**Chapter: 1**

**1. What is HDD and what are its three critical components?**

**Hard disk drive****(HDD)** systems are used for permanent storage and quick access.

The hard disk drive system contains three critical components:

**Controller**

**Hard disk**

**Host adapter**

**2. What is blue ray disk and what is its capability of holding data?**

**Blu-ray disc (BD)** is a newer optical disc format that holds more information than a standard DVD.

A single-sided, single-layer Blu-ray disk is capable of holding 25 GB of information.

**3. Write down the difference between cold swappable and hot swappable device?**

**Hot-swappable** device is a device that can be inserted and removed without removing power from the host component.

**Cold-swappable** devices must have the system power off before you can insert or remove them.

**4. What is power supply and write its 5 types of voltage state?**

**Power supply** is a component that converts an external power source to the power required by the other components of the system it powers.

**5 types of voltage state:** +3.3VDC, +5VDC, –5VDC, +12VDC, and –12VDC.

**5. What is different between SATA and MOLEX power connector?**

**SATA drives** have their own power requirements, in addition to their new data interfaces. We get the 15-pin SATA power connector. This connector is made up of three each of +3.3V, +5V, and +12V leads, as well as five ground leads.

**Molex connector** is the larger power connector that most often provides power to hard disk drives and other devices that require more current to power their motors than offered by a Berg connector.

**6. What is barcode reader / barcode scanner?**

**Barcode reader** is an often handheld unit that scans barcodes into a computer, replacing the need for a user to type the data in by hand.

**7. What is KVM switch?**

**KVM switch** is a device that switches a single keyboard/video/mouse set among multiple computer systems.

**8. What is I/O?**

I/O cardis often a catchall phrase for any adapter card that expands the system to interface with devices that offer input to the system, output from the system, or both. Common examples of I/O are the classic serial and parallel ports.

**9. What are Touch screens?**

Touch screen technology converts stimuli of some sort, which are generated by actually touching the screen, to electrical impulses that travel over serial connections to the computer system. This technology can also be seen in PDAs, point-of-sale venues for such things as PIN entry and signature capture, handheld and bar-mounted games, ATMs, remote controls, appliances, and vehicles.

**10. What are biometric devices?**

**Biometric device** is any device that scans a unique human trait, such as fingerprints or voice, in order to authenticate the identity of the user.

**1. What is motherboard?**

The spine of the computer is the *motherboard*, otherwise known as the system board. **Motherboard** is the main system board on which the primary components of the computer, such as the CPU and RAM.

**2. What is chipset?**

**Chipset** is commonly one or two integrated circuits comprising Northbridge and Southbridge functionality, allowing the CPU to communicate with I/O components of various speeds and capabilities.

**4. What is cache?**

Cache is a very fast chip memory that is used to hold data and instructions that are most likely to be requested next by the CPU.

**5. Write 4 port and slot name and their respective device name?**

|  |  |
| --- | --- |
| **Port name/ Slot name** | **Device** |
| AGP / AGP | Monitor |
| Parallel / PCI | Printer |
| USB or PS/2 / PCI | Mouse/ Key board |
| RJ45 / PCI | Ethernet / NIC Card |

**6. What is CPU?**

**CPU (Central Processing Unit)** is the main integrated circuit of a computer system that interfaces with almost all other components and runs application and system processes. Intel and AMD are the most common CPU manufacturers for PC.

**7. Write down the types of system board and elaborate them?**

There are two major types of system boards:

Nonintegrated system board

Integrated system board

System boards are also classified by their form factor or design. They are:

**ATX:** Advanced Technology Extended

**Micro ATX:** Micro Advanced Technology Extended

**BTX:** Balanced Technology Extended

**NLX:** New Low-Profile Extended

**8. Write the components of motherboard?**

The following components are found on a typical motherboard:

Chipsets, Expansion slots, Memory slots, Processor sockets, Power connectors, Onboard disk drive connectors, Keyboard connectors, Peripheral ports and connectors, BIOS, CMOS battery, Jumpers and DIP switches.

**9. What is BIOS?**

**BIOS (Basic Input-Output System)** is the firmware embedded in a ROM chip that is responsible for running POST, booting the system, and presenting an interface for its own configuration.

**10. What is POST?**

**POST (Power-On Self-Test)** is a series of system checks performed by the system BIOS.

**11. What is CMOS?**

**CMOS (Complementary Metal Oxide Semiconductor)** memoryis the extremely small storage space that holds user settings and dynamically discovered parameters for the BIOS.

