Topic: system bus

• Assignment Level Basic

1. What is system bus :

A system bus is a single computer bus that connects the maojor components of a computer system , combining the functions of a data bus to carry information , an adderess bus to determine where it should be sent to read form and a control bus to determine its operation .

A system bus is a facet of computer architecture that transmits and shares data throughout the computer and between devices . ti’s primary way for a computer to process information because it connects the main processor to all other internal hardware components of a computer .

• Assignment Level Intermediate

1. List out the types of system bus.

There are three type of computer bus .

* The adderess bus
* The data bus
* The control bus

1. Describe the working of system bus .

A system bus works by sharing data and other information between various aspects the computer’s hardware . A bus is high speed internal connection . buses are used to send control signals and data between the processor and other components

For example , if you plug a universal serial bus device or connector into your computer , the system bus recognizes that data and takes it to the computer’s central processing unit .

1. Do a practical to identify the system bus.

Yes we are complete done a practical to identify the system bus .

A system bus works by sharing data and other information between various aspects of the computer's hardware. For example, if you plug a universal serial bus (USB) device or connector into your computer, the system bus recognizes that data and takes it to the computer's central processing unit.1

Topic: Chipset

• Assignment Level Basic

1. What is chipset :

An electronic chipset manages the flow of data between components on a motherboard . it is the traffic controller between the cpu , gpu , ram , storage and peripherals expert have referred to it as the “ glue “ of the motherboard .

In a computer system , a chipset is a set of electronic components on one or more ULSI integrated circuit known as a “ DATA FLOW MANAGEMENT SYSTEM “ that manages the data flow between the processor , memory and peripherals . it it usally found on the mother board of computer .

• Assignment Level Intermediate

1. - What are the types of chipset?

For pc mother board , there are two main chipset .

* The northbridge
* The southbridge

1. - Which chipset does have direct contact with the cpu.

For pc motherboards there are main two chipsets

1. – the northbridge
2. the southbridge

THE northbridge chip is located at the top , or northen part of motherboard and directly connected to the cpu . this acts as a bridge for a system’s higher speed component such as random acess memory , the peripheral component interconnects ( pci ) express controller and also the south bridge chip .

Northbridge is located in the northen senction of the motherboard . it is also known as the host bridge . it is directly connected to the CPU , RAM , AGP and PCI express slot .

1. . Do a practical to identify the chipset .

Yes , we are complete done a practical to identify the chipset .

Right-click the Windows icon on the toolbar, then click Device Manager.

Go down to System Devices, expand it, then look for one of th following. If there are multiple listings, look for the one that says Chipset : ALI. AMD. Intel. NVidia. VIA. SIS.

• Assignment Level Advance

1. Describe how does the Northbridge chipset work .

A northbridge is connected directly to a cpu via the front side bus to handle high perfomance task and is usually in conjuction with a slower south bridge to manage communication between the cpu and other parts of the motherboard .

The high speed part of a common chipset architecture in a computer . the northbridge is the controller that interconnects the cpu to memory via the frontside bus . it also connect peripherals via high speed channels such as pci express .

**Topic:Memory**

• Assignment Level Basic

1. What is memory?

Memory is the process of taking in information from the world around us , processing it and later recalling that information , sometime many years later . memory is today defined is psychology as the faculty of encoding , storing and retrieving information .

Memory refers to the location of sort term data while storage refers to the location of data stored on a long term basis . memory is most often referred to as the primary storage on a computer such as ram . memory is also where information is processed . it enable users to acess data that is stored for a sort time .

Memory also known as random acess memory is a pc component that stores data while the computer runs .

1. What are the types of memory?

There are two major categories of memory

* Long term memory
* Short term memory

Computer memory is of two basic type :

* Primary memory

1. – RAM : RANDOM ACESS MEMORY

2 - ROM : READ ONLY MEMORY

* SECONDARY MEMORY

Hard drive , cd , etc.

