices

The parts of computer we use to feed data and instructions are called input devices.

The most common input devices are keyboard and mouse. Some other input devices are:

Scanner

A scanner is used to input directly from a page. It reads text or pictures from the page and displays on the monitor. There are three types of scanner.

Flatbed scanner

In this scanner the item being scanned is placed under a flat glass surface. It works like a photocopy machine.

Handheld scanner

This scanner is held in hand and moved over the object that is being scanned. It is mostly used in shopping stores. Bar code reader is a type of handheld scanner that reads the bar code of a product.

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Drum scanner

This scanner captures the highest <u>resolution</u> from an image. It is mostly used for commercial graphics production. It is the most expensive scanner.

Know More: A bar code is a machine-readable code in the form of white and black lines that is present on almost all products such as chocolate, books, etc. This contains information about the product's price, manufacture details.

Light Pen

A light pen looks like a real pen. It is used to input by selecting objects and drawing directly on the screen, just as we draw a picture with a normal pen on a paper.

Joystick

A joystick has a lever that moves in all directions and controls the movement of the pointer on the screen. It has buttons called triggers that are used to click and double-click. It is mostly used while playing games.

Gamepad

A gamepad is used while playing games. It is held in two hands and thumbs are used to provide input.

Touchscreen

Touchscreen ATM   *Touchscreen mobile*

A touchscreen is a screen which gives input to a computer by touching it on the screen. We use our finger to point directly to objects on the screen and select them rather than using a mouse or a keyboard. Touchscreens are not only in the computer monitors but nowadays even mobile phones and ATMs have touchscreen.

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Touchpad

This has a special surface, called touchpad which can sense the movement of finger. It is used to move the pointer by moving the fingers on the pad. This is mainly found in laptop computers.

Microphone

A microphone is used to record voice or music into a computer. It converts sound waves into an electrical signal. A microphone combined with a pair of headphone is called headset.

Webcam

A webcam captures photos and stores directly on the computer. It is connected to a computer so there is no memory card required. Some laptops have a webcam fixed inside it.

Digital Camera

A digital camera stores captured photos in a removable memory card which is fixed inside the camera. The images in the card can be transferred as input to the computer.

The memory card can be taken out of the camera and the photos can be put into the computer using a card reader. The digital camera can also be directly connected to the computer and the images can be transferred.

MICR (Magnetic Ink Character Recognition)

This device is used to read the magnetic characters printed in a special magnetic ink on a document such as a cheque. It is generally used in banks.

OMR (Optical Mark Reader)

This device is used to read the mark made by a pencil or a pen on a special sheet. This sheet is called the OMR sheet and it is fed into the OMR device to read the marks. OMR processing is popular for multiple-choice tests.

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Drawing Tablet

This device is a board which has a special pen to write on it. The image we draw can be saved on the computer. The pen looks like a ballpoint pen but uses an electronic head instead of ink. Drawing tablet is also called digitizing tablet.

Quick Quiz

Write T for true or F for false.

1. OCR device is used to read magnetic characters printed on cheques. _____
2. Both touchpad and touchscreen work on touch of the finger. _____
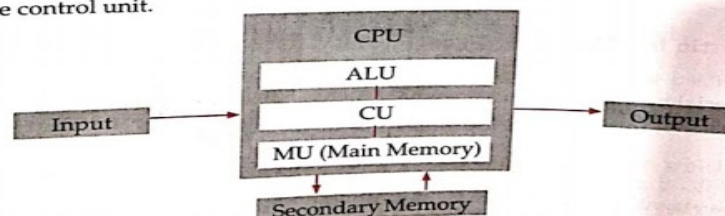3. Flatbed scanner is mostly used for commercial graphics production. _____

Processing Device

The CPU (Central Processing Unit) is the processing device. It is fixed inside the CPU box. It processes and stores the data and instructions given by us. It controls all input devices and output devices.