**12. Write difference between SRAM and DRAM.**

**SRAM** is a faster type of volatile memory that does not require a periodic refresh and is commonly used for cache memory.

**DRAM** is a volatile memory that requires a periodic refresh signal to keep its contents.

**13. What is Integrated and non integrated motherboard?**

**Integrated system board** or motherboard is a motherboard that has I/O interfaces and their circuitry built in.

**Nonintegrated system board** or motherboardis a motherboard that has no I/O interfaces built in, except for a keyboard and possibly mouse interfaces.

**14. Describe ECC & SODIMM.**

**ECC (Error Checking and Correction)** is an error-checking scheme that is able to discover one or two bits in a byte that contain errors, and correct single-bit errors.

**SODIMM** is a small-form factor memory module based on DIMM principles and designed for the mobile computing sector.

**15. Describe L1 Cache and L2 Cache of processor.**

**L1 Cache** is acache memory that is built into the processor die (the CPU’s silicon wafer).

**L2 Cache** is acache memory that can be collocated with the CPU in the same packaging or placed on

the motherboard. L2 cache is not built into the processor die.

**17. Describe SDRAM.**

**SDRAM** is a form of DRAM that is synchronized to the system clock. Varieties include DDR, DDR2, DDR3.

**18. Describe DDR3.**

**DDR3** is a type of SDRAM that uses both edges of each FSB clock cycle, transferring four bits per edge.

**19. Write 5 device name can be install inside mother board with relevant slot name.**

Central Processing Unit (CPU)

Random Access Memory (RAM)

Expansion slots

Video components

CMOS Battery

**20. Write 5 device name can be installing outside mother board with relevant port name.**

**21. Describe L3 Cache of processor.**

**L3 Cache** is a cache memory on the motherboard. L3 cache is the new name, in such a situation, for what used to be termed L2 cache.

**22. Just write the meaning of DIP, SIPP, DIMM, RIMM, SODIMM.**

**DIP:** Dual Inline Package

**DIMM:** Dual Inline Memory Module

**RIMM:** Rambus Inline Memory Module

**SODIMM:** Small Outline Dual Inline Memory Module

**23. Describe Multicore.**

**Multicore** is one kind of CPU technology that places multiple processor dies in the same packaging,

**Chapter -3**

**1. What is Pixel?**

In [digital imaging](http://en.wikipedia.org/wiki/Digital_imaging), a **pixel** or **pel** (**picture element**) is a physical point in a [raster image](http://en.wikipedia.org/wiki/Raster_graphics), or the smallest addressable element in a [display device](http://en.wikipedia.org/wiki/Display_device); so it is the smallest controllable element of a picture represented on the screen.

**2. What is resolution?**

**Resolution**is defined by how many software picture elements (pixels) are used to draw the screen. The resolution is described in terms of the visible image’s dimensions, which indicate how many rows and columns of pixels are used to draw the screen. For example, a resolution of 1,024×768 means 1,024 pixels across (columns) and 768 pixels down (rows) were used to draw the pixel matrix.

**3. Describe two major types of LCD Display.**

Two major types of LCD displays have been implemented over the years: **active-matrix** screens and **passive-matrix** screens.

**4. Describe Active and passive matrix.**

**Active matrix:** An active-matrix screen works in a similar manner to the LCD watch. The screen is made up of several individual LCD pixels. A transistor behind each pixel, when switched on, activates two electrodes that align the crystals and alter the passage of light at that location. This type of display is very crisp and easy to look at and does not require constant refreshing to maintain an image.

**Passive matrix:** Within the passive-matrix screen are two rows of transistors.

**5. Describe contrast ratio.**

The **contrast ratio**is the measure of the ratio of the luminance of the brightest color. Ratios for smaller LCD monitors and televisions typically start out around 500:1. Common ratios for larger units range from 20,000:1 to 100,000:1.

**6. Describe native resolution.**

**Native resolution:** One of the peculiarities of desktop LCD displays is that they have a single fixed resolution, known as the **native resolution**. The native resolution comes from the placement of the transistors in the hardware display matrix of the monitor. For a native resolution of 1680×1050, for example, there are 1,764,000 transistors arranged in a grid of 1680 columns and 1050 rows.

Sample Question (Alamgir Sir )

Q1.Write down motherboard component name.

Ans: There are many components in a motherboard such as central processing unit (CPU), underlying circuitry, expansion slots, video components, random, access memory (RAM) slots, and a variety of other chips, power connector, BIOS/ firmware, CMOS battery, jumpers and DIP switches, Front panel connectors etc.

