Lab#4

**Question 1: Explain the following types of memory:**

**Cache Memory:**

Cache memory is used to store the frequently used instructions sent to the computer for the CPU to process quickly. Cached can be destroyed or deleted by the user or by the system itself.

**Magnetic Disk:**

A magnetic disk uses magnetization process for the storage, access and rewrite of data. Magnetic materials such as iron oxide are used in these disks.

**Hard Disk Drive:**

HDD is a storage device used in computers to store, access and rewrite data. The concept of Hard Disk is just like Magnetic Disk where data is stored using the magnetization process. It consists of a spinning disk for reading data. HDDs are legacy storage because they have been used for a long time. The average read and write speed of HDDs vary from 80-160MB/s.

**Solid State Drive:**

A Solid State Drive, unlike HDD, is built using an integrated circuit instead of a spinning disk and magnets. Data is stored using the assembly of the integrated circuit using flash memory. SSDs are used as secondary storage in hierarchy computer storage. The average read and write speed of SSDs vary from 500-550MB/s.

**Floppy Disk:**

Floppy disks were the one of the earliest storage devices. A floppy disk was composed of flexible thin magnetic storage enclosed with square or nearly square plastic coating which was lined with a fabric to remove dust particles. Floppy disk were able to store data of size 800 KB-2.8 MB.

**Question 2) List down and explain 5 different examples of Input and Output devices.**

# **Input Devices:**

**Keyboard:** The type of input device used to input data of letters or numeric. The keyboard consist of 104-108 keys.

**Mouse:** A mouse is a cursor controlling device which is the size of a palm and a ball on its base to sense the movement of the cursor. When the corresponding buttons are pressed, appropriate commands are sent to the CPU to provide the output. A mouse consist of a right and left button with a wheel in the middle of both the buttons used for scrolling.

**Joy Stick:** A joystick acts like a mouse to move the pointer displayed on the monitor. A joystick consist of a stick with a spherical ball on top of the stick. The joystick can be moves in all the direction. The main purpose of the joystick is to play computer games.

**Scanner:** The scanner is an input device that works more like a copier. It is used when some of the information is on paper and must be transferred to the computer's hard drive for further processing. The scanner captures images from the source, which are then converted into a digital format that can be stored on disk. These images can be edited before printing.

**Microphone:** A microphone is a device used to input sounds takes form the user or surrounding and convert it into electrical signals for the computer to read. Microphone is basically used for the recording of audio.

**OUTPUT:**

**Monitor:** A monitor is used to display data from a computer in a digitalized way. A monitor consist of a screen, circuit, a power supply and buttons to change the screen settings.

**Printer:** The main function of the printer is to convert soft copy into hard copy. A document written using a computer in PDF or Doc.x form is converted into hardcopy using a printer where the printer takes the electronic data and in output provides a hard copy.

**Headphones:** The main function of headphones is to allow the user to listen to audio which was outputted by the computer. The audio is listened without disrupting other people in the surrounding.

**Projector:** The function of a projector is to display the image of the computer screen on a wall.

**Video Card:** The Video card is installed on the motherboard where it receives data as input ad processes the image, data or movies and displays them on the monitor.

**Artificial Intelligence**

The development of computer systems where computers are able to solve problems when the user provides the computer a problem using speech or visual perception. The main purpose of artificial intelligence is to make computers think like humans. Artificial intelligence is powered by machine learning. Artificial intelligence is a field which combines computer science and robust data to enable problem solving. The idea of artificial intelligence is to create smart machines and intelligent computers. Currently, artificial intelligence is used to provide personalized or recommendations to humans. The ads we receive on YouTube or Facebook is all work of AI where our recommendations are stored and showed to us. Artificial intelligence works on machine learning where it identifies problem and follows previous patterns to solve it. AI also uses deep learning where it uses the input and output and determines the solution itself. AI works also on computer vision where it takes an image and breaks it down pixel by pixel and provides and output. An example of computer vision AI is Google image. AI works on natural learning process which is another machine language where the AI uses the science of reading to communicate with the user and understands what the user is trying to say and provides the solution to his or her problem.