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Question no 2

(a)

Computer buses:

A bus is consist of a set of parallel lines. It is used to transfer data ~~from~~ between components of the computer. **One line bus** can transfer one bit at a time. The capacity of computer bus depends on the number of **DATA** lines in it.

Work:

A bus with 16 lines can carry 16 bits or bytes. CPU communicate with other components of computer through buses.

Types:

a- Data bus

b- Control bus

c- Address bus

CPU as a brain of computer:

CPU is called as the brain of computer because it control the whole

computer. The CPU is a chip that is a single piece of silicon controlling million of tiny, microscopically wired electrical components.

Information

is stored in a CPU memory location called a register.

Working:

When a programme is running, one special register called the programme counter keeps track of which programme instruction comes next by maintaining the memory location of the next programme instruction to be executed.

The CPU is divided into separate units for its operation. These are

- Arithmetic logical unit
- Control unit

(b)

Types of computers

Computer has the following major parts:

On the basis of size:

On the basis

of size computers are divided into:

(i) Super computers:

The most powerful in term of processing capacity, they are used for complex tasks.

(ii) Mainframe computer:

large and powerful, mainframes are used by organizations for critical applications.

(iii) Mini computer:

Smaller than mainframes but more powerful than personal computers.

(iv) Personal computer:

These includes desktops and laptops. Desktops are intended for use at a single location, while laptops are portable.

2-On The basis of memory:

Computer memory may be divided into two categories:

(a) Internal memory

(b) External memory

Internal memory:

It operates at a highest speed and can be accessed

directly by the CPU. ROM and RAM are the examples of internal memory.

(ii) External memory:

External memory can generally be classified as either magnetic or optical.

(i) Magnetic disk, that includes floppy disk and hard disk drive.

(ii) Optical forms: currently in common use are:

CD, DVD, CD-R, DVD-R.

On the basis of capacity speed:

On the basis of speed computer is divided into:

- (i) low-speed computers
- (ii) high speed computers
- (iii) Medium speed computers

(C)

Working of Mobile Phone

A cellular phone (mobile phone) is a telecommunication device that uses radio waves over a networked area and is served through

a cell site or base station at a fixed location.

Working:

(i) In this networked system, the mobile phone is identified as a mobile system consisting of the equipment and **SIM card** that actually assigns the mobile number.

(ii) As a mobile instrument proceeds from one cell to another during the course of a call, a central controller automatically reroutes the call from the old cell to the new cell.

(iii) All communication with a mobile within given cell is made to a base station that serves the cell.

(D)

ARTIFICIAL INTELLIGENCE

Introduction:

Artificial intelligence is the study and engineering of intelligent machines capable of performing the same kinds of functions

that characterize human brain and thoughts.

John McCarthy, who coined the term Artificial intelligence in 1956 define it as:

"The science and engineering of making intelligent machines"

Outsmart Humans:

It is possible for artificial intelligence to outsmart humans.

(i) In specific tasks:

Artificial intelligence already outperform humans in specific, well defined tasks. Examples include games like chess and go, data analysis and certain aspects of medical diagnosis

(ii) General intelligence:

When it comes to general intelligence, the broad flexible, cognitive ability that human use to navigate a wide range of different challenges, AI is far behind

Question no 2

(a)

Cricketer Team won the matches = 60% of
Total matches in
a year.

If, Matches drawn = 0

lost matches = 24

No. of matches played during the year = ?

Solution:

Let no. of matches played be x

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

40% of $x = 24$

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

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

$$x = \frac{1200}{10}$$

$$x = 120$$

(b)

30 persons use 40 kg of sugar = 10 days

80 person will use 320 kg of sugar in

days = ?

Solution:

Persons : Weight (sugar) : Days

$$30 \uparrow : 40 \downarrow : 16 \downarrow$$

$$80 : 320 : x$$

So, we have to take compound ratio:

$$\therefore 10 : x = 80 \times 40 : 30 \times 320$$

$$10 : x = 3200 : 9600$$

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

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

$$x = \frac{96000}{3200}$$

$$3200$$

$$x = 30$$

(c)

Amount divided into three parts = \$370

second part is = $\frac{1}{4}$ of third part

ratio between third and first

part is = 3 : 5

each part = ?

Solution:

let the first and third part be $3u$ and $5u$

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

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

$$\text{Therefore, } \frac{3u + 5u + 5u}{4} = 370$$

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

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

$$u = 10 \times 4$$

$$u = 40$$

$$\text{first part} = 3u = 3 \times 40 = \boxed{120 \$}$$

$$\text{second part} = \frac{5u}{4} = 5 \times \frac{40}{4}$$

$$\text{second part} = 5 \times 10 = \boxed{\$50}$$

$$\text{third part} = 5u = 5 \times 40 = \boxed{\$200}$$

(d)

Arithmetic mean of a list of 6
number = 20

if one no removed average of remaining = 15
Number that was removed = ?

Solution:

$$\text{Sum of 6 number} = 20 \times 6 = 120$$

$$\text{after removing one number sum of 5 number} = 15 \times 5 = 75$$

$$\text{Number that was removed} = 120 - 75$$

$$= \boxed{45}$$