Question#02

(a)

What are computer buses? Explain CPU as brain of computer.

Answer

Definition:

Computer buses are basically communication pathways that allow different components of a computer to talk or to connect to each other.

Role of Computer Buses:

The bus is basically a common channel and it is used to provide communication between the major components that are; memory, CPU and Input/Out system. They transfer data, addresses, and control signals between the various parts of the computer.

Types of Computer Buses
- Address Bus
- Data Bus
- Control Bus

System of Buses

CPU   Memory   Input/out

Main Processor

Control Bus

Address Bus

Data Bus (Bi-directional)
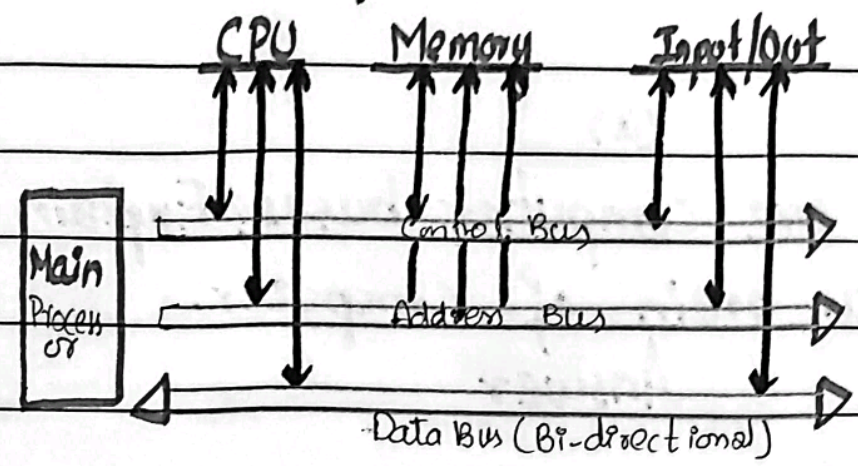
Address Bus

It carries the address from the process and then pass it to the other components like memory, or input/out. It finds the location of the data through specific address. It is unidirectional, as it only recieves information in form of address.

Data Bus

It is bi-directional, as it carry information from the main processor and it can store and give the data. It can give information to the CPU and also takes the information. So, data bus is working in doble directions.

Control Bus

The basic function of the control bus is to carry information from processor, but it controls the execution of different functions at a time. Like, which task has to be performed either to carry data from address bus, or supplying data to memory. It control the whole processes.
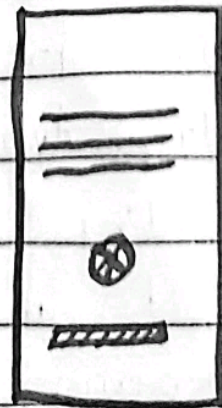
CPU as brain of computer:

Definition:

CPU stands for central processing unit that is also called as the processor which is the main part of computer. It processes data given by user and produce output.

Why CPU as brain of computer?

The CPU is often referred to as the "brain" of the computer because

it performs the majority of the processing task. As human body's activities, actions and thoughts are control and coordinate through brain, CPU handles calculations executes instructions, and manage data in a computer. It is like the command centre that helps the computer think and make decisions.

(b)