The CPU consists of three units:

- ALU or Arithmetic Logic Unit performs all the arithmetic and logical operations such as addition, subtraction, division, multiplication, greater than, less than, etc.
- CU or Control Unit controls the activities of a computer system. It decodes instructions, determines the storage area of instructions and data. It takes data to the ALU, and from the ALU to the main memory, and then to any output device.
- MU or Memory Unit receives data, holds it, and delivers it according to the instructions from the control unit.

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                          CPU
                        ┌───────────────┐
                        │      ALU       │
     ┌────────┐         ├───────────────┤        ┌────────┐
     │ Input  │ ──────▶ │      CU        │ ─────▶ │ Output │
     └────────┘         ├───────────────┤        └────────┘
                        │ MU (Main Memory)│
                        └───────────────┘
                                 ▲
                        ┌────────────────┐
                        │ Secondary Memory│
                        └────────────────┘
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Output Devices

The parts of a computer that processed result (information) are called output devices. Some of the output devices are monitor, speakers, headphones and printer. Let's know more about printers and some other output devices.

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Printer

A printer gives the output (text and pictures) on a paper. The printed copy is called hardcopy. There are two categories of printers–impact printers and non-impact printers.

Impact Printers

Impact printers are also called character printers. Its mechanism is like a typewriter. It forms characters or images by striking a print hammer against an inked ribbon, leaving an image on paper. These printers are used less nowadays. Some of the impact printers are:

- A dot matrix printer is less expensive but is very noisy. The speed of this printer is measured in cps (characters per second).

- A daisy-wheel printer has a disk made of plastic or metal on which it rotates until the desired letter is facing the paper. This printer is also noisy and slow. Daisy-wheel printers are hardly available now.

Non-impact printers

Non-impact printers are also known as line printers. This printer forms characters and images on the paper without direct physical contact between the printer head and the paper. It is used almost everywhere now. Some of the non-impact printers are:

- Inkjet printer forms letters and images on the paper by spraying electrically charged droplets of ink from nozzles through holes. The speed of this printer is measured in lpm (lines per minute) and ppm (pages per minute). This printer is capable of producing high quality print.

- Laser printer uses laser technology to print images on the paper. A laser printer works like a photocopying machine. The images are created on a drum, treated with a magnetically charged ink and then transferred from the drum to the paper. This gives the best quality output and are the most expensive. The speed of this printer is measured in ppm (pages per minute).

Plotter

A plotter gives the output on a paper. It is generally used to generate large printouts of construction maps, engineering drawings and big posters that require high quality. There are three types of plotters:

Drum Plotter

This plotter consists of a long drum on which a paper is placed and the drum rotates back and forth to produce the graph on the paper. It was the first output device used to print graphics and large engineering drawings.

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Flatbed Plotter

This plotter plots on a paper that is spread and fixed over a rectangular flatbed table. The paper remains stationary on a flat surface while a pen moves across it horizontally and vertically. It is used in designing of aircrafts, buildings, highways, etc.

Inkjet Plotter

This plotter creates an image by spraying small droplets of ink on paper. It produces better quality graphics than other types of plotters. It is used in designing banners, road signs, etc.

Projector

A projector is a device that displays videos, images or text on a large screen. The projector is connected to a computer which displays the image on a flat white surface like a screen or a board, etc. It is used while giving presentations. The two types of projectors are LCD (Liquid Crystal Display) projector and DLP (Digital Light Processing).

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Quick Quiz

Match the following.

|		
1.	Impact printer	displays output on large screen
2.	Non-impact printer	used for designing of aircrafts
3.	Inkjet plotter	character printer
4.	Drum plotter	used for designing road signs
5.	Flatbed plotter	line printer

Memory (Storage) Devices

The storage capacity of a device is called its memory. When we talk about computer memory, it is measured in terms of bits, bytes, kilobytes, megabytes, gigabytes, terabytes, etc.

1 Byte = 8 bits	1024 bytes = 1 Kilobyte (KB)
1024 KB = 1 Megabyte (MB)	1024 MB = 1 Gigabyte (GB)
1024 GB = 1 Terabyte (TB)	1024 TB = 1 Petabyte (PB)
1024 PB = 1 Exabyte	1024 EB = 1 Zettabyte (ZB)

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The devices used to store data are called memory devices or storage devices. There are two types of memory devices—Primary memory devices and Secondary memory devices.

