

Part-11 Section - I

Q. No. 2 (Ans)

a) **Artificial Intelligence is the new electricity:**

Artificial Intelligence is defined as the use of computational intelligence instead of human intelligence in order to solve problems and make innovations.

“ Artificial Intelligence is the supremacy of computational intelligence to carry out the activities that were previously done by human intelligence ”

The worth of AI in the Modern World can be equated similar to Electricity:

Artificial Intelligence is a live wire in the Modern World as it is being called with the label of 'new electricity'.

Andrew Ng equates ^{that} AI is the new electricity.

Popularity of AI:

The ever increasing hype of AI has gained it the status of being labelled as new electricity. It is due to the benefits that AI has rendered to the world. The challenges accepted and successfully conquered by AI make it as valuable

as electricity.

Vistas of the Working of AI

Medical Field

Education Sector

Graphics and Programming

Agriculture

GPS, GIS, RS

Computational Apps

Weather Forecasting

E-currency

E-governance

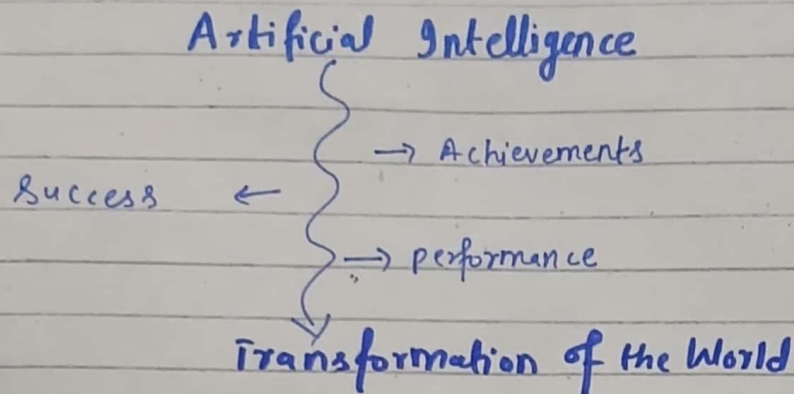
Business

The interactive powers of AI has changed and revolutionized all spheres of life as electricity has done in the past the vast operational fields and wide working span of AI makes it the new electricity.

Transformation of World by AI:

Q.N

undoubtedly, AI has revolutionized the world's economy, trade, security, industry, logistics etc by doing the same as electricity did in the past. Thus, the unbelievable achievements and incredible performance of AI has made it a new electricity.



Q.No.2
b)

CPU is brain of Computer.

CPU is known as the central processing unit of the computer which performs the operations of the computer.

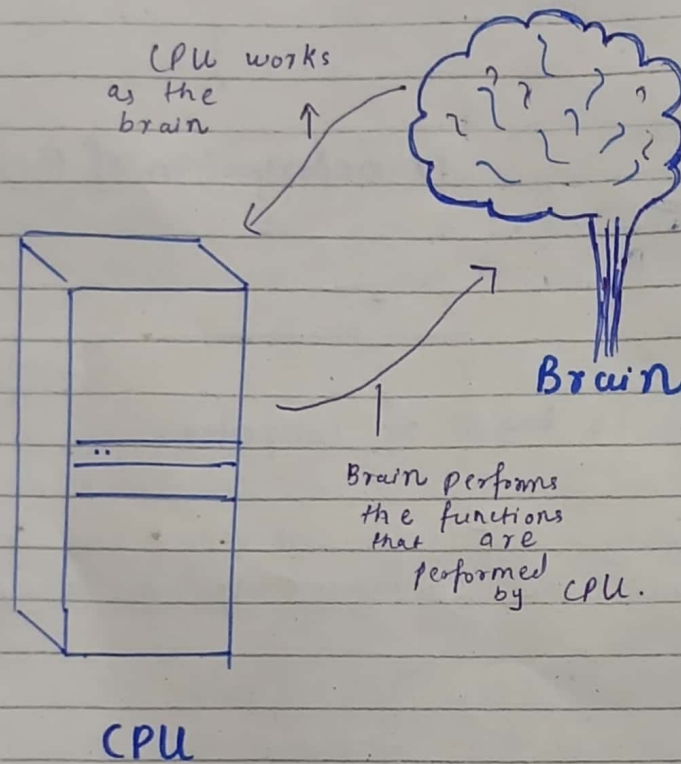
“ The central part of the computer that is connected to all the software and hardware of computer and processes all functions, is called CPU.”

Brain and CPU:

CPU is termed as the brain of

computer because it controls everything, stores the raw data and the refined information, carries out the necessary functions and keep the system intact.

All these functions are carried out by the brain too, that is why CPU is called the brain of computer.



The Functioning of CPU that makes it the Brain of Computer:

a) Storage.

Human brain stores information and is known as the 'memory record' of a person. Similarly, computer stores its information in CPU.

