

QUESTION NO: 2:-

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

INTRODUCTION:

With the advancement in technology, computer system has been updated in many folds. A computer bus is communication link used to send data, addresses and control signals. CPU, the Central Processing Unit is the brain of computer as it performs vital functions including the storage of data, the processing of inputs and output performance.

COMPUTER BUSES : AN INTRODUCTION

A Computer bus is a communication link used to send data, addresses, control signals and power to some hardware components in a computer system. Computer buses are used to connect various hardware components that are part of computer system.

Computer buses are wires that connect various hardware components in a computer system. These buses act as shared communication channel, allowing components such as CPU, main memory, RAM modules, storage devices and transfer

data with each other.

Computer buses vary in terms of their speed, width and protocols depending on specific requirements of the system.

CPU : BRAIN OF COMPUTER :

CPU is considered as brain of computer as it performs calculations, executes instructions and manages operation of the system. It consists of system that can handle multiple instructions simultaneously. The CPU fetches instructions from memory, decodes them and then executes operation.

FUNCTION :

The CPU communicates with other components through buses, memory and processor. The efficiency of CPU determines the computer's processing power and speed.

STRUCTURE :

CPU is an integrated circuit, also known as chip. This integrated circuit integrates millions or even more electrical parts arranging them into circuits and fits into a box.

b) Describe various types of computers classified on the basis of size, memory, capacity and speed.

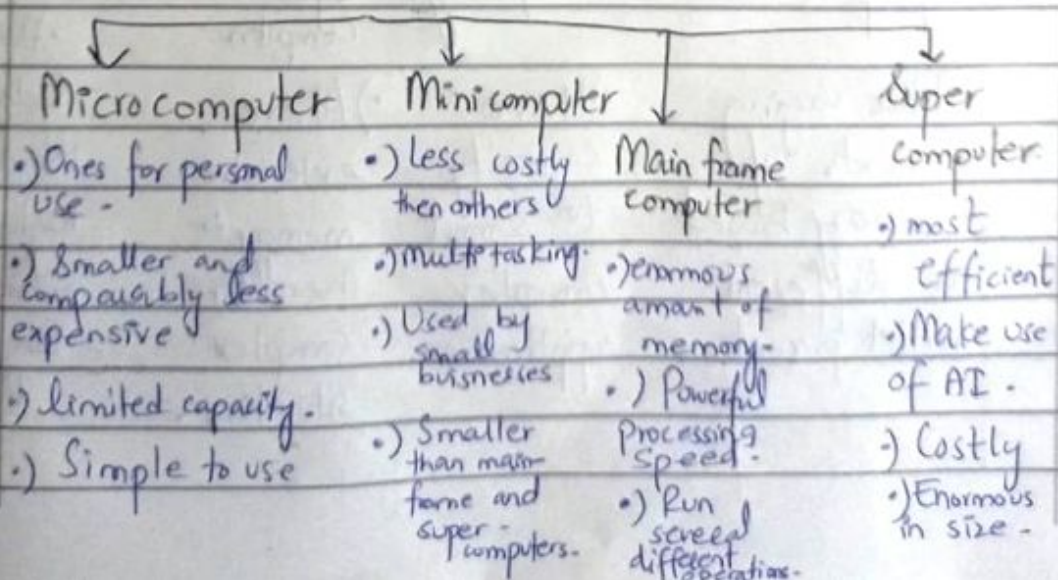
INTRODUCTION:

Computer is a complex machine which revolutionized human lives since its creation. Computers are classified on different basis including size, memory, capacity and speed. The classification on basis of size includes minicomputers, mainframe computers, super-computers etc. Similarly many different types are available on the basis of memory, capacity and working speed.

