QUESTION #02

C. How does a Mobile Phone work??

A. What is a mobile Phone?

A mobile Phone is a "telecommunication device" that uses radio waves over a network area (called cells) and is served through a cell site or a base station at any location, and it enables calls transmit wirelessly from one cell to another.

A Mobile phone is a "communication device" consists of the equipment necessary to communicate and a Sim card that assigns a telephone number. Mobile phone works just like a radio, in actual it is a "Complex radio".

B. Background and early development of mobile phone:

Back around 1950s, cell phones were really used for automobiles like a mobile-radio-phone. It was like a

an entire telephone company in a cell. But those mobile radio phones could transmit radio waves at least 40 to 50 miles and only 25 channels were available for private use which means one person could only connect to 25 people.

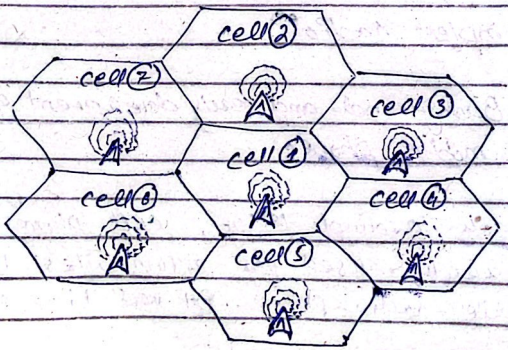
Later on the system got developed dividing small areas into cells.

C. How does a Mobile phone work??

Mobile phone works using radio waves over a network which is called cell in a location.

Every cell consists of two basic parts; one is **base station** and the second is **central controller.**

1- Network's Working:



i- The Geographical area served by a cellular system and serves to a cell phone is divided into small cells of hexagonal shape to represent on maps and diagrame. While in real they are of irregular shape.

ii- Every cell in a geographical area is equipped with a base station that serves the cell. Because of low transmitting Power of cell phone, specific transmitting information send to a cell is raised on another cell.

iii- Cell phone transmit radio waves to specific cell's base station, which transfer it to control centre. The control centre keep tracks of a mobile phone subscriber. Once a person or user gets out of specific location of a cell, it automatically gets connected without any interruption in signal reception from base station.

iv- Besides, If a specific cells gets overloaded with reception of signals, it gets divided or splitted into smaller cells to continue mobile phone processing.

A. What are computer Buses?
. Explain CPU as brain of computer?

I. What are computer Buses?

A computer bus like a common bus is a kind of communication system that transfers information or data from one component of a computer to another and within computers.

It carries information between central processing unit of a computer and its system memory where information gets stored in the form of binary digits and can be recalled when needed.

II. CPU: BRAIN OF A COMPUTER:

CPU stands for central processing unit of a computer is a hardware device of a computer; a hard physical part of a computer.

A CPU is basically a microprocessor chip, a peace of silicon contains millions of tiny wired electrical components.

Any information which is stored in a computer is stored in CPU's memory location called a register.

A specific register keeps a record of the program, when a program is running, register which is called Programme counter keeps track of which programme instruction comes next, while maintaining a record of Programme. Therefore, it is called brain of a computer because it maintains memory location of next programme instruction to be executed in a row.

Based upon operations of CPU it is divided into two seperate units:

i- Arithmatic logical unit
ii- control unit

i- Arithmatic logical unit:

Arithmatic logical unit actually performs the actual processing of data and instruction. The operation performed by Arithmatic logical units are:
Addition, substraction, division and multiplication and logical comparison. Data is transferred to ALU from storage unit when required and ~~it also kept~~ after processing of data by ALU, it is return back to storage unit.

ii- Control unit:

Control unit is the second part which acts like a supervisor to check whether things are done in a proper fashion. The control unit or supervisor determines the sequence of execution of computer's programmes and instruction. In short, control unit is the manager of all operations.

D. What is Artificial intelligence? Is it possible for artificial intelligence to outsmart humans?

I. Artificial Intelligence:

Artificial intelligence is usually defined as study and engineering of intelligent machines capable of performing functions that characterised human thoughts.

John McCarthy, who coined the term defines it as "the science and engineering of making intelligent machines, especially intelligent computers".

The term intelligence relates to the tasks (performed by intelligent machines) of higher mental processes. such as:

i- creativity
ii- induction
iii - deduction
iv - Reasoning
v - Classification
vi - Pattern recognition
vii - optimization
viii - language processing
ix - knowledge and many more....