Human Brain



Stores information
in Hypothalamus

CPU (computer's Brain)



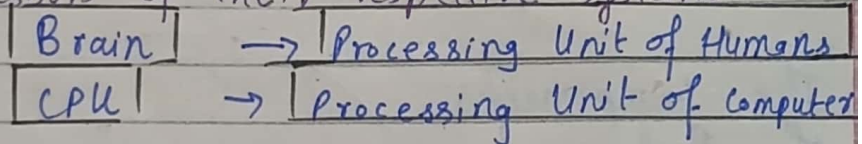
Stores information
as a) ROM
b) RAM

b) Coordination

The coordination of all components and flawless functioning is the responsibility of brain. Human brain is highly coordinated because of the central nervous system and peripheral nervous system. Similarly, the CPU of computer coordinates all functions in its units like arithmetic unit (AU)

c) Processing Unit:

Another similarity between CPU and human brain is the processing unit as both act as the processors of their respective systems



d) Main Part:

The CPU resembles human brain as it is the main and the most significant part of computer as brain is of a body.

Central Part
of Body



BRAIN

Central Part
of Computer



CPU

Hence, the resemblance of CPU[↑] ^{with human brain} lies in its functions of storage, processing and in the centrality of its structure.

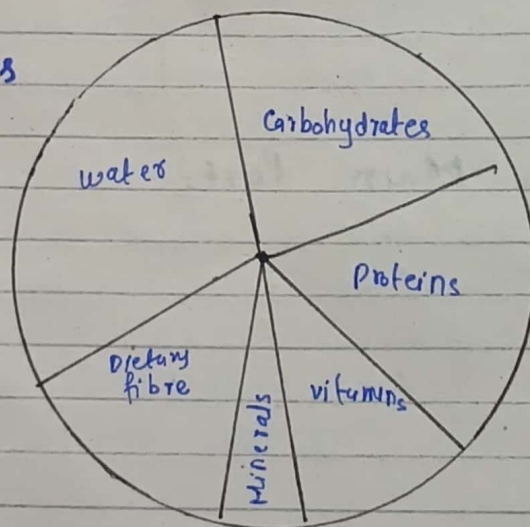
Q.No 2

(c) **Balanced Diet:**

The balanced diet is the diet that inculcates^{all} the essential and mandatory nutrients required for the normal functioning of body.

"Balanced diet is defined such a diet that include the balanced intake of carbohydrates, proteins, lipids, mineral vitamins, water, and dietary fibre."

The components of a Balanced Diet:



Each component of a balanced diet

is essential and performs a specific function in the body

Functions of the Components of a Balanced Diet:

Carbohydrates → Primary source of energy

Proteins → structural and metabolic functions

Vitamins and Minerals → provide energy to the body

Dietary Fibres and Water → Helps the digestive system
Regulates all functions of a body

Vitamins and their Deficiency:

The deficiency of vitamins can result in the abnormal functioning of the body.

Although vitamins are required in small quantity, yet their deficiency or irregular intake can cause harm to the body.

Deficiency of Vitamin A = Night Blindness

Night blindness is the abnormal vision of eye in darkness. Caused by the deficiency of vitamin A.

Deficiency of Vitamin B = Beri Beri

Beri Beri is an abnormal skin condition that is caused by the

deficiency of vitamin B.

Deficiency of vitamin C = Scurvy

Scurvy is a skin disease caused by the deficiency of vitamin C.

Q.No.2

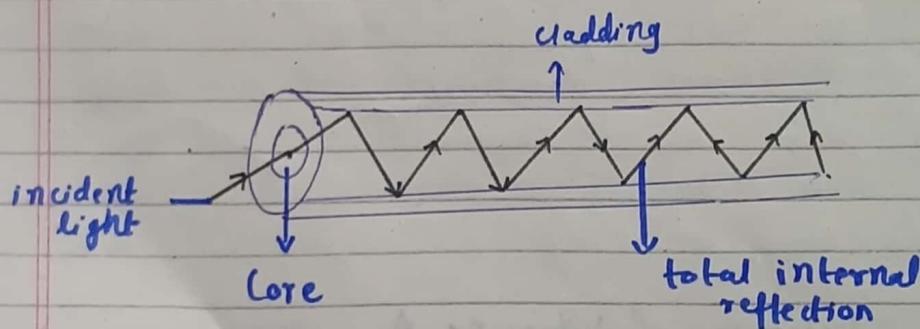
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Working of Optical Fibres:

Optical fibres are the highly effective union of wires coated in a jacket. Optical fibres are used to perform multiple tasks in the domains of industry, medicine, infrastructure, etc.

The principle of Working of Optical Fibres

Optical fibres work on the principle of total internal reflection.



The incident light ray falls on the core of the optical fibre and is totally reflected to the cladding inside the fibre.