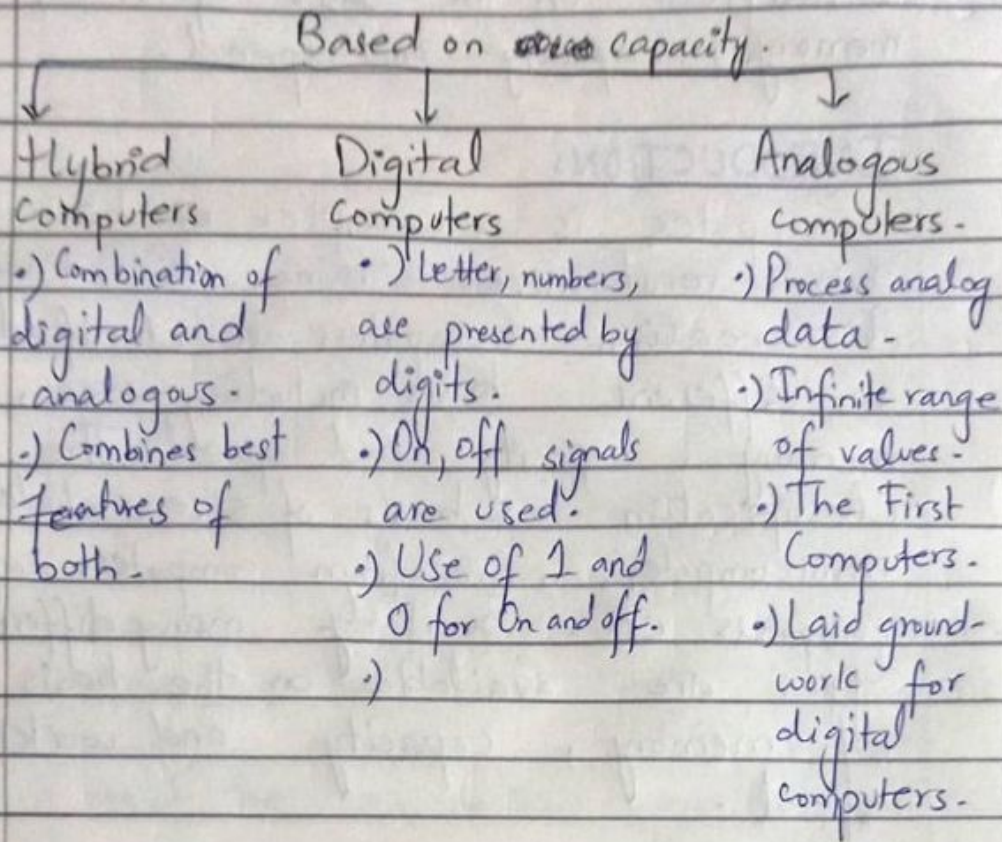
1. CLASSIFICATION OF COMPUTERS ON THE BASIS OF SIZE:

Some of the major classification types rely on the size. This category includes following:

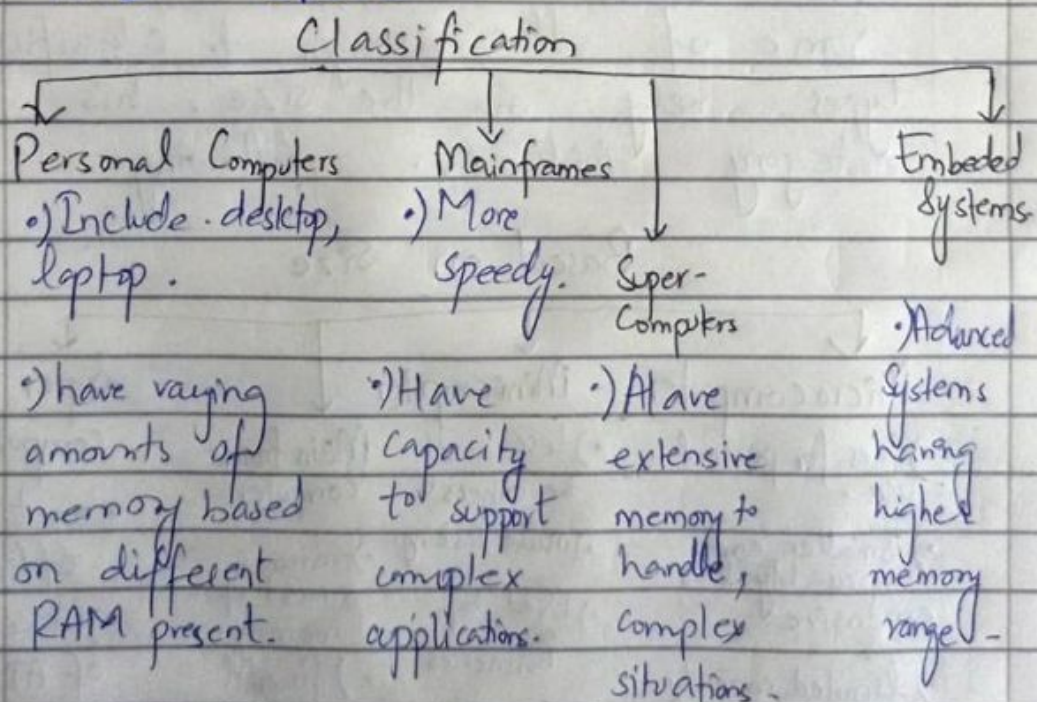
Based on Size



2- CLASSIFICATION BASED ON CAPACITY:



3- CLASSIFICATION BASED ON MEMORY AND SPEED:



