

Test - 3

A cricket team won 60% of the total matches it played during the year. If it lost 24 matches in all and no matches were drawn, find the no. of matches played during the year.

Soln.

Total matches won by cricket team = 60%

Total no. of matches = x

Finding the percentage of matches

$$\text{lost} = 100 - 60 = 40\%$$

40% of Total match = $\frac{40}{100} \times x$
matches lost = 24

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

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

$$= \frac{2400}{40}$$

$$x = 60$$

So the total no. of matches played during the year is equal to 60

Question no. 2

If 30 persons use 40 kg of sugar in 10 days. Find in how many days 80 persons will use 320 kg of sugar?

Compound proportion

Persons	kg of sugar	Days
↑ 30	↓ 40	↓ 10
↑ 80	↓ 320	↓ x

$$\frac{10}{x} = \frac{40}{320} \times \frac{30}{30}$$

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

$$\frac{10}{x} = \frac{32 \cdot 100}{96 \cdot 100}$$

$$\frac{10}{x} = \frac{32}{96}$$

$$\frac{10}{x} = \frac{1}{3}$$

$$\frac{10}{x} = \frac{1}{3}$$

$$x = \frac{3}{1} \times 10$$

$$x = 30$$

So, in 30 days 80 persons will use 320 kg of sugar.

Question no. 3

Divide \$ 370 into three parts such that second part is $\frac{1}{4}$ of the third part and the ratio between the first and the third part is 3:5. Find each part.

Dividing 370 into three parts

$$a + b + c = 370$$

$$b = \frac{1}{4} \times c$$

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

$$a : c = 3 : 5$$

$$a + b + c = 370$$

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

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

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

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

$$x = 40$$

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

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

$5x = 5x \times 40 = 200$

Question no. 4

The arithmetic mean of a list of 6 no. is 20. If we remove one of the numbers, the average of the remaining numbers is 15. What is the number that was removed?

The arithmetic mean = (20)

List of numbers = (6)

By removing one of the numbers it becomes = $6 - 1 = (5)$

Average of remaining numbers = (15)

What is the number that was removed?

= $20 \times 6 = 120$

= $15 \times 5 = 75$

So, that no. that was removed is the difference between the two sums obtained = $120 - 75$

no. that was removed = 45

Question no. 2

What are the computer buses?

Explain CPU as brain of computer.

Answer

"Buses are high-speed internal connection. Buses are used to send control signals / data between processor or other components"

Types of buses:

- 1- Address bus: Unidirectional & carries memory addresses from the processor to other components, such as primary storage input/output devices
- 2- Data bus: It carries the data from processor to other components. It is bidirectional
- 3- Control bus: Carries control signals from processor to other components. It carries clock's pulses. It is unidirectional

CPU As Brain of Computer

The CPU is the microprocessor chip: it carries ~~single~~ single piece of silicon containing millions of tiny, microscopically wired electrical components.

Register: Information is stored in a CPU memory location called a register. When a programme is running, program counter keeps track of programme coming next.

It is called brain of computer because all the data is stored in it, it transfer data, coordinate it, store data and process it.

Arithmetic logical unit: It performs the actual processing of data and instructions.

Control unit: It determines the sequence in which computer programmes are executed.

Question no. 2

Date: / / 20

Types of Computers classified on the basis of size, memory capacity and speed:

Micro-computers:

All the components of a microprocessor are on a single integrated circuit chip. They can be classified as the desktop, programmable and workstation.

Desktop Computers: It is a keyboard for input data. It is used at home and in office applications.

Programmable Computers:

They are used as notepods, address books and can connect to world web wave to share information.

Mainframe Computer: Introduced

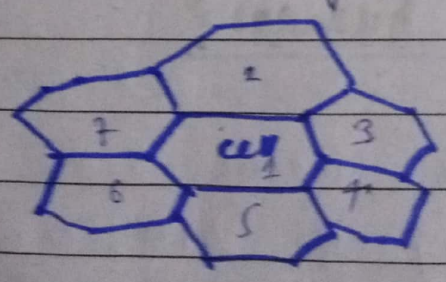
in early 1960s. Faster than micro-computers. They are large and expensive machines. They are used in research organizations, large industries, airlines reservations etc.

Super Computers: Fastest computer in current era. The memory capacity is in giga bytes or in terabytes. The storage capacity of this type of computer is in exabytes.

Question no. 3

How does mobile phone work?

"Mobile phone is a telecommunication device that is using radio waves over a networked area and is served through a base station at a fixed location, enabling calls to transmit wirelessly over a wide range, to a fixed fixed landline or via the internet signals."



∴ Hexagons were used to represent cells on map

All communications with mobile

was made to a base station that serves the call.

- In 1950, cell phones were only used in automobiles. Each car required big antenna for radio phones that could transmit 40 or 50 miles.
- In modern day mobile phones, base station coordinates call information. Due to low transmitting power & battery operated portable instruments, specific sending and receiving frequencies assigned to a cell may be used in other cells without interruption in the signal reception.

What is Artificial Intelligence?
Is it possible for AI to outsmart humans?

"It is a study and engineering of artificial machines capable of performing the same kind of functions that characterize human thought."

- In 1956, John McCarthy coined this term.
- Four possible goals: A system that think like humans, acts like humans, think rationally, and act rationally.

Applications of AI

Cognitive science: It is based on research on biology, neurology, brain functioning, human's thought.

Robotics: It produces robot machines with computer intelligence and computer controlled, human like physical capabilities.

- ① visual perception
- ② Tactility (sense of touch)
- ③ Dexterity (use hand skillfully)
- ④ locomotion
- ⑤ Navigation

Natural interface: In natural interface, it recognises natural

languages, virtual reality, recognise speech and multisensory interfaces.

Can AI outsmart humans?

AI has lot of tendencies to outsmart humans. However, it is human creation, it cannot overpower human beings. It is not possible that the world can survive with robotics, without humans.

- 1 AI lacks ^{most of} the six senses of humans
- 2 It cannot consume the self-made products e.g. Food and agriculture industry need human beings for consumption and production
- 3 Human force is always needed on borders and for military purposes: Artificial men (robots) lacks patriotic spirit
- 4 Robots cannot form welfare

Society : having some norms, values, culture and religion which is purely discretion of humans

5- AI needs human mind to start and run its processes; human mind does not need an outer source for proper functioning.

Thus, AI cannot overpower human beings; however, it can help to bring ease in human beings life.