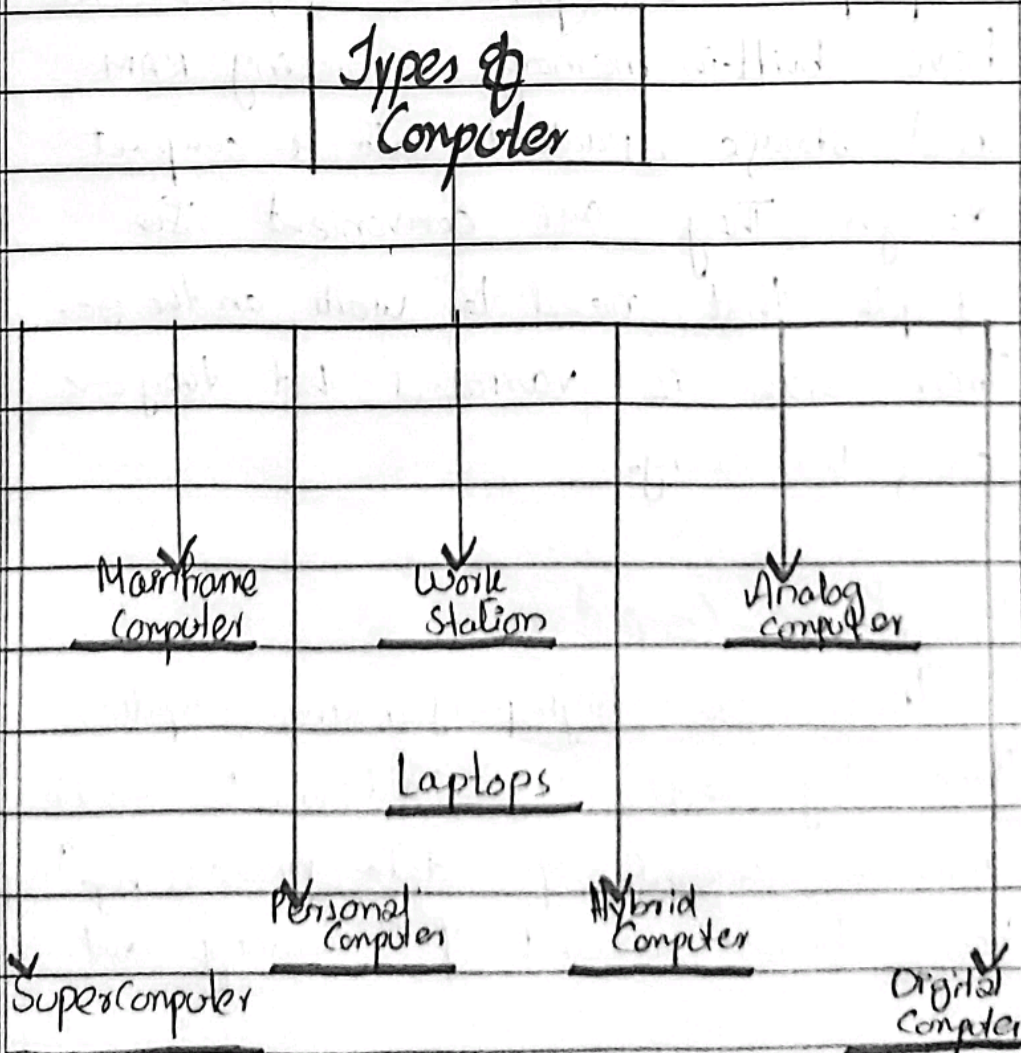**Describe various types of computers classified on the basis of size, memory, capacity, and speed?**

Answer

Definition:

A computer is an electronic device for storing and processing data, typically in binary form, according to the instructions given to it in a various variable program.

Types of Computer

There are various types of the computer on the basis of size, memory, capacity and speed. For example, the early computer or the oldest computers were big in size and storage space is less. Now, with the advancements, the types have developed.

	Types of Computer	

Mainframe Computer   Work Station   Analog computer

Laptops

Personal Computer   Hybrid Computer

Super Computer   Digital Computer

Personal Computers:

These are the most common type of computers that are present in home and offices. They typically have a combination of RAM for temporay storage and a hard drive or solid-state drive for a long-term storage.

Laptops:

Laptops are portable computer that have built-in memory, including RAM and storage, packed into a compact design. They are convenient for people that need to work on the go. Their size is variated but thay are eary to carry.

Mainframe Computers:

These are high-performance computers used by large organisations to handle massive amounts of data processing. Thay have huge amount of memory and

can carry multiple processes simultaneously.

Super Computers:

These computer vary due to their largest and powerful status. They are called super computer because they perform the complex scientific calculation and simulations. They are usually housed in large data centre and require a lot of space.

Work station:

Work stations vary on the basis of their size. They are powerful machines designed for professional use, such as graphic designing, video editing, and engineering. They are larger than desktop computer and often come with additional features like multiple monitors.
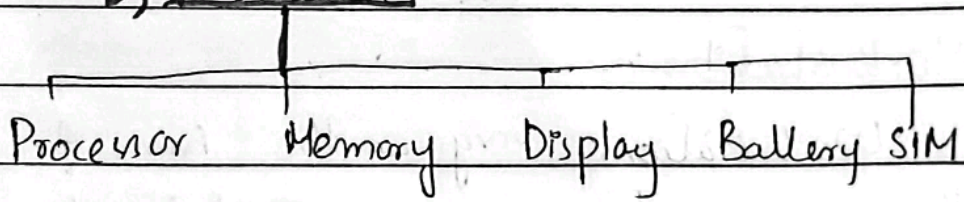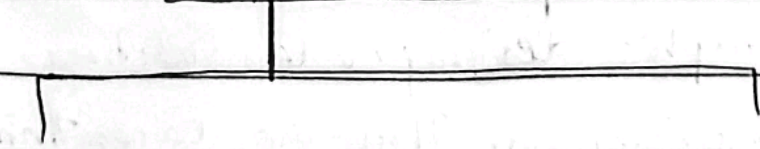
(C)

How does a mobile phone work?

Answer

Mobile phones also known as cell phones or smart phones work through a combination of hardware and software components.

Chain of tasks in mobile working

1) | Hardware |

Processor   Memory   Display   Battery   SIM

2) | Software |

Internal applications

3) | Connectivity |

Mobile phones have various hardware components like processor

memory, cpu. these main coordinately work and give out on display but it the SIM to get the corrections. The combination of hardware and software collectively work to work the mobile phone.

