GIRLS' HIGH SCHOOL & COLLEGE, PRAYAGRAJ

WORKSHEET NO.: 2

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CLASS : 7 (A,B,C,D,E,F)

SUBJECT: COMPUTER

CHAPTER 1: COMPUTER – HARDWARE COMPONENTS

Instructions: Parents please ensure that the student reads the content of the passage carefully to answer the questions below. They can also refer to any Computer book (Cl-7) for a detailed study of the chapter or they can refer to Internet.

Link: https://youtu.be/IuQ3PzcDjhQ
https://youtu.be/_9GwwoXseJ8

SOFTWARE- Software is a set of programs, which controls the internal operations of a computer and instructs a computer the work to be done For example- UNIX, MS Word etc.

Software can be classified into two main categories- **System software** and **Application software.**

Hardware and Software are interdependent of each other's functioning. Without these two components, computer cannot work.

INTERNAL HARDWARE

- **PCI-** Peripheral Component Interconnect (PCI) serves as a connection between a computer's motherboard and any connected hardware. It was introduced by Intel in 1992.

- **VIDEO CARD-** The video card is an expansion card that is used to generate the video output to a display screen, such as a monitor, TV or projector. It is also known as a graphics card. This card contains its own processing and memory unit and is connected to the motherboard via Accelerated Graphics Port (AGP) or PCI connection.

- **RAM-**RAM (Random Access Memory) is a type of memory that is available for the operating system, programs and processes to use when computer is running. It is a volatile memory and therefore data and instructions are stored here temporarily. When you switch off your computer or there is some power failure, the data is completely erased. RAM is of two types- **Static RAM** and **Dynamic RAM.**

- **ROM-** ROM stands for Read Only Memory. It is a type of memory from which we can only read information but cannot write on it. It is a non-volatile memory, therefore the information is stored permanently in it even when the system is powered off. Data stored in ROM can neither be modified nor erased easily. There are three types of ROM: **PROM, EPROM** and **EEPROM.**

- **DISK DRIVE-** A disk drive is a hardware component in a computer that enables users to read, write, delete and modify data on a storage disk. It is either a built-in or external component of a disk that manages the input/output (I/O) operations of a disk. Disk drives are of several types, such as hard disk drive, CD drive, DVD drive etc. The most commonly used disk drive is the Hard Disk drive.

- **SMPS**- SMPS stands for Switched-Mode Power Supply. It is essential for safe running of power consuming electrical and electronic appliances. SMPS uses a switching regulator to control and stabilize the output voltage by switching the load current on or off. It transfers electric power from a source (AC mains) to low voltage Direct Current (D.C.).

- **MODEM-** Modem stands for Modulator Demodulator. It is a device which allows a computer to send or receive information through telephone lines by converting digital data into an analog signal. Modems can be classified as-
  1. **Internal Modem**- It is a device that is already installed in a computer. It is in the form of a card that is inserted into one of the slots on the motherboard.
  2. **External Modem-** It is a modem that is installed outside the CPU. It is in the form of a box that is normally connected to USB port of a computer.
  3. **PC card Modem-** It is specifically designed for laptops and handheld computers. It is similar to the size of a credit card and fits into the PC Card slot on notebook and handheld computers.

- **HEAT SINK-** A heat sink is an electronic device which is designed to disperse the heat generated by the CPU. It is normally made up of metal, such as a copper or aluminum alloy and normally uses a fan to keep the processor cool. Heat sink is commonly used in all CPUs.

PORTS – A computer port is a slot on the motherboard that acts as point of connection between a computer and an external device. Cables of external devices like keyboard, printer, monitor etc are plugged into these ports to attach them to a computer. Most of the ports are visible at the backside of the CPU cabinet while a few are placed in front. Some of the ports are discussed below-

- **Serial Port-** It transmits data one bit at a time over a single wire. It is used for devices that do not require high speed transmission, i.e, mouse, keyboard. It is also used to connect modems, hence called as Communication ports.
- **Parallel Port-** It transfers several bits of data together at one time. It is used for devices that require high speed data transmission such as printers.