• Assignment Level Intermediate

1. Describe memory in detail.

Memory is the process of taking in information from the world around us , processing it , storing it and later recalling that information , some time may year later . human memory is often likened to that of a computer memory system or a filling cabinet .

Memory is the mental involed in the receiving storage and subsequent retrieval of information . the characteristics of memory are : the positive aspect of memory is retention and the negative aspect of memory is forgetting . there are three basic processes in memory

1 – encoding

1. - storage
2. - retrieval

In computing, memory is a device or system that is used to store information for immediate use in a computer or related computer hardware and digital electronic devices. The term memory is often synonymous with the term primary storage or main memory .

1. What are memory types

There are two major categories of memory

* Long term memory
* Short term memory

Computer memory is of two basic type :

* Primary memory

1. – RAM : RANDOM ACESS MEMORY

2 - ROM : READ ONLY MEMORY

* SECONDARY MEMORY

Hard drive , cd , etc.

• Assignment Level Advance

1. •. Do a practical to identify memory types.

Yes , we are complete done a practical to identify memory type .

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In computing, memory is a device or system that is used to store information for immediate use in a computer or related computer hardware and digital electronic devices. The term memory is often synonymous with the term primary storage or main memory .

1. -Do a practical to install memories in system

Yes , we are complete done a practical to install

memories in system .

in the System Properties window, the Installed

memory (RAM) entry displays the total

amount of RAM installed in the computer.

For example, in the picture below, there is 4

GB of memory installed in the computer.

3. Do a practical to identify main memory frequencies

**Yes , we complete done a practical to identify memory frequencies .**

**Frequency or clock speed is the most straightforward thing: You increase it, and the performance goes up. Increasing frequency increases memory bandwidth, or the amount of data that can be transferred at any given time**

**Open up Task Manager by right-clicking on the Windows taskbar and selecting Task Manager. Navigate to the Performance tab — it will open with the CPU view selected, so you'll want to choose the Memory view from the left navigation panel. After clicking on Memory, you can view your RAM speed and other details**

**RAM frequency is measured in MHz and usually immediately follows the DDR version in the RAM spec. For example, 8GB DDR4-2400 RAM is running at a frequency of 2400MHz. Frequencies of RAM typically range from 800MHz in older DDR2 modules up to 6800MHz in DDR5.**

**Topic: System Unit**

• Assignment Level Basic

1. What is System Unit?

**A System unit is the part of a computer that houses the primary devices that perform operations and produce results for complex calculation . it includes the motherboard , cpu , ram and other components as well as the case in which this devices are housed .**

**The primary function of the computer system unit is to hold all the other components toghether and protece the sensitive electronic parts from the outside elements . A typical computer case is also large enough to allow for upgrades such as adding a second hard drive or a higher quality video card .**

**A central processing unit (CPU) refers to the electronic device that performs calculations. The system unit, by contrast, refers to the plastic or metal case that holds the CPU and other hardware. These components work with other parts such as memory to enable users to run programs.**

• Assignment Level Intermediate

1. How does system unit work?

**The primamry function of the computer system unit is to hold all the other components together and perfect the sensitive electronic parts from the outside elements . A typical computer case is also large enough to allow for upgrades , such as adding a second hard drive or a higher quality video card .**

**A system unit is the part of the computer that houses the primary devices that perform operations and produce results for complex calculations . It includes the motherboard , cpu , ram and other components as well as the case in which this devices are housed .**

1. **What are the components and system unity?**

**Rigidbody, Collider, Particle System, and**

**Audio** are all different components that you

can add to a GameObject..

Unity components are **functional pieces of**

**every GameObject**. If you don't understand the

relationship between components and

GameObjects, first read the GameObjects page

before going any further. To give functionality to

a GameObject, you attach different components

to it. Even your scripts are component

Every System has an IPO: **Input, Process,**

**Output**. When you look at any system, in its

simplest form, it has 3 components. It's what I'll

call IPO: Input, Process, Output.

