**HARDWARE ASSIGNMENT**

1. What is hardware?

Hardware is the collection of physical parts of computer system. It includes monitor keyboard and mouse and it also includes harddisk drive, motherboard, video card, etc.

2. What is the purpose of Hardware?

The purpose of hardware is to provide the necessary resources and capabilities for a computer system or device to function.

3.list out two types of hardware.

Input/Output (I/O) Devices: These hardware components are responsible for the input and output of data to and from the computer system. They allow users to interact with the computer and exchange information.

Internal Components: These are the internal hardware components that are essential for the functioning of a computer system. They include cpu, gpu, smps, etc.

4. What is core hardware?

"core hardware" could refer to the essential or fundamental components of a computer system that are crucial for its operation. These components typically include: CPU, motherboard, PSU, RAM, storage devices.

5. What are the category of components in hardware?

Components in hardware can be categorized into several different categories based on their functionality and purpose. Here are some common categories of hardware components:

1. Central Processing Unit (CPU): The CPU is the primary component responsible for executing instructions and performing calculations. It includes the arithmetic logic unit (ALU) and control unit (CU) and is often referred to as the "brain" of the computer.
2. Memory: Memory components store data and instructions that the CPU needs for immediate access. This category includes Random Access Memory (RAM) and various cache levels.
3. Storage Devices: Storage devices are used for long-term data storage. They include hard disk drives (HDDs), solid-state drives (SSDs), optical drives (CD/DVD/Blu-ray), and removable storage devices like USB flash drives.
4. Motherboard: The motherboard is the main circuit board that connects and integrates various hardware components. It provides electrical and physical connections and includes slots, connectors, and sockets for expansion cards, CPUs, memory modules, and other peripherals.
5. Input/Output (I/O) Devices: These components facilitate input and output operations. Examples include keyboards, mice, monitors, printers, scanners, speakers, microphones, and webcams.
6. Graphics Processing Unit (GPU): GPUs are specialized processors designed for rendering and manipulating images, graphics, and videos. They are particularly important for tasks like gaming, video editing, and 3D modeling.
7. Power Supply Unit (PSU): The PSU supplies electrical power to the computer system, converting the incoming AC power into DC power required by the components.
8. Expansion Cards: These are additional cards that can be inserted into slots on the motherboard to enhance or add functionality to the computer system. Examples include graphics cards, network interface cards (NICs), sound cards, and RAID cards.
9. Cooling Components: Cooling components, such as fans, heat sinks, and liquid cooling systems, are responsible for dissipating heat generated by the hardware components to maintain optimal operating temperatures.

6. Why category is needed?

These categories of hardware components are needed to create a complete and functional computer system. Each category serves a specific purpose in enabling input, processing, storage, and output of data. They work together to facilitate communication, perform computations, store and retrieve data, and provide a user-friendly interface. Without these components, a computer system would not be able to function as intended or provide the necessary capabilities for various tasks and applications.

7. What is input device and why it’s needed?

An input device is a hardware component that allows users to provide data, commands, or instructions to a computer system. It enables the user to interact with and input information into the computer for processing.

Input devices are needed to enable users to interact with the computer, input data, execute commands, and improve efficiency and convenience.

8. List out the input device.

* Keyboard: Used to input alphanumeric characters and other commands.
* Mouse: Enables cursor movement and selection of objects on the screen.
* Touchscreen: Allows users to input commands or interact directly by touching the screen.
* Scanner: Used to convert physical documents or images into digital formats.
* Microphone: Captures audio input, such as voice commands or recordings.
* Webcam: Captures video input, allowing for videoconferencing or recording.

8. What are output device

Output devices are hardware components that present or display processed information from a computer system to the user. They provide a means for the computer to communicate and present data or results in a usable form.

9. how does output device work?

Output devices work by receiving electronic signals or data from the computer system and converting them into a form that can be perceived by human senses.

10. List out the output device.

Monitor/Display: Receives digital signals and uses a screen to display visual output through the use of pixels.

* Printer: Translates digital data into printed text or images on paper using ink or toner.
* Speakers: Convert electrical signals into sound waves that can be heard by the user.
* Projector: Receives video signals and projects them onto a larger screen or surface using light and lenses.
* Headphones: Convert electrical signals into sound waves and deliver them directly to the user's ears.

11. What is motherboard?

A motherboard, also known as a mainboard or system board, is the primary circuit board of a computer system. It is a crucial component that connects and interconnects various hardware components, allowing them to communicate and work together effectively.