(d)

What is artificial intelligence and is it ponible for artificial intelligence to outsmart humans.

Answer

Definition:

Artificial intelligence is a method of making a computer, a computer-controlled robot, or a software that think intelligently like the human mind. It is accomplished by studying the patterns of the human brain and by analyzing the cognitive process. The outcome of these studies develops intelligent software and system.

Can AI outsmart humans?

AI is basically a tool which has been created by humans, for the benefits of humans. It can multiply the benefits of humans, and can be efficient in different ways but can not outsmart humans.

AI lacks emotional intelligence

The emotional intelligence means the thoughts that are only present in humans.

AI can only trace that data which is already stored in it.

The stored data in AI is restricted to the certain point.

AI is human made tool.

At the end, AI is a man-made

Question#1

(a)

Data:

winning % = 60%

lost matches = 24

To find = no. of matches

Solution:

Let

no. of matches played = x

$(100 - 60)\%$ of $x = 24$

40% of $x = 24$

$$\frac{240(x)}{100} = 24$$

$$\frac{2x}{5} = 24$$

$$x = \frac{24 \times 5}{2}$$

$$x = 60$$

$$\boxed{\text{No of matches} = 60}$$

(b)

Data:

person = 30, 80

sugar = 40kg, 320kg.

days = 10 days

To find = ?

How many days 80 persons will use 320 kg of sugar.

Sol:-

Person	Sugar	Days
30 ↓	40 ↑	10 ↑
80 ↓	320 ↑	x ↑

$$\frac{x}{10} = \frac{\overset{8}{\cancel{32\emptyset}}}{\underset{\cancel{2}}{\cancel{4\emptyset}}} \times \frac{\overset{}{3\cancel{\emptyset}}}{\cancel{\emptyset}}$$

$$\frac{x}{10} = 3$$

$$x = 10 \times 3$$

$$x = 30$$

$$\boxed{Day = 30}$$

(C)

Data:

total = 370$

2nd part = $\frac{1}{4}$ third part

ratio of 3rd and 1st part = 3:5

To find

Each part

Sol:-

let the parts are, a, b, c

Now

$b = \frac{1}{4} c$ ——①

As already know a:c = 3:5

$\frac{a}{c} = \frac{3}{5}$

Put the value of c in eq ①

$b = \frac{1}{4}(5)$

$b = \frac{5}{4}$

∵ a + b + c = 370

Put values in it

$$a + b + c = 370$$

$$3 + \frac{5}{4} + \frac{5}{1} = 370$$
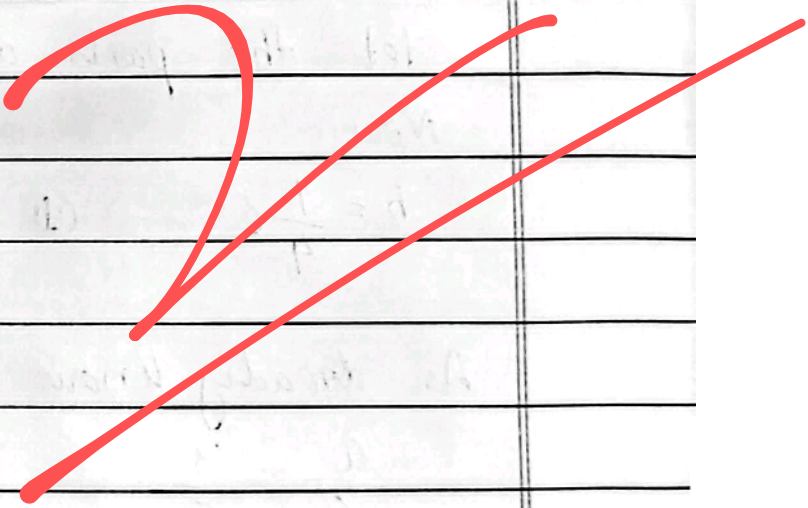
$$\frac{12 + 5 + 20}{4} = 370$$

$$\frac{37}{4} = 370$$

$$\frac{11}{2} = 370$$

$$\frac{37 a \times 12}{}$$

$$\frac{37}{4} = 370$$

$$4 = \frac{370}{370}$$

$$2$$

(d)

Data

$$\text{no. of } 6 \text{ avg} = 20$$
$$\text{no. of } 5 \text{ avg} = 15$$

To find

The no. which is removed

Solution:

0 0

$$\text{Avg} = \frac{\text{Sum of no.}}{\text{Total no.}}$$

$$20 = \frac{a+b+c+d+e+f}{6}$$

$$120 = a+b+c+d+e+f$$

Suppose 'a' removed

$$15 = \frac{b+c+d+e+f}{5}$$

$$75 = b+c+d+e+f$$

$$120 - 75 = 45$$

$$\boxed{\text{Ans} = 45}$$