- **Universal Serial Bus (USB) Port-** It is used to transfer data and can also act as power supply for devices connected to it. Devices that can be connected to a USB port include keyboard, mouse, printers, scanners, flash drives, phones, tablets, digital and web cameras etc.
- **PS/2 Port-**PS/2 Connector was developed by IBM in 1987. PS/2 port is now considered a legacy port as it has been replaced by the USB port. It was used for attaching keyboard and mouse to a computer.
- **Firewire-** Also known as IEEE 1394, it was developed by Apple Inc. in 1994. It can transfer large amount of data with speed upto 800 Mbps and can connect upto 63 different devices. It is used to connect Camcorders and video equipment to the computer.
- **VGA (Video Graphics Array)-** It is similar to a serial port connector but the serial port has pins, whereas VGA connector has holes. It is used to connect monitors and projectors to a computer.
- **HDMI (High Definition Multimedia Interface) Port-** It is a digital connector that can carry high definition video and audio. It can also send audio to different formats. It is used to connect devices like computer monitors, HDTVs, Gaming Consoles, High definition Cameras etc to the computer.
- **Ethernet Port-** An Ethernet RJ 45 connector looks like a telephone line RJ11 connector. It is used to connect your computer to a wired network.

- **Audio -** Line-in: It enables a user to connect an external audio device to the computer.
  Line- out: It allows external speakers, headphones or other output devices to be connected to the computer.
  Mic port- It helps in plugging microphone into the computer.

EXTERNAL HARDWARE

INPUT DEVICES – Some of the input devices are discussed below:-

- **KEYBOARD-** Keyboard is one of the most important input devices used to input data and instruction into a computer. There are mainly five types of keys on a keyboard:-
  1. **Typing Keys-** These keys include Alphabet keys , Number keys, Punctuation keys, Special keys, Shift, Caps Lock, Spacebar, Backspace and the Tab key.
  2. **Control Keys-** These keys are either used alone or in combination with other keys to perform an action. For example- Ctrl, Alt, Windows logo key and Esc key.
  3. **Function Keys-** They are used to perform specific tasks. They have different functions in different programs. They are labelled as F1 to F12.
  4. **Navigation Keys-** They are used for moving through documents or web pages and sometimes for editing the text. These keys include the Arrow keys, HOME, END, PgUp, PgDn, DELETE, and INSERT key.
  5. **Numeric Keypad-** It is placed on the right side of a keyboard. It consists of number keys from 0 to 9, arithmetic operators and the decimal point.

- **MOUSE-** Mouse is the most commonly used input and pointing device that lets you select and move items on the screen. Dragging and dropping makes it easy to move an item on the screen. With this simple technique, one can delete, copy and move files in a file manager. Mouse is also used in drawing packages to draw free- hand lines, circles, boxes and other complicated graphic images. Following are the different types of mouse-
    1. **Mechanical Mouse-** This type of mouse has a metal or rubber ball on its lower side that can roll in all the directions. The screen pointer moves according to the movement of the ball detected by the mechanical sensors within the mouse.
    2. **Opto-Mechanical Mouse-** This type of mouse uses optical sensors to detect the movement of the ball.
    3. **Optical Mouse-** This type of mouse uses laser technology to detect the movement of the mouse.

- **SCANNER-** It is an input device that scans text, images and objects optically. The scanned data is then converted into a digital image and displayed on the computer screen. Following are the different types of scanner-
    1. **Drum Scanner-** This is the most efficient and expensive scanner. The drum scanners are used mainly in the publishing industry to print high print quality images in books and magazines.
    2. **Flatbed Scanner** – This is a popular desktop scanner. It looks like a miniature printer with a flip-up cover protecting the glass window. Its flexible cover allows you to scan books, newspaper, articles, photographs etc. The flatbed scanners are used in homes, schools and medium sized offices.
    3. **Handheld Scanner**- This is a small manual device which is dragged over the surface of the image to be scanned. Bar code scanner is one of the most utilized handheld scanners used in shopping malls.

- **MICROPHONE –** It is an input device used to record and store voice or any other sound into a computer, generally as a .wav file. It is commonly used in video conferencing speech recognition programs, radio broadcasting, recording and sound amplifying systems.

- **LIGHT PEN-** It is a light-sensitive pointing device, commonly used to select or modify data on the screen. Its operation is similar to a touch screen .It is easy to use and helpful for programs like Computer Aided Design (CAD).

- **DIGITAL CAMERA-** A digital camera is quite similar to a traditional camera that takes both video and still photographs except for the fact that digital images can be used, viewed and edited on a personal computer. We can also print photos through a printer. A webcam is also a kind of digital camera connected to a computer. It is used for video conferencing, and online chatting.