12. Why it is called motherboard?

The term "motherboard" originates from the idea that it is the main circuit board within a computer system, which connects and houses various components such as the CPU, memory, and expansion slots. It is considered the "mother" of all other circuit boards in a computer, as it provides the primary interface and connectivity for all the hardware components to communicate and work together.

13. What it is called if we remove all components from the motherboard?

If you remove all components from the motherboard, what remains is essentially the bare circuit board. Without any components attached, it is commonly referred to as a "bare motherboard" or simply a "PCB" (Printed Circuit Board). The PCB itself provides the physical structure and electrical connections necessary for components to be installed and function properly.

14. Describe types of motherboard.

* AT Motherboard
* ATX Motherboard
* Micro ATX Motherboard
* ITX Motherboard

15. what is cpu.

It is often referred to as the "brain" of the computer. The CPU interprets and carries out instructions from the computer's memory, performs arithmetic and logical operations, and coordinates the activities of other hardware components.

16. write a full form of CPU.

Central processing unit.

17. what are the types of cpu?

There are primarily two types of CPUs:

Intel CPUs: Intel is a leading manufacturer of CPUs for personal computers. They have various processor families such as Intel Core i3, i5, i7, and i9, each offering different levels of performance and capabilities. Intel CPUs are commonly found in a wide range of desktops, laptops, and servers.

AMD CPUs: Advanced Micro Devices (AMD) is another prominent CPU manufacturer. AMD offers processor families like Ryzen and Threadripper, which provide competitive performance and value compared to Intel counterparts. AMD CPUs are also widely used in desktops, laptops, and servers.

Both Intel and AMD CPUs come in different models with varying core counts, clock speeds, cache sizes, and features. It's important to consider the specific requirements and budget when choosing a CPU for a particular system.

18. What do we need to keep the CPU Healthy?

* Ensure proper cooling with a CPU cooler and clean airflow to prevent overheating.
* Maintain a clean and dust-free environment to avoid obstruction of cooling components.
* Avoid overclocking beyond safe limits to prevent excessive heat generation.
* Use a quality power supply to provide stable and consistent power to the CPU.

19. what is monitor?

Monitor is one type of display where user can see the input and output.

20. types of monitor.

There are different types of monitor such as LCD, LED, OLED.

21. how CRT monitors work?

A CRT computer monitor works by using an electron gun, which shoots out electrons at high speed. The electrons then collide with red, green, and blue phosphors that coat the inside of the screen. This process allows you to see the image on your monitor.

22. what is system bus?

System bus is just like paths on the motherboard it connect all the components on the mother board and transfer the power and data.

23. types of system bus.

There are three types control bus, data bus, and address bus.

24. working of system bus.

Control bus = it controls the flow of data.

Address bus = it manages where to send the data and send the data at right place.

Data bus = its checking that data is sending in the right sequence.

25. what is chipset?

Achipset in a computer systemrefers to theset of electronic and interdependent Integrated Circuits or components found on the motherboard.

26. types of chipset.

27. Which chipset does have direct contact with the cpu.

Northbridge have direct contact with cpu.

28.what is memory?

It just like human brain where data and instruction are stored.

29. types of memory.

There are two types of memory volatile and non volatile.

30. memory in detail.

Volatile memory = in this type of memory data stored temporary. Ex: RAM

Non volatile memory = in this type of memory data stored permanently. Ex: ROM

31. what is system unit?

A system unit isthe part of a computer that houses the primary devices that perform operations and produce results.

32. how does system unit work?

It provides power and connectivity to the components, allowing them to communicate and work together. The CPU executes instructions and manages data, while RAM temporarily stores data for fast access. Storage devices retain data even when the computer is off.

33. What are the components and system unity?

It consist motherboard, CPU, RAM, Hard disk.

34. what is bios.

It is a chip located on the motherboard that run first when system start.

35. full form of bios.

Basic input and output system.

36. describe working process of bios.

There are mainly three function of bios

POST = this function runs first and gather all the information about ports such as how many device are connected and its working or not.

Bios drivers = it’s a low level of drivers for basic functions.

Boot loader = it store and load the files related to the os.

37. what is cmos.

It is a type of cell located on the motherboard and it manage the date, time etc…

38. full form of cmos.

Complementary metal oxide semiconductor.

39. describe the working process of cmos,

Cmos also used for rese the bios for that we just have to extract from the motherboard and fit again it will automatically reset the bios.

