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Batch 001

DATE: / /

Q#1:

a) Total matches ^{won} = $n = 60$

lost matches = 24

Draw matches = 0

Total matches = $(100 - 60)\%$ of n

$\Rightarrow 40\%$ of $n = 24$

$$\frac{40}{100} \times n = 24$$

$$\frac{4}{10} n = 24$$

$$4n = 240$$

$$n = \frac{240}{4}$$

4

$$n = 60$$

b)

Persons	weight	Days
30	40	10
80	320	x

$$\frac{n}{10} = \frac{320}{40} \times \frac{30}{80}$$

$$n = 3$$

10

$$n = 3 \times 10 = 30 \text{ days}$$

c) $x : y : z$

$$3 : 5 : \frac{5}{4}$$

$$3 : 5 : \frac{5}{4}$$

Multiplying by 4

$$4 \times 3 : 5 \times 4 : \frac{5 \times 4}{4}$$

$$12 : 20 : 5$$

Total parts = 37

Amount to be divided = \$370

$$x = \frac{12}{37} \times 370$$

$$x = 120$$

$$y = \frac{20}{37} \times 370$$

$$y = 200$$

$$z = \frac{5}{37} \times 370$$

$$z = 50$$

$$d) \text{ Avg} = \frac{\text{Sum of numbers}}{\text{Number}}$$

$$\text{Sum of number} = \text{Avg} \times \text{Number}$$

$$120 = 20 \times 6$$

After removing one number

$$\Rightarrow \text{Avg} \times \text{num} = \text{Sum of num}$$

$$15 \times 5 = 75$$

$$\text{The removed number} = 120 - 75 \\ = \boxed{45}$$

Q#2:

a) Computer Buses

1) Definition:

The bus is the common path to transfer data and commands to CPU, input devices, output devices and memory.

ii) The Units with which a Bus is connected

A bus is used to connect CPU, arithmetic logic unit (ALU), control unit (CU) and main memory (RAM, ROM)

iii) Types of Buses

A. Control Bus

The control bus is used to transmit commands from one component to another. It is also used to transmit control signals.

B. Data Bus

It is a type of bus to carry data. The number of lines affect the speed of data transfer between different components. A data bus with 16 lines carry 16 bits and with 32 lines, 32 bits data is carried.

C. Address Bus

The address bus is used to carry address from CPU to memory. ~~and~~ vice versa.

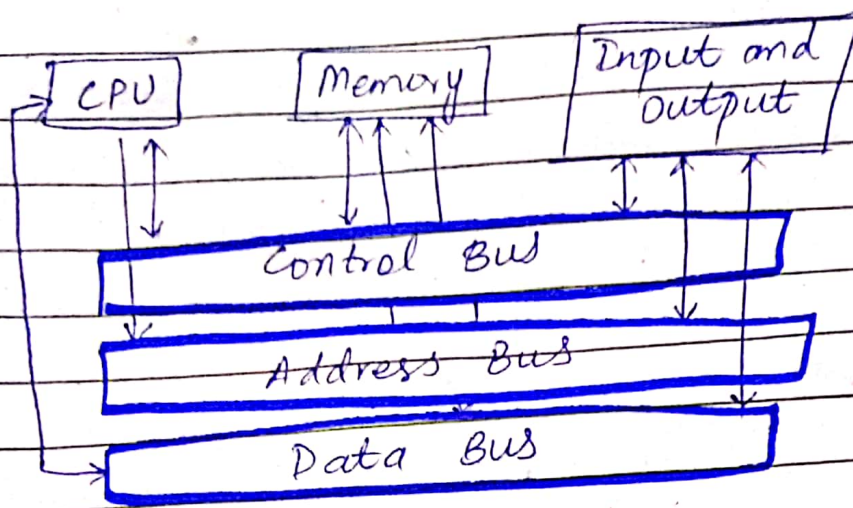


Fig: System Bus

CPU

CPU is the central processing unit. It is also known as the brain of computer. CPU has the function to execute instructions.