OUTPUT DEVICES- Some of the common output devices are listed below-

- **MONITOR-** Monitor is the most common output device. It is also called **Visual Display Unit(VDU)**, an electronic visual display for computers. The picture on a monitor is made up of thousands of small coloured dots called pixels. The output displayed on the monitor is called **Softcopy**. Three types of monitors are commonly used:
    - Cathode Ray Tube(CRT) monitors
    - Liquid Crystal Display(LCD) or Thin Film Transistor (TFT) monitors
    - Light Emitting Diode (LED) monitors

- **PRINTER-** A printer is a peripheral device that accepts text and graphic output from a computer and prints the information on a paper. The printed information on the paper is called a **Hard Copy.** Printers vary in size, speed and cost. They are of two types:
    - **Impact Printers-** Impact printers allow physical contact between the printer head and paper, i.e, these printers print by the impact of printer head on the paper. They are also called **character printers. Example**: Daisy Wheel Printers, Dot-Matrix Printers.
    - **Non-impact Printers –** Non-Impact printers do not allow physical contact between the printing heads and paper, i.e, they do not strike against the inked ribbon or the paper which is being printed. Only the ink used for printing, touches the paper. **Example:** Thermal Printers, Ink Jet Printers, Laser Printers.

- **PROJECTOR-** A projector is an output device that takes images generated by a computer and displays them onto a big screen, wall or any other flat surface.

STORAGE DEVICES- The commonly used storage devices are-

- **HARD DISK-** A hard disk is a magnetic storage device used to store and retrieve data. It is a made up of a collection of disks known as **platters**, stacked on top of each other. Each platter has the same number of tracks to store data. A track location that cuts across all platters is called a **cylinder.** Hard disk is also known as **Winchester Disk** .It was introduced in 1954 by an IBM team led by Rey Jhonson.
- **CD-ROM-** CD-ROM stands for Compact Disc -Read Only Memory. The storage capacity varies from 650 MB to 900 MB. The speed of a CD-ROM drive is called **data transfer rate** and is measured in Kilo-bytes per second. There are two types of CD-ROMs:
    - **CD-R (Compact Disk Recordable)**
    - **CD-RW (Compact Disk Re- Writable)**
- **DVD (DIGITAL VERSATILE DISK)-** Invented in 1995, DVD has become a very popular data storage device. Initially, it was called Digital Video Disk. A DVD can hold 4.7 GB to 17 GB of data. DVD is also available in many versions, such as:

- **DVD-R**
- **DVD-RW**
- **DVD+R** and **DVD+RW**

- **BLU-RAY DISC-** Blu-ray Disc is a new optical disc format that is rapidly replacing a DVD. It can hold upto 25 GB of data on a single layer and 50 GB of data on a dual layer.
- **FLASH DRIVE-** It is a small and portable flash memory data storage device mainly used to transfer audio, video and data files from the hard drive of one computer to another. It is removable and rewritable. It is also called **Pen Drive** or **Thumb Drive** and is available with storage capacity of upto 1 TB of data and is further planned to have its capacity to 2 TB.

EXERCISE

Q1. FILL IN THE BLANKS

1. _____ serves as a connection between the motherboard and any connected hardware.
2. _____ is an input device that scans text, images and objects optically.
3. PROM, EPROM and EEPROM are types of _____.
4. _____connector was developed by IBM in 1987.
5. Hard disk is also known as _____disk.
6. Dot-Matrix is an example of _____ printer.
7. Flash Drive is also called _____.
8. The data transfer rate of CD-ROM is measured in _____.

Q2. STATE TRUE OR FALSE

1. Parallel port is used for devices that do not require high speed transmission.
2. Keyboard is one of the most important input devices used to input data.
3. The picture on a monitor is made up of thousands of small coloured dots called pixels.
4. Webcam is also a kind of digital camera connected to a computer.
5. Numeric keypad is placed on the left side of a computer.

Q3. ANSWER IN ONE WORD

1. How many function keys are there on a keyboard?
2. Name the electronic device which is designed to disperse the heat generated by the CPU.
3. Name the most commonly used disk drive.
4. What is the storage capacity of a DVD?
5. What do you call the output displayed on the monitor?

Q4. ANSWER THE FOLLOWING

1. What do you know about software? Name the types of software.
2. What is a modem? Mention its types.
3. What is a port?
4. Briefly explain the types of scanner.
5. Write short notes on-
   (a) SMPS
   (b) HDMI port
   (c) Firewire
6. What is a printer? Explain the types of printer.
7. What is a projector?
8. Explain the following-
   1. CD-ROM
   2. DVD
   3. Flash Drive
   4. Mouse
   5. Monitor

END