40. what is SMPS?

SMPS stands for switch mode power supply. It supply the power to the each component connected to the system.

41. what is the process of SMPS.

It converts the dc to the ac power.

42. what is RAM ?

Its main function is to store cache files of the system.

43. give the full form of RAM and its types.

RAM stands for random access memory. There are mainly two types static and dynamic.

44. What are the types of devices?

There are mainly two devices:

Input devices = that used for input

Output devices = that are used for output.

45. What are the types of cable?

There are mainly three types of cables, twisted pair cable

Coaxial cable, Fiber optic cable.

46. What cables are used to connect printer?

Nowadays mostly USB cable are used for connect to the printer.

47. What was the first cable founded by Apple for data transfer?

Lightning cable.

48. Why expansion card and slots are needed?

Expansion slots are useful for connecting or add a new device and expansion card are used for better performance.

49. What are the types of expansion card and slot ?

VESA slots, EISA slots, AGP slots, ISA slots, AMR slots, CNR slots,

Nic card, graphics card, Wi-Fi card, etc...

50. what is i/o ports and list the port.

i/o ports are used for send the input and retrive the output from the system.

EX = VGA, HDMI, Audio, DVI, SATA, PATA, parallel, USB.

51. What is laptop?

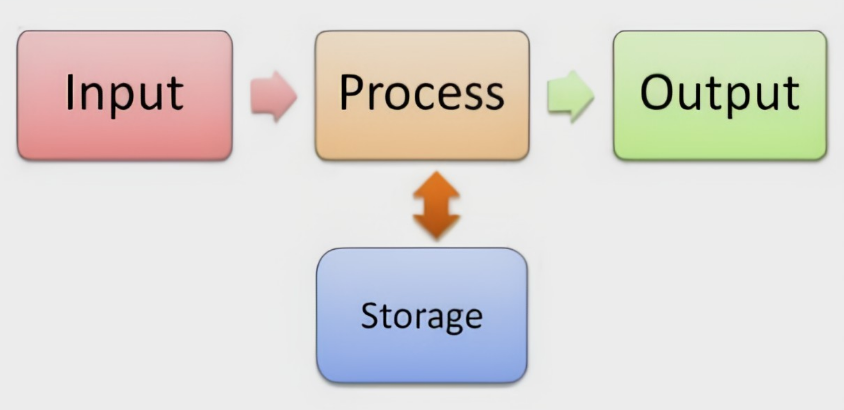
Laptop is designed for portability, it is smaller and lighter than desktop computer. The user can perform all the things same as desktop.

52. Why laptop is used widely now a days?

Its widely used nowadays because of its lighter weight, improved functionality and even user don’t need to carry separate mouse and keyboard.

53. Describe the working process of laptop?

The working mechanism is the same as desktop system, it take the input from the user through input device such as keyboard mouse webcam , process the data using the processor after processing it return the output through output device such as printer monitor.



54. What is printer?

It is a one type of output device that print the data on the paper from the pc or laptop that is available in soft copy.

55. why printer Is needed ?

To collect the data in hard copy. Printer converts it from soft to hard copy.

56. Describe the working process of printer.

* Image Understanding > Ink Ejection > Droplet Formulation > Paper Handling > Colour Mixing > Absorption & Drying Of The Ink

57. What are the types of printer.

Dot matrix, laser, colour.

58. What is storage device?

Storage device is the integral part of system that store the information and instruction.

59. Why we need storage device?

To collect the data and store it permanently hence user can retrieve that stored data whenever needed.

60. List out the types of storage devices.

There are two type of storage device : HDD, SDD.

61. Describe the working process of storage devices.

There are mainly four parts.

Actuator : It will convert the electrical data into waves for storage.

Header : it will transfer the data from actuator to platter.

Platter: where the data stored in HDD.

Motor/magnet: its function to store the data sector wise on plate.

62. What is ATA?

ATA stands for advanced technology attachment, it is a type

63. Describe working of ATA.

Transfer data between mother board to storage devices

64. What is SATA?

SATA stands for serial advanced technology attachment. It is type of hard disk.

65. describe the working of sata.

There are mainly four parts.

Actuator : It will convert the electrical data into waves for storage.

Header : it will transfer the data from actuator to platter.

Platter: where the data stored in HDD.

Motor/magnet: its function to store the data sector wise on plate.

66. Where does SATA is used.

SATA cable is used to connect motherboard to HDD and transfer the data.

70. What are the types of laptop?

Cad cam, desktop, mechanical, gaming.