Unity's system **standardizes the way you implement controls and also provides advanced functionality unprecedented in core solutions**. You only need to bind actions to your code logic and then you can enable different devices and controls visually in the Input Action window .

The definition of component means **one part of a whole thing**. An example of a component is the CD player in a stereo system. An example of a component is an ingredient in a recipe .

n programming and engineering disciplines, a component is **an identifiable part of a larger program or construction**. Usually, a component provides a particular function or group of related functions. In programming design, a system is divided into components that in turn are made up of modules.

• Assignment Level Advance

1. Do a practical to identify system unit

Yes , we are complete done a practical to identify system unit .

The system unit is **the box-like case that contains the electronic components of a computer**. Many people erroneously refer to this as the CPU. Here you will find devices like the power supply, different drives, the fan, the connectors, and the motherboard .

A system unit is **the part of a computer that houses the primary devices that perform operations and produce results for complex calculations**. It includes the motherboard, CPU, RAM and other components, as well as the case in which these devices are housed.

This is the unit that controls and coordinates the whole operations of the system. It monitors the transfer of data and information between the different units i.e. input devices, memory, arithmetic and logic unit (ALU) and output devices

1. **Do a practical to assemble and disassemble system unit.**

**Yes we are complete done a practical to assemble amd disassemble system unit .**

**Disassemble is formed from dis-, meaning "reversal," and assemble, "to put together."** Disassemble, then, is to take something apart, literally or figuratively: Entering the moon's orbit, the rocket was further disassembled enabling two Apollo Astronauts to explore the lunar surface.

1. Step 1: Open The Case. ...
2. Step 2: Install The Power Supply. ...
3. Step 3: Attach The Components To Motherboard. ...
4. Step 4: Install motherboard.
5. Step 5: Install internal drives.
6. Step 6: Connect all internal cables.
7. Step 7: Install motherboard power connections.
8. Step 8: Connect external cables to the computer.

Topic: BIOS

• Assignment Level Basic

1. What is bios ?

*BIOS, in full Basic Input/Output System, computer program that is typically stored in EPROM and used by the CPU to perform start-up procedures when the computer is turned on.*

*BIOS (basic input/output system) is the program a computer's microprocessor uses to start the computer system after it is powered on. It also manages data flow between the computer's operating system (OS) and attached devices, such as the hard disk, video adapter, keyboard, mouse and printer.*

*The name originates from the Basic Input/Output System used in the CP/M operating system in 1975. The BIOS originally proprietary to the IBM PC has been reverse engineered by some companies (such as Phoenix Technologies) looking to create compatible systems.*

• Assignment Level Intermediate

1. What is the full form of bios ?

*The full form of bios is basic input & output system .*

The Basic Input/Output System (BIOS) is commonly known as ; system BIOS. It is a boot firmware or a small program that controls various electronic devices attached to the main computer system .

1. **Describe working process of BIOS.**

*The full form of bios is basic input & output system .* The Basic Input/Output System (BIOS) is commonly known as ; system BIOS. It is a boot firmware or a small program that controls various electronic devices attached to the main computer system .

**BIOS identifies, configures, tests and connects computer hardware to the OS immediately after a computer is turned on. The combination of these steps is called the boot process .**

in order to access BIOS on a Windows PC, you must press your BIOS key set by your manufacturer which could be F10, F2, F12, F1, or DEL. If your PC goes through its power on self-test startup too quickly, you can also enter BIOS through Windows 10's advanced start menu recovery settings.

• Assignment Level Advance

1. Do a practical to reset bios when system is on.

Yes , we are complete done a practical to reset bios when system is on .

**Method : BIOS Menu**

1. - Restart your computer.

2 - Notice the key that you need to press at the first screen. This key opens

the BIOS menu or “setup” utility. ...

3- Find the option to reset the BIOS settings. This option is usually called any

of the following: ...

4 - Save these changes.

5 -Exit BIOS.

