

Q. Write a short note on Artificial Intelligence - 2016 (5) (3a - Question Number).

Ans:

ARTIFICIAL INTELLIGENCE:

i) Definition of AI:

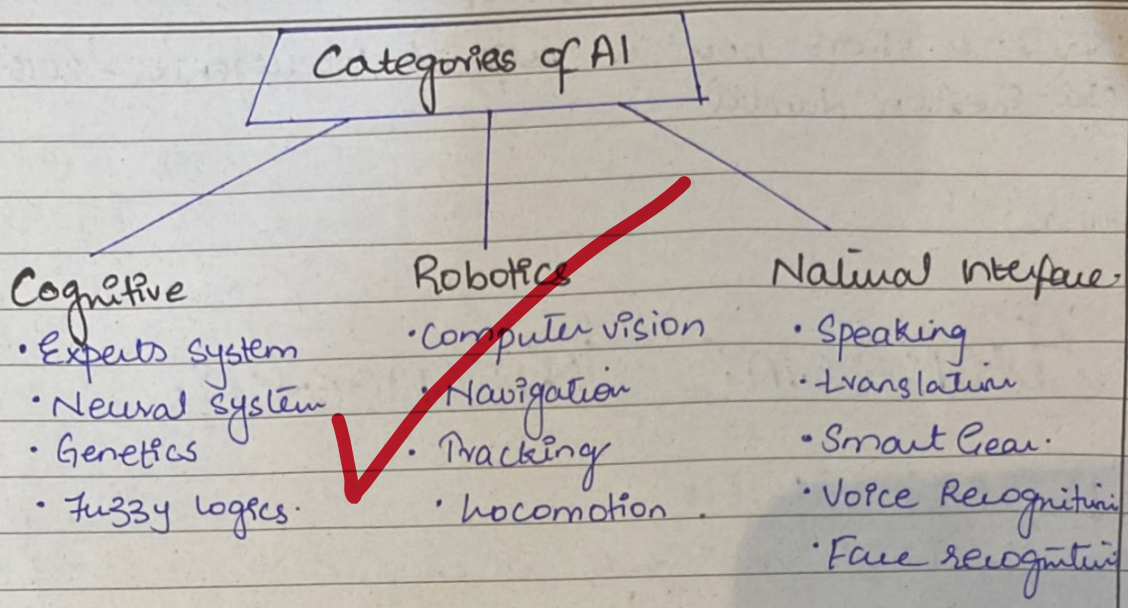
Artificial Intelligence is defined as the study and engineering of intelligent machines capable of performing such functions that characterize human thought process.

ii) Scientist who termed AI:

John McCarthy, coined the term of Artificial Intelligence in 1956 and defined it as, 'The science and engineering of making intelligent machines'. The term intelligent machines relate to the enhanced thinking process and high level creativity, problem solving, logic building and etc.

iii) Categories of AI:

AI, can be divided into three broader categories. The functionality of each category might overlap. The cognitive science, Robotics and natural interface.



iv) Involvement of AI in daily lives:

AI, is involved in the daily lives of people from management, scheduling to communication. It has made lives of individuals relatively easier by counselling. ChatGPT, launched in 2023, took the internet with a boom as first AI application to chat with the capabilities like humans also helping the users to learn new skills and excel.

discuss this part in a bit more detail.

Q. Differentiate between RAM and ROM. (5).

MEMORY SYSTEM:

RAM and ROM both are part of internal, primary memory system but the functionality and purpose of RAM and ROM varies.

DIFFERENCE BETWEEN RAM and ROM:

RAM	ROM
① Random Access Memory	① Read Only Memory.
② Volatile in nature.	② Non-Volatile in nature.
③ Non-Static	③ Static.
④ Short-term	④ Long term.
⑤ The user works or saves is done in RAM, fetches from hard disk.	⑤ For system. Used to boot system at the time of initializing from BIOS.