1) Components of CPU

There are two components of CPU

control unit (CU)

Arithmetic logic Unit (ALU)

A) ALU

ALU performs all the mathematical and logical computations. It receives interpreted information from CU.

b) CU

CU is responsible for receiving information and sending to other parts of computer.

b) Types of computers

Computers have different types based on their size, capacity, memory and speed.

Classification on the basis of size

i) Super computer

These computers are used for research purposes. They are large in size and need air-conditioned spaces.

ii) Mainframe computer

They are used by large organizations to carry on their operations. They also act as a server to a network of computers in an environment.

Companies keep record, policies of clients in these computers.

iii) Mini computers

They are used by small companies and enterprises.

They are smaller in size than mainframe computers.

iv) Micro computers

Micro computers are used for personal tasks and have limited computational capacity.

On the basis of capacity

i) Digital computer

In these, digits are processed. An ON is represented by 1 and OFF is represented by 0.

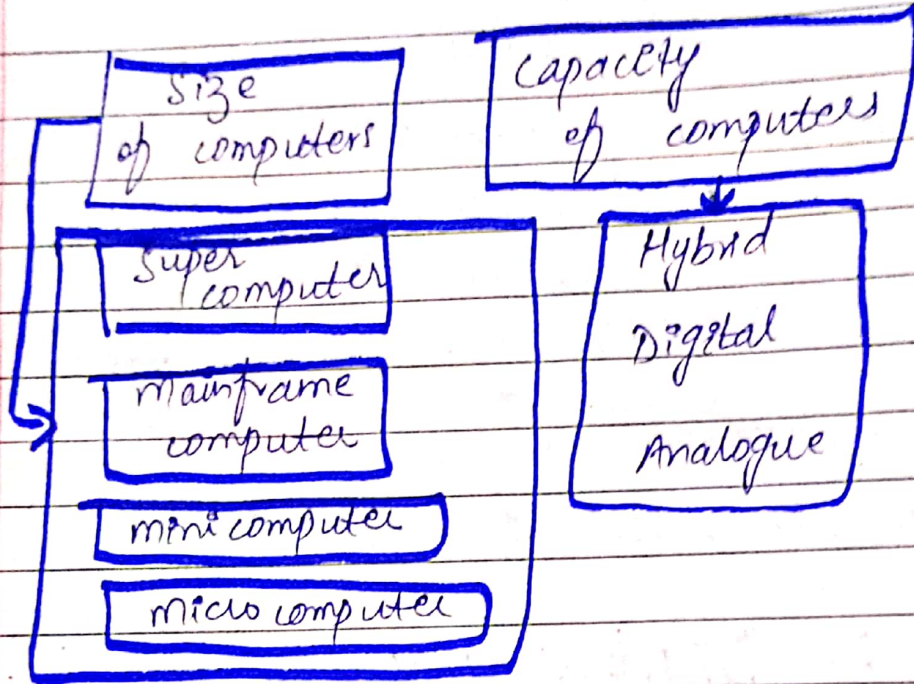
These are capable of performing both numerical and non-numerical data.

ii) Analogue Computers

They process analogue data. Temperature, weight, pressure, depth and voltage are processed.

iii) Hybrid computers

Hybrid computers combine digital and analogue computers and process both forms of information.



c) Functioning of Mobile

A mobile phone works on a full duplex device. One frequency is used for talking and second for listening.

First voice is converted into a digital signal. The voice is interpreted in the form of 0 and 1. An antenna receives these signals and convert into electromagnetic

waves - These waves are picked up by the tower. Then it gets to the base station. Afterwards, the voice is heard by the receiver on his phone.

(iv) Artificial Intelligence

It is the process of making machines intelligence to assist humans in performing tasks.

How it can replace humans

In Offices

In offices, automatic systems are used to store, process data. Systems executed tasks on its own through machine learning algorithms. In past, offices were stockpiled with files but now manpower is reduced replacing it with automated systems.

At homes

At homes, the internet of things are replacing humans, automated locks, remote controlled switching systems all installed.