GOALS:

Artificial intelligence gives four possible goals to pursue:

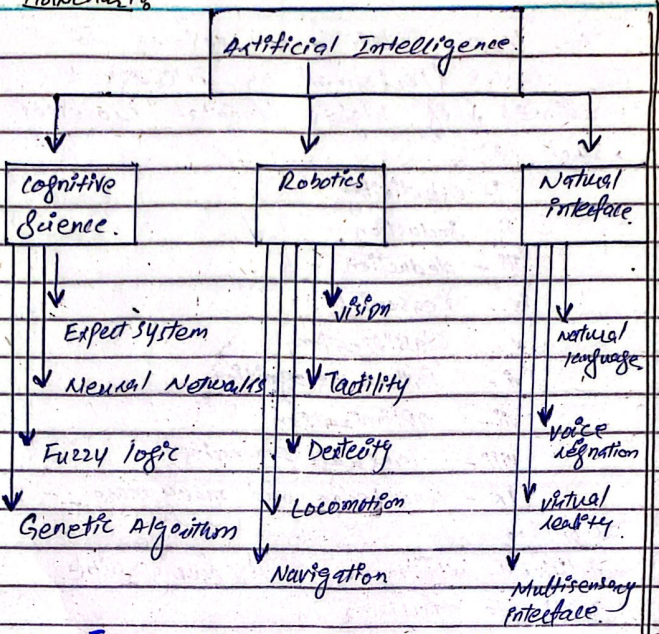
i - systems that thinks like humans
ii - systems that act like humans
iii - Systems that think logically
iv - Systems that act rationally

CLASSIFICATION:

Artificial intelligence (AI) is usually classified in three areas.

i - cognitive science
ii - Robotics
iii - Natural interface.

Flowcharts



II: Fears whether AI outsmart Humans?

Experts of AI warn that:
"Substitution of human labor as machinery may render population redundant"

Experts are worried that the invention of AI came before we seek to employ it rightly. The worry is whether (AI) got out of hands and creates conflicts between machines and humans as shown in sci-fi films.

AI is usually blamed for increasing unemployment by replacing human labor and by automating tasks of cognitive nature those were previously done by normal people.

Although AI is impressive, they can perform many tasks but outwitting of humans is not its capability as it cannot perform some specific tasks done by only humans.

So, outsmarting humans is a distant and uncertain prospect.

QUESTION # 01

A. Solution

Let total matches played = n

Number matches won = 60%

matches lost = 40%

So,

$$40\% \text{ of } n = 24$$

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

$$n = \frac{12}{24} \times \frac{5}{\cancel{100}}$$

$$\frac{\cancel{40}}{2}$$

After cancellation:

$$n = 12 \times 5$$

$$n = 60$$

Therefore,

Total number of matches by Cricket team is = **60**

B. Solution

Persons	:	weight(sugar)	:	Days.
30	:	40 ↑	:	10 ↑
↓ 80	:	320 ↑	:	x ↑

Here Persons and days are in inverse proportion

Here days and sugar are in direct proportion.

Therefore:

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

$$\frac{x}{10} = \frac{30}{\cancel{80}} \times \frac{\cancel{320}^{4}}{\cancel{40}_{1}}$$

After cancellation:

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

$$x = 3 \times 10$$

$$\boxed{x = 30}$$

So, 30 days will be required to eat 320 kg of sugar by 80 men.

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c. **Solution:**

Let the first and the 3rd Parts be: ~~3x~~ $3^{0}5$

$= 3x, 5x$

Second part = $\frac{1}{4}$ of 3rd part = $\frac{1}{4} \times 5x = \frac{5x}{4}$

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

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

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

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

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

$$x = 10 \times 4$$

$$x = 40$$

therefore,

first part $= 3x = 3 \times 40 = 120$

Second part $= 5x = \frac{5 \times 40}{8} = 50$

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

120, 50, 200 = 370$ Answer

D: **Solution:**

Average of six numbers = 20

After removing one number = 15

$$\text{Average} = \frac{\text{Sum of numbers}}{\text{total numbers}}$$

Sum of 6 numbers = Average x Number of numbers

Sum of 6 numbers = $20 \times 6 = 120$

After removing one number, average is = 15

Again,

Sum of 5 numbers = Average x Number of numbers

$15 \times 5 = 75$

Removed number = $120 - 75 = 45$

Hence, removed number is 45. Answer