Q 2. What is chipsets ?

Ans: A chipset is a collection of chips or circuits that perform interface peripheral functions for the processor. The functions of chipsets can be divided into two functional groups, called Northbridge and Southbridge.

Q 3. What is virtual memory ?

Ans: **Virtual memory** is a feature of an operating system that allows a computer to compensate for shortages of physical **memory** by temporarily transferring pages of data from random access **memory**(RAM) to disk storage.

OR When we use the hard drive as an additional RAM by a swap file or a paging file the technology in general is known as virtual memory.

Q.4.What is cache memory ?

Ans: The **cache** is a smaller, faster **memory** which stores copies of the data from frequently used main **memory** locations.

Q.5. What is L1 & L2 cache?

Ans: Level 1 or L1 cache is internal cache because it is built into the processor’s silicon wafer. On the other hand Level 2 or L2 cache is external cache because it is external to the processor. For example L1- 64KB L2- 256 KB

Q.6. Describe CPU & Processor

Ans: CPU:- CPU stands for Central Processing Unit.It is the main integrated circuit of a system unit that is interfaces with almost other components and runs application and system processes.

Processor :- Processor is a silicon chip that contains a CPU.

Q.7. Write down peripheral port with device name

Ans:- A **computer's** [**peripheral ports**](file:///C:\Users\User\AppData\Local\Temp\Temp4_A+.zip\A+\ports02.jpg)are the **physical connectors** found outside the **computer**. Cables of various types are designed to plug into these ports.

Some peripheral ports are as follows : PS/2 Keyboard connector, PS/2 Mouse connector, serial port, parallel port, VGA port, Audio out jack, Line in jack, Game MIDI port, microphone jack, USB 2.0 Port, Ethernet LAN port etc.

Q.8. What is BIOS and POST ?

Ans:- BIOS (Basic Input Output System) is the firmware embedded in a ROM chip that is responsible for running POST, booting the system, and presenting an interface for its own configuration.

POST:- POST (Power On Self Test) is a series of system cheeks performed by the system BIOS.

Q.9. What is CMOS ?

Ans:- CMOS ( Complementary Metal Oxide Semiconductor ) memory is the extremely small storage space that holds users settings and dynamically discovered parameters for the BIOS.

Q.10.What is firmware ?

Ans:- Firmware is the name given to any software that is encoded in hardware, usually a read only memory (ROM) chip, and can be run without extra instructions from the opening system. The example of firmware is BIOS routine, which is burn in to a chip.

Q.11.What is parity checking and Error checking and correcting ?

Ans:- Parity checking is a rudimentary(প্রাথমিক)error-checking scheme that offers no error correction.

OR Parity check is a simple method of checking for errors in a communications system

Error checking and correcting (EEC) allows data that is being read or transmitted to be checked for errors and, when necessary

Q.12. Deference between RAM & ROM

Ans:- RAM:- RAM (random access memory) is a memory of a computer where the operating system, application programs, and data in current use are kept so that they can be quickly reached by the computer's processor.

ROM:- ROM is "built-in" computer memory containing data that normally can only be read, not written to.

Q.13. What is storage device and HDD, SSD ?

Ans:- Srorage device:- Where we store our data for further use is called storage device.

HDD: In HDD (Hard Disk Drive) we can store our data permanently.

SSD :-[**SSD**](file:///C:\Users\User\AppData\Local\Temp\Temp4_A+.zip\A+\solid-state-device.jpg) **(Solid-State Drives) is a memory which have no moving parts but use the same solid-state memory technology found in the other forms of flash memory.**

Q.14.What is Hot swappable devices ?

Ans:- Which devices we can insert and remove with the system powered on are called Hot-swappable devices.

OR A hot swap is the replacement of a hard drive, CD-ROM drive, power supply, or other device with a similar device while the computer system using it remains in operation.

Q.15. What is power supply?

Ans:- A **power supply** is an electronic device that supplies electric. A **power supply** unit (PSU) converts mains AC to low-voltage regulated DC power for the internal components of a computer.

Q.16. Define Barcode, Biometric devices?

Ans:- Barcode:- A **barcode** is an optical machine-readable representation of data relating to the object to which it is attached.

Biometric:- In information technology, **biometrics** refers to technologies that measure and analyze human body characteristics, such as DNA, fingerprints, eye retinas and irises, voice patterns, facial patterns and hand measurements, for authentication purposes.

Q.17.Write down Electro photographic (EP) Print process?

Ans:-