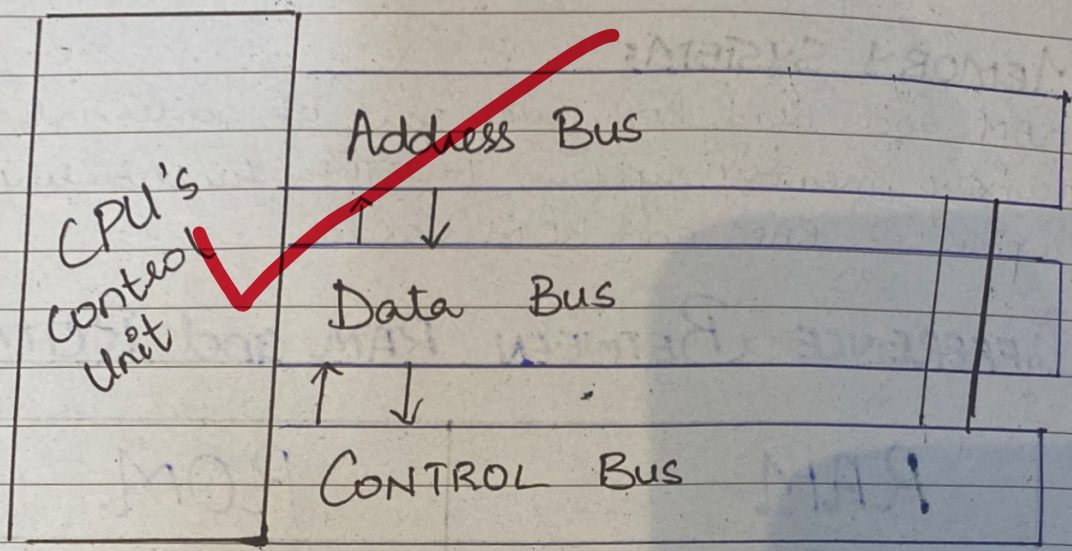
use full sentences in the differences, not phrases,

Q. Name three basic buses employed in a computer and explain what each is used for? (5).

What are buses?

Buses are essential component of a computer system that transfer or carry information (data or any) from one component to the other. The three basic buses are mainly: Address bus, Data bus,

Control Bus.



i) Address Bus:

The purpose of the address bus is to carry the location from where to fetch the data or write the data. It carries the address where the data is kept or placed or where it has to be placed or saved.

ii) DATA BUS:

As the name suggests it carries the data and information. Either to or from that location suggested by the address bus.

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iii) CONTROL BUS:

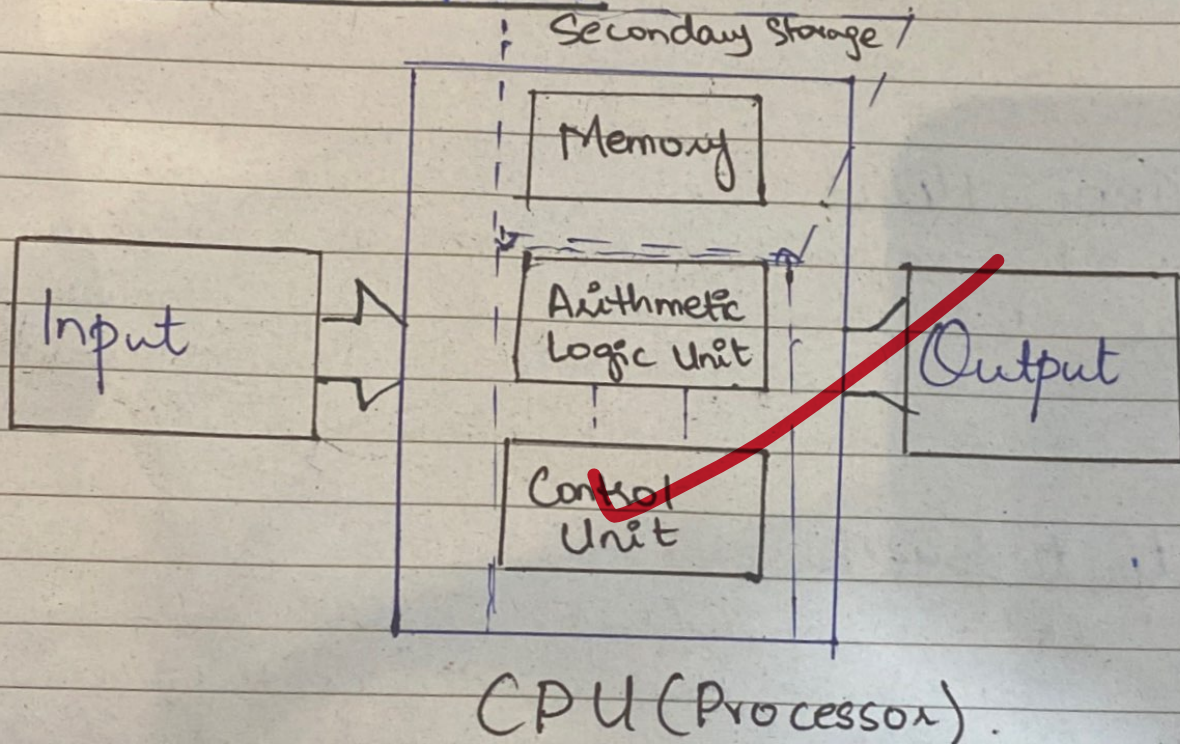
Closest to the CPU, synchronizes the entire system. It is the job of the control bus to cater and sync the system and processes which occur in the system.

Q. Draw a basic computer block diagram and briefly explain the function of each part.

Basic functionality of a Computer:

The basic purpose and task of a computer is based on three main categories or principles: Input, Process, Output.