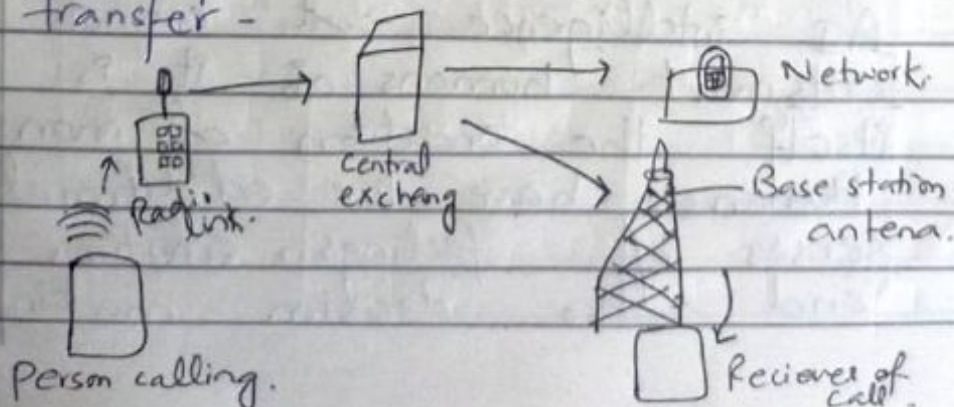
c) HOW does a mobile phone work -

WORKING OF A MOBILE PHONE:

The working of mobile phone involves the use of radio waves, using the electrical signal. The detailed process includes the transmission of signals in the form of radiowaves.

WORKING PROCESS:

- 1) Mobile phone works by sending and receiving radio signals through its built in antennas.
- 2) When a person makes call, the voice is converted into digital data.
- 3) This digital data is converted and transmitted as radiowaves to the nearest cell tower.
- 4) The cell tower then relays the signal to recipient's phone.
- 5) Additionally the mobile phones can use internet technology for other forms of communications and data transfer -



d. What is Artificial Intelligence, and it is possible for artificial intelligence to outsmart humans.

ARTIFICIAL INTELLIGENCE.

AI refers to the development of computer systems and other machines that can perform tasks that typically require human intelligence. The use of human intelligence in machines is an important step in the advancement of technology.

This includes tasks such as problem solving, learning, reasoning, understanding natural language and perception.

POTENTIAL OF AI:-

AI has emerged as a potential game changer as it has indulged in almost every field of life. The integration of AI has led to a new debate on the potential of AI to take over humans.

AI intelligence cannot outsmart humans as it is itself the creation of man. Humans have the additional senses of feelings, emotions and the decision making

power - While AI machines cannot overtake humans as it is dependent on human help and have limitations. The limited ability of AI to make instant decisions and feelings and emotion inculcation renders AI dependent on humans.

QUESTION NO: 1:

a- A cricket team won ----- year-

SOLUTION:

Let, the total no of matches = x

Number of matches won = 60%.

Number of matches lost = $(100 - 60)\%$.

= 40%.

$$\therefore 40\% \text{ of } x = 24$$

$$\frac{40}{100} (x) = 24$$

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

$$x = 60$$

Total number of matches = 60.

b- If 30 persons -----, 320kg sugar?

SOLUTION:

Persons	Weight(Sugar)	No of days
30 ↑	40 ↓	10 ↓
80	320	x

From comparison between known and unknown,

Using compound ratio:

$$80 : 30 \quad \text{and} \quad 40 : 320$$

$$10 : x = 80 \times 40 : 30 \times 320 = 3200 : 9600$$

Since ratios are equal, the product of extremes is equal.

$$10 : x = 3200 : 9600$$

$$\Rightarrow 10 \times 9600 = x \times 3200$$

$$x = \frac{10 \times 9600}{3200} = 30$$

30 days will be required by 80 persons to use 320 kg of sugar.

3- Divide \$370 - - - - Find each part?

Solution:

$$a + b + c = 370$$

$$a : c = 3 : 5$$

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

$$a : b : c = 3 : 5/4 : 5 \quad (\text{multiply by 4})$$

$$12 : 5$$

Let first and third parts of $3x$ and $5x$

Second part = $\frac{1}{4}$ of third part

$$= \frac{1}{4} \times 5x$$

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

Therefore,

$$3x + \frac{5x}{4} + 5x = 370$$

$$\Rightarrow \frac{12x + 5x + 20}{4} = 370$$

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

$$x = 10 \times 4 = 40$$

$$\text{First part} = 3x = 3 \times 40 = 120$$

$$\text{Second part} = \frac{5x}{4} = \frac{5 \times 40}{4} = 50$$

$$\text{Third part} = 5x = 5 \times 40 = 200$$

d. Arithmetic mean ----- removed?

Solution:

$$\therefore \text{Mean} = \frac{\text{Sum of 6 numbers}}{6} = 20$$

$$\textcircled{1} \quad \text{Sum of 6 numbers} = 20 \times 6 = 120$$

$$\textcircled{2} \quad \text{Sum of five numbers} = 15 \times 5 = 75$$

Subtracting eq $\textcircled{2}$ from $\textcircled{1}$

$$\text{Excluded number} = 120 - 75 = 45$$

$$\therefore \text{The excluded number} = 45$$