71. Different names of laptop.

Hp, dell, acer, Asus.

Installation and maintenance of hardware

1.what is user management?

User management includes the adding and removing the users and give the appropriate permissions.

2. Why is user management needed?

If there is no user management occur there is may be the risk of misuse of confidential data.

3. Where can we access the user management?

We can access the user management from the control panel > user accounts.

4. What are the features of user management?

We can create a new user give the password and configure the permissions.

5. What is file folder permission?

Mainly three permission read : user can only read the data

Write: user can configure the data

Execute: user can share the file

6. What is the use of file and folder permission?

User can only perform some actions based on the permissions, if user give a only read permissions they cant share and edit it.

6. write down the steps to give a folder read only permission.

File manager > select folder right click > properties > in the last click on read only permissions.

7.Write a step to give a file only admin permission

Right click on file > properties > security > full control > save changes.

8. What is OS?

Os stands for operating system, it is a type of software that is used for communication with hardware.

9. What are the types of OS

Ther are mainly three types windows, Mac and Linux os. Kali, parrot, ubuntu, red hat are the subtypes of Linux os.

10. What is clean install?

Clean install is erasing the hardware and setting up a new fresh copy of the platform when a computer has a problem.

11. What is the process for clean install?

First create a bootable os > plug in the system > follow the instruction for installing os . it is a example of clean install of os.

12. what are the benefits of clean install?

There are less chances of crash the os and a clean install enables users to regain control over the system by eliminating programs and files that have not been used for a long time.

13. What is upgrade installation?

An upgrade installation Is when you reinstall a program using a newer version of that program.

14. What is the benefit of upgrade installation?

Enhanced performance, improved security, and bug fixes are the mainly general benefits of the upgrade installation.

15. Write down the steps of upgrade installation.

Setting > windows update > download and install.

16. What is partitioning?

Partitioning is dividing a large entity into smaller parts for easier management. It's used in storage devices.

17. What is partition?

a partition is a distinct portion of a storage device act as an independent unit, it has own file system and data.

18. What is format?

Formatting refer to the deleting whole existing data.

19. What is transferring Files?

Transferring files stands for sharing file from one system to another system.

20. What are the ways of transferring files.

Many ways to transfer files using some application such as WhatsApp, or nearby sharing or network sharing.

21. How do we transfer files from one system to another?

File manager > select folder > right click on folder > properties > share.

22. Types of file transferring media.

There are mainly two ways of transferring wired or wireless.

23. What are administrative tools?

Administrative tools encompass a range of software applications designed to aid in managing and controlling various aspects of computer systems and networks.

24. What is the use of administrative tools?

Administrative tool give the control over computer system to admin user such as he can configure the security, user permissions, group policy, account management.

25. list out the administrative tool.

Task manager, group policy editor, local user management, device manager, disk management, remote desktop tool, backup and restore tool.

26. What is disk management tools.

Disk management is used for creating and deleting partitions, resizing, formatting, etc…

27. What is windows features?

These features allow users and administrators to customize the capabilities and applications available on their Windows system.

28. List out the windows features.

Internet information services, window subsystem for linux, media player, print and document services, telnet client, PowerShell, .net framework.

29. What is the use of IIS?

A web server component that enables hosting websites and web applications on Windows servers.

30. What is backup?

Backup refer to the creating copies of stored data to prevent data loss. It copies the whole data that store on storage device.

31. What is Restore?

Restore is similar to the backup but it does not copy the whole data instead of that it only copy the main program files.

32. What is the need of backup

It is used to prevent data loss in case of accidental deleting, hardware failure, or os errors.

33. What are the tools of backup?

34. How do we restore?

Select restore option > choose backup source > select item to restore > destination > confirm and start restore.

35. How to create a restore point.

Setting > system >about > system protection > create restore point > give name > create.

36. What is Disk management?

37. What are the merits of Disk management tool?

38. Where can we find the disk management tool?

This pc > show more options > manage > disk management.

39. List out the operations we can do with disk management tool

40. What is Device Management?

Device Management refers to the process of monitoring, configuring, maintaining, and controlling various hardware devices within a system.

41. What is the need of device management?

Its used for device monitoring, installation, configuration, security, software update, remote management.

43. What are the benefits of Device management?

Efficient hardware management, enhanced user productivity, improved security, automated update, centralized control.

44. Where can we access device management?

Control Panel > device manager

45. List out the devices connected to the device management.

Bluetooth, camera, computer, keyboard, monitor, network adapters, storage controller, firmware, disk drives.