BLOCK DIAGRAM:



a) Input:

There are devices known as input devices that input information. These are mainly keyboard, mouse.

b) CPU (Processor):

It is known as the brain of the computer. This is where the processing takes place.

i) STORAGE Systems:

Comprises of primary and secondary storage system. The primary contains RAM and ROM where as the secondary contains Hard disk, SSD or other external such as USB, Floppy disk. It is for memory purpose to store and retrieve data.

ii) ARITHMETIC LOGICAL UNIT:

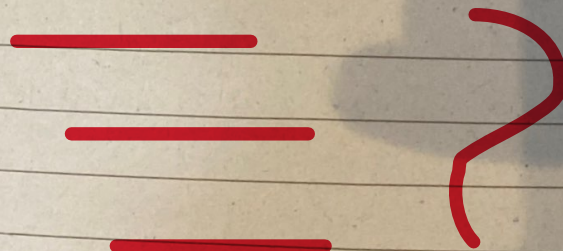
This is where the operations mainly mathematical calculations and logical operations such as +, -, true, false or others take place.

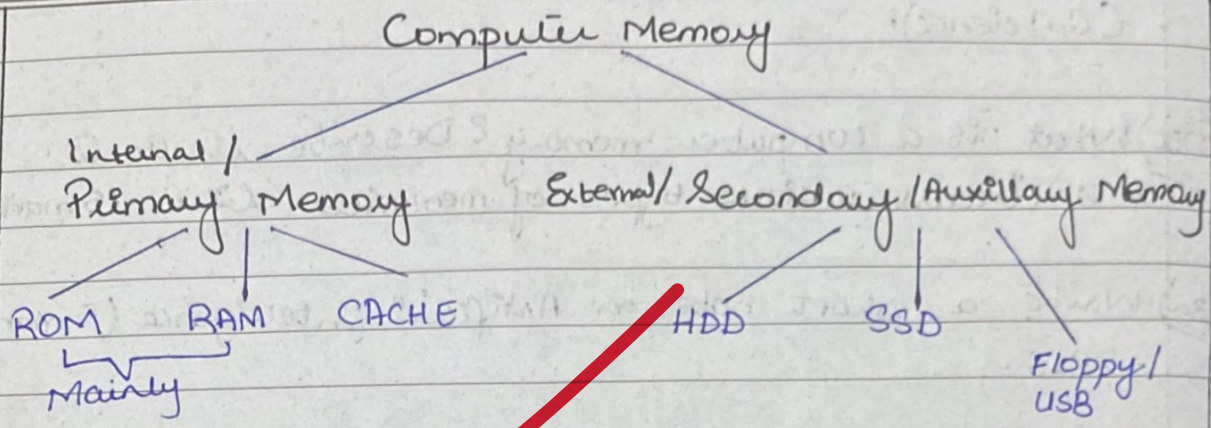
iii) CONTROL UNIT:

Main component of the system. As it brings the data controls it and sequences it also displays or gives out to the output system. It is connected to the and is closer to the peripheral devices.

iv) Output System:

It gives or displays the data after processing. Hence, they require hardware devices to function or fulfill task such as Monitor, printer and others which show the output after process is complete.





Primary Memory:

1) Read Only Memory:

Read Only Memory is only for the system and is non-volatile. It is static and is used in Basic Input/Output System (BIOS). It is to boot the computer program and to initialize computer system when turned on.

2) Random Access Memory (RAM):

It is another type of primary memory known as RAM and is volatile. It is in the system and retrieves data from hard disk to RAM when a person or an organization functions.

3) CACHE:

The closest memory to the CPU. The main purpose of Cache memory is to speed up the process and the data which is used time and again settles in the cache and then brought to the user from there.

External / Secondary / Auxillary Memory:

Hard Disk Drive:

The Hard disk is the external spacious memory on mother board. It is non-volatile but if damaged



Q) What is a computer memory? Describe its units and explain various types of memories.

Ans:

→ Computer memory:

In simple terms, it is the data stored in a computer system for retrieval and processing.

Units of computer memory:

The units of computer memory are bits represented as 0 or 1 the binary digits.

0 1

∨

Basic binary digits,
in the form computer
memory

It functions as 'on' or 'off'. The collection of eight bits is known as a 'byte'. The byte contains of around 256 combinations and is enough for the computer to store good amount of data such as long characters, small and capital also the special characters. For e.g. in a computer memory $a = 00000001$.

Types of memories:

The computer memory is majorly divided into two main broader categories.

data cannot be retrieved. All the data is stored in hard disk.

SSD:

Expensive but very efficient, speedy and another important component of Memory systems. static Solid drive is an external memory type.

Without an efficient computer's memory systems, there is no point of having a computer. The base of a good computer is set by its memory which determines every functionality. Such as if a computer is unable to store data, it would not be of any purpose to the user.

discuss this answer in a bit more detail. and try to cover all the asked perspectives.