1. Do a practical of Hard resetting the BIOS.

Yes , we are complete done a practical of hard resetting the bios .

**How to reset the BIOS from the BIOS interface**

1. Turn on the computer.
2. Tap the F2 key several times until Entering Setup appears.
3. Reset the BIOS to factory defaults. ...
4. Press the Esc key and select Save and exit or Exit.
5. Press the Enter key to save all changes and exit the BIOS setup screen.
6. The computer restarts.

3 - Do a practical of identifying BIOS chip from the motherboard

Yes , we are complete done a practical of identifying bios chip from the motherboard .

Identifying the BIOS chip on the motherboard is simple. The exact location can easily be found using the motherboard's manual or through physical inspection. However, you must identify its make and model to replace the BIOS chip. You must read the inscription on top of the BIOS chips.

Topic: CMOS

• Assignment Level Basic

1.What is CMOS ?

A complementary metal-oxide semiconductor (CMOS) is the semiconductor technology used in most of today's integrated circuits (ICs), also known as chips or microchips. CMOS transistors are based on metal-oxide semiconductor field-effect transistor (MOSFET) technology .

A complementary metal-oxide semiconductor (CMOS) is the semiconductor technology used in most of today's integrated circuits (ICs), also known as chips or microchips. CMOS transistors are based on metal-oxide semiconductor field-effect transistor (MOSFET) technology.

CMOS (short for complementary metal-oxide-semiconductor) is the term usually used to describe the small amount of memory on a computer motherboard that stores the BIOS settings. Some of these BIOS settings include the system time and date as well as hardware settings.

• Assignment Level Intermediate

1. What is the full form of CMOS?

The full form of CMOS is Complementary Metal-Oxide-Semiconductor. CMOS is an integrated circuit built on a printed circuit board. It is a battery-powered memory chip that effortlessly holds the initialisation data. The BIOS uses this data to turn on the device, i.e., during the bootup process.

2. Describe the working process of CMOS.

**Since CMOS technology uses both N-type and P-type transistors to design logic functions, a signal which turns ON a transistor type is used to turn OFF the other transistor type.**

**CMOS works through an interplay between two transistors - an N-Channel MOSFET and the P-channel MOSFET. As soon as the N-channel MOSFET conducts, the P-channel MOSFET is simultaneously turned off and vice versa.**

CMOS Working Principle. In CMOS technology, both N-type and P-type transistors are used to design logic functions. The same signal which turns ON a transistor of one type is used to turn OFF a transistor of the other type.

• Assignment Level Advance

1. Do a practical of identifying cmos.

**Yes , we are complete a preactical of identifying cmos .**

It is used in microcontrollers, static RAM, registers, microchips and other digital circuits. CMOS technology is utilized also for a wide assortment of analog circuits, for example, image sensors, amplifiers, analog to digital converters, and transceivers for communication modules.

1. Do a practical of installing cmos

Yes , we are complete done a practical of installing cmos .

To invoke CMOS Setup on most computers, press 'F1' (AMI), 'Del' (Award), or 'F2' (Phoenix). Some BIOS manufacturers use different keys. The key that invokes your system's CMOS Setup nearly always appears on the BIOS boot screen.

1. How do we know that cmos is not working.

The CMOS battery powers your laptop's BIOS firmware, which is responsible for booting up your computer and configuring data flow. You can tell if your CMOS battery has died if your laptop has difficult booting up, if drivers disappear, and if your laptop's date and time are incorrect..

Now, the fastest way to test your CMOS battery is by checking its voltage with a digital multimeter. To do that, though, you'd have to open your PC's case and remove the battery, and you'd need to own a digital multimeter.

A failed CMOS battery will cause the following problems: The computer will give an incorrect date and time. BIOS passwords will be reset. Some drivers may be missing or may not work properly.

Topic: Boot process

• Assignment Level Basic

1.What is Boot Process?