Computer Memory Devices

Primary Memory Devices

Secondary Memory Devices

RAM ROM Hard Disk CD DVD Blu-ray Pen Drive Memory Card
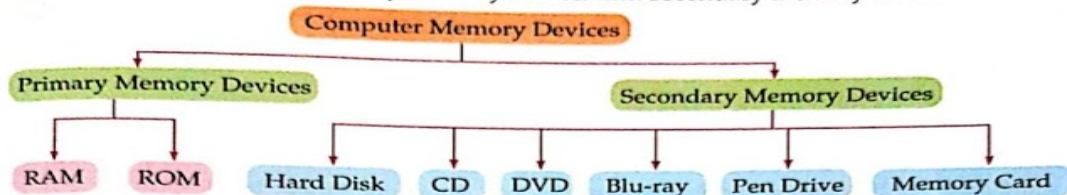
Primary Memory Devices

Primary memory is also known as internal memory or main memory of the computer. CPU can directly read from and write on this memory. These are of two types—RAM and ROM.

RAM (Random Access Memory)

It stores data and instructions temporarily. When we start the computer, the operating system is loaded into RAM. Any app that we run is also loaded into RAM. When we type some text on the computer, it is saved the RAM. But, when we shut down our computer, RAM gets cleared and everything in it gets erased. So, RAM is the temporary memory.

RAM

ROM (Read Only Memory)

This stores the start-up instructions for the computer. It holds these instructions even when the power supply is switched OFF. Hence it is a permanent memory. These instructions cannot be overwritten but can only be read.

ROM

Secondary Memory Devices

Secondary memory is used to store information for a long period of time. It is also called external memory. Some of the secondary memory devices are discussed below.

CD (Compact Disc)

It is a portable storage device that stores data permanently. Its storage capacity is up to 700 MB. It is cheaper than other storage devices. There are many types of CDs.

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- **CD / CD-ROM (CD-Read Only Memory):** We can't write to these discs for example, a game or a music CD.
- **CD-R (CD-Recordable):** We can write on these but we can't erase any data we have written on them.
- **CD-RW (CD-Read Write):** These are re-writable. We can erase and write on them as many times as we want.

DVD (Digital Versatile Disc)

It is also a portable storage devices. These are similar to CDs but these have more capacity to store data.

Blu-ray

It is a scratch resistant disc that can safely store data for a long time. It uses blue-violet laser light technology.

Pen Drive

It is a portable storage device that can be carried in a pocket. It is also called flash drive or USB drive. We can use a pen drive to transfer data from a computer to another computer.

Memory Card

This is also known as multimedia card. It is a storage device generally used in mobile phones, digital cameras, tablets, etc.

Hard Disk

It is the main secondary storage device that stores large amount of data permanently. It is present inside the CPU box. Hard disk stores operating system software, application software and all other files and folders saved in our computer.

External Hard Disk

This hard disk is connected externally to a computer through a USB port, just like pen drive. It can store large amount of data just like an internal hard disk, but this can be carried along.

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Storage device	Capacity
RAM	Up to 16 GB
CD	Up to 700 MB
DVD	Up to 17.08 GB
Blu-ray	Up to 50 GB
Pen Drive	Up to 1 TB
Memory Card	Up to 512 GB
Hard Disk	Up to 8 TB
External Hard Disk	Up to 4 TB

◆ SOFTWARE

The hardware parts of a computer need instructions to work. A set of instructions given to a computer to make it work is called a program. A set of programs is called a software.

Without software a computer cannot work. It enables the user to interact with a computer and its hardware, and to perform tasks. Similarly, any software can be used only when it is stored inside a storage device, i.e. a hardware. Hence, both hardware and software are equally important for a computer.

We install and store many software inside our computer so that we can use them anytime. There are two categories of software–system software and application software.

System Software

It controls the entire computer system including the hardware. The system software also controls and runs the application software. There are many types of system software.