46. Why physical security needed?

physical security is necessary to protect assets, people, information, and operations from a wide range of threats.

47. what is physical security?

Physical security refers to the measures and practices implemented to protect physical assets, people, and information from unauthorized access, damage, theft, or harm.

48. list out the ways of physical security.

Physical security include surveillance and monitoring, intrusion detection, locks and safes, environmental controls.

49. How to protect system from malfunctioning due to electrical fluctuation?

Voltage stabilizers, isolate sensitive equipment, proper grounding, regular maintenance, power conditioning, monitor voltage levels.

50. What is firewall?

A firewall is a network security device or software that acts as a barrier between a trusted internal network and untrusted external networks, such as the internet.

51. Why is firewall needed?

Firewall useful for network security, intrusion prevention, malware defense, data protection, application control, privacy enhancement, threat detaction.

52. What are the features of firewall?

Packet filtering, stateful inspection, application layer filtering, intrusion prevention and detection, network address translation, proxy services, VPN support are the feature of firewall.

53. Describe types of firewall

Packet filtering firewall, proxy firewall, application layer firewall, virtual firewall, cloud firewall, etc..

54. What is Network?

Two or more pc connected to each other is known as network.

55. What is Internet & Intranet?

We can access files from any location to worldwide is known as internet. Intranet stands for we can only access to the network to nearby location.

56. How many types of Network we used?

LAN, WAN, WLAN, PAN, MAN, CAN.

57. Different between LAN & PAN

LAN Stands for linear area network. In this type of network all the system is connected to the same network.

PAN stands for private area network, its mainly used in home or creating small network.

58. Explain LAN?

LAN stands for linear area network, in this network all pc must be connected to the same network for communicate to other system.

59. What are different types of LAN devices?

Modem, server, router, switch, mobile, laptop, desktop.

60. What is configured network?

Network configuration is the process of assigning network settings, policies, flows, and controls.

61. How do we configure network?

configure a network, you need to set up your network interface, connect to the network, and configure your IP address and gateway.

62. How to check the ip address?

System > network & internet > wi-fi properties.

63. How to check the ip address through cmd?

Type ipconfig command and then enter it will shoe=w the ipv4 address and other details.

64. How can we enter static address in network adapter?

Control panel > network and sharing > change adapter setting > ethernet > ipv4 > use the following ip address.

65. What is Virtualization?

Virtualization relies on software to simulate hardware functionality and create a virtual computer system, with help of that we can use multiple os on one system.

66. What is the Difference between Full Virtualization and Para

Virtualization?

67.what is hypervisor?

hypervisor a program used to run and manage one or more virtual machines on a computer.

68. What are different hypervisors available in Linux?

VMware, virtual box, virtuozzo, openvz xen, QEMU, red hat virtualization.

69. types of virtualization?

Trouble shoot security

1. What is troubleshooting?

Trouble shooting is the process of analyse and resolve the error within the computer system.

2. what is the need of troubleshooting security?

To solve the problem related to os, network, application, website, server, and run all things properly.

3. How do you troubleshoot a computer?

mainly I troubleshoot computer by rebooting.

4. How to troubleshoot common computer problems?

Use troubleshoot tool that are available in system setting and check all cable connection.

5. Your computer turns on, but still doesn’t work?

1. Test your monitor.
2. Make sure your computer has completely restarted.
3. Verify that the power supply voltage switch is set correctly.
4. Perform a hard reset.
5. Clear the BIOS memory.
6. Reseat the memory modules.
7. Understand LED lights.

6. You get the blue screen of death?

Install a new operating system.

7. What are the basic of troubleshooting?

First of all detect where the problem occurs, then try troubleshooting tool and restart computer.

8. What is recovery?

Recovery is a process in which the data is retrieved using some tools that lost due to some reasons.

9. Why do we need recovery?

Recovery is essential because there is may be some important data that cause loss to the organization.

10. list out the tools for recovery.

Recuva, puran file recovery, glarysoft, disk drill, wise data recovery, liveboot.

11. What is Hard troubleshooting?

Hard drive troubleshooting is the process of identifying and resolving problems with your hard drive.

12. Why do we need Hard drive troubleshooting.

Troubleshooting can help us prevent data loss, improve performance, and extend the lifespan of our hard drive.

13. What are the basic troubleshooting for laptop?

Update your windows os, restart, trouble shoot option in setting.