Booting is basically the process of starting the computer. When the CPU is first switched on it has nothing inside the Memory. In order to start the Computer, load the Operating System into the Main Memory and then Computer is ready to take commands from the User.

In computing, booting is the process of starting a computer as initiated via hardware such as a button or by a software command. After it is switched on, a computer's central processing unit (CPU) has no software in its main memory, so some process must load software into memory before it can be executed.

Booting is the process of loading an operating system. It's the process that starts when we turn on the computer (using the power button or by a software command) and ends when the operating system is loaded into the memory.

• Assignment Level Intermediate

1. What is the first process of boot ?

**i**n computing, booting is the process of starting a computer as initiated via hardware such as a button or by a software command. After it is switched on, a computer's central processing unit (CPU) has no software in its main memory, so some process must load software into memory before it can be executed.

It is the process when we first start the computer. In other words, when the computer is started from its initial state by pressing the power button it is called cold boot. The instructions are read from the ROM and the operating system is loaded in the main memory.

It is a process of switching on the computer and starting the operating system. Six steps of the booting process are BIOS and Setup Program, The Power- On-Self-Test (POST), The Operating system Loads, System Configuration, System Utility Loads and Users Authentication.

2. What is the final stage in the boot process?

Booting is the process of loading an operating system. It's the process that starts when we turn on the computer (using the power button or by a software command) and ends when the operating system is loaded into the memory.

**Steps of Booting**

* The Startup. It is the first step that involves switching the power ON. ...
* BIOS: Power On Self Test. It is an initial test performed by the BIOS. ...
* Loading of OS. In this step, the operating system is loaded into the main memory. ...
* Loading System Utilities

Once the kernel has extracted itself, it loads systemd, which is the replacement for the old SysV init program, and turns control over to it. This is the end of the boot process.

1. Describe the boot process in Linux?

Booting a Linux installation involves multiple stages and software components, including firmware initialization, execution of a boot loader, loading and startup of a Linux kernel image, and execution of various startup scripts and daemons.

**Stages of Linux Boot Process:**

* The machine's BIOS (Basic Input/Output System) or boot microcode hundreds and runs a boot loader.
* Boot loader finds the kernel image on the disk and loads it into memory, to start the system.
* The kernel initializes the devices and their drivers.
* The kernel mounts the basis filesystem.

• Assignment Level Advance

1Describe about working with the grub bootloader.

GRUB.

GRUB stands for GRand Unified Bootloader. Its function is to take over from BIOS at boot time, load itself, load the Linux kernel into memory, and then turn over execution to the kernel. Once the kernel takes over, GRUB has done its job and it is no longer needed.

Bootloaders.

A bootloaders is used as a separate program in the program memory that executes when a new application needs to be reloaded into the rest of program memory. The bootloader will use a serial port, USB port, or some other means to load the application

The GNU GRand Unified Boot loader (GRUB) is a program which enables the selection of the installed operating system or kernel to be loaded at system boot time. It also allows the user to pass arguments to the kernel.

The Role of GRUB

Once you select the operating system to boot into, GRUB will load the selected kernel. GRUB uses kernel parameters to know where the kernel is located and other important parameters to use. initrd: Used for specifying the initial RAM disk.

BOOT\_IMAGE: The location of the Linux kernel image.

2Describe working process of boot loader.

A bootloader helps to load the operating system or runtime environment to add programs to memory and provide access for components. It is needed to run the startup process, initialize the hardware, and pass control to the kernel, which initializes the operating system.

The bootstrap loader reads the hard drives boot sector to continue to load the computer's operating system. The term bootstrap comes from the old phrase "Pull yourself up by your bootstraps." When the computer is turned on or restarted, the bootstrap loader first performs the power-on self-test, also known as POST.

Bootloaders serve as a mediator between hardware and the operating system. As soon as a bootloader has been initialized by the respective firmware, it has system responsibility to get the boot process going. The first task is to load the main memory, which is essential for the processor to work.