Operating System (OS)

It is the first software that is loaded into computer's main memory. Windows is the most commonly used Operating System. Windows is a product by Microsoft. It has many versions– Windows XP, Windows 7, Windows 8 and Windows 10. Some other examples of operating systems are Linux, DOS and Mac OS.

Language Translators

Language translator is a type of software that converts a high level language into machine level language. Compiler and Interpreter are types of language translators.

Utility Software

This is a software designed to perform basic maintenance tasks on a computer. Some examples of these software are antivirus software, disk tools, etc.

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Application Software

Application software help users solve a particular problem or carry out a specific task. There are various types of application software. Some of them are:

Word Processing Software

They are used to type, edit and format text. For example, Microsoft Word, WordPad, etc.

Spreadsheet Software

They let us enter and maintain numbers and solve complex calculations. For example, Microsoft Excel, OpenOffice Calc, Lotus123, etc.

Photo Editing Software

They are used to create, edit and manipulate images. For example, Adobe Photoshop, Picasa, etc.

Presentation Software

They let us create presentations. For example, Microsoft PowerPoint, OpenOffice Impress, etc.

Desktop Publishing Software

They let us design books and magazines. For example, CorelDraw and Adobe InDesign.

Vocabulary

Resolution: number of pixels in an image
Portable: capable of being carried or transported
Install: putting software on a computer so that it is ready to execute

Recap

+ The parts of a computer system which we can see and touch are hardware.
+ Input devices are used to feed data and instructions.
+ Keyboard, Mouse, Scanner, Touchscreen, Touchpad, Microphone, Webcam, MICR, OMR are examples of input devices.
+ Output devices are used to see the result of the processing done by the computer.
+ Monitor, Speakers, Plotter, Projector are examples of output devices.
+ Storage devices are used to store data.
+ RAM, ROM, hard disk, CD, DVD, blu-ray, pen drive, memory card are examples of storage devices.
+ A set of instructions given to a computer to make it work is called a program.
+ A set of programs is called a software.
+ System software control the entire computer system including the hardware and also the application software.
+ Application software help users solve a particular problem or carry out a specific task.

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B. N
1.
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C.

14

SCRATCH YOUR BRAIN

A. Tick (✓) the correct answer and fill in the blank.

1. _____ captures photos and stores directly on the computers.
   ☐ Digital camera   ☐ Webcam   ☐ Both of these

2. _____ is a temporary memory.
   ☐ RAM   ☐ ROM   ☐ Both of these

3. A microphone combined with a pair of headphones is called a _____.
   ☐ microphone   ☐ speakers   ☐ headset

4. _____ of CPU receives data, hold it and delivers according to the instructions.
   ☐ Control Unit   ☐ Memory Unit   ☐ Arithmetic Logic Unit

5. _____ is a scratch resistant disc that can safely store data.
   ☐ Memory card   ☐ DVD   ☐ Blu-ray disc

B. Name any two types of each of the following.

1. Impact printer   _____   _____
2. Non-impact printer   _____   _____
3. Scanner   _____   _____
4. Plotter   _____   _____
5. Internal memory   _____   _____
6. Application software _____   _____

C. Fill in the blanks using the given words.

Dot matrix   USB drive   OMR   Utility software   Flash drive   Language translator

1. _____ is an example of impact printer.
2. Pen drive is also known as _____ or _____.
3. _____ is a type of software that converts a high level language into machine level language.
4. _____ device is used to read mark made by a pencil or a pen on a special sheet.
5. _____ is a software designed to perform basic maintenance tasks on a computer.

Answer in short.

1. Which storage device is fixed inside the CPU box?
2. Which scanner is mostly used in shopping stores?
3. Which camera does not need any memory card to store data?

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E. Answer in detail.

1. Explain the use of system software in the computer.
2. Differentiate between RAM and ROM.
3. Write the difference between application software and system software.

Create presentation on 'Co...

FUN ACTIVITY

Think and Tell

Encircle the pictures of parts of a computer. Write their names in the correct boxes.

COMPUTER SYSTE

Examples of input de...

Examples of ...
device

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