G.P.S

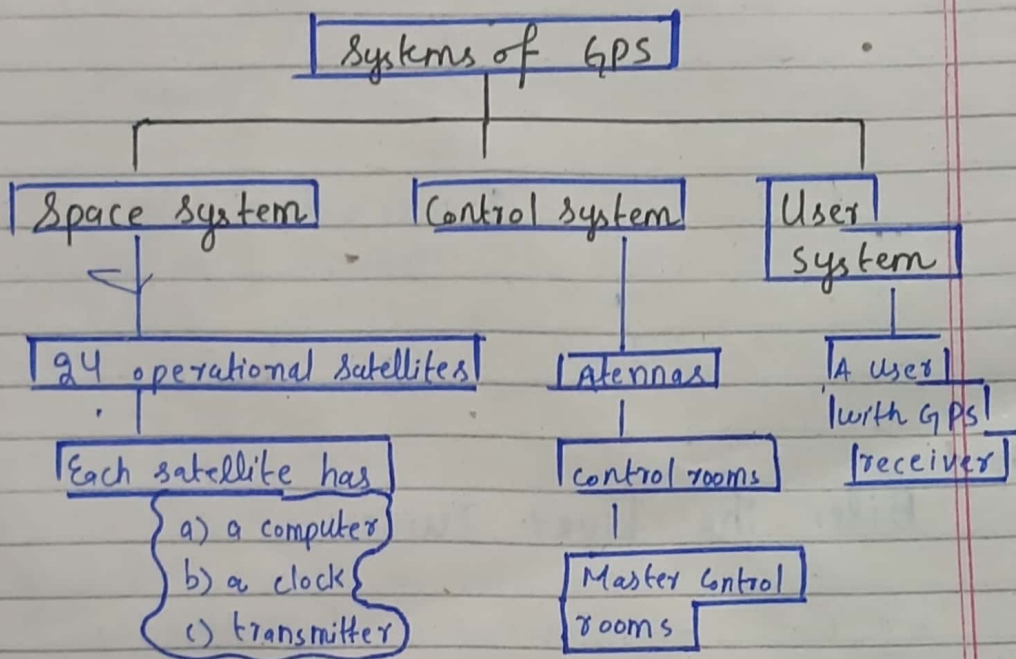
G.P.S is known as the Global

Positioning system that is used to locate the position of users of this system.

“ Global Positioning System (GPS) is a network of semi-synchronous satellites that are used to position the users ”

Components of GPS

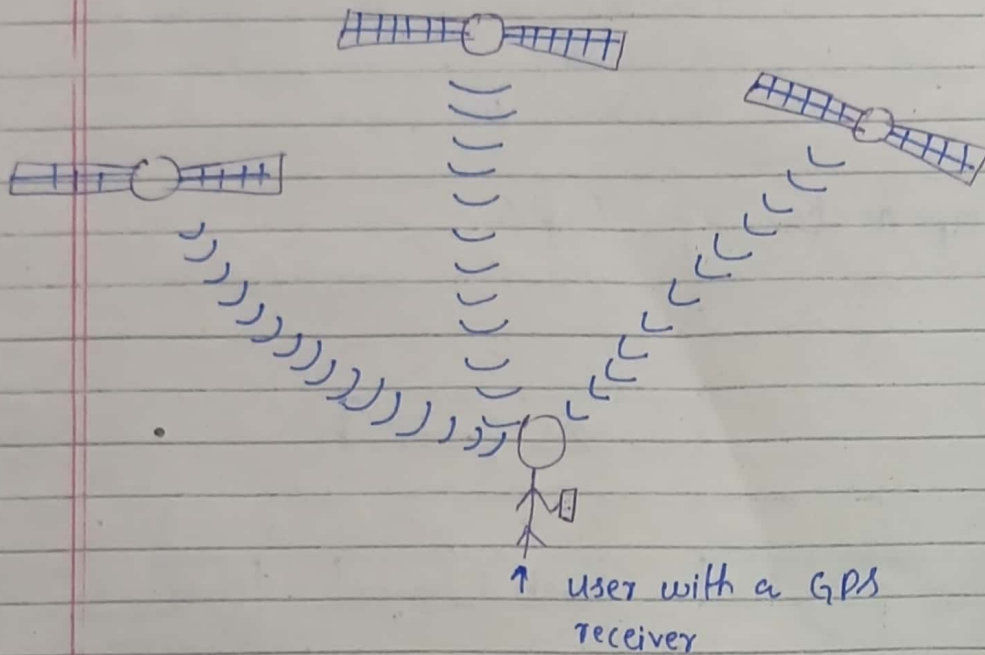
GPS works by the coordination of three units.



The 2-dimensional and 3-dimensional locations are measured by satellites depending upon the access of the user to the satellite.

If the user is able to receive signals from three satellites, then a 2-dimensional location is measured.

If the user connects and receives signals from more than three satellites then a 3-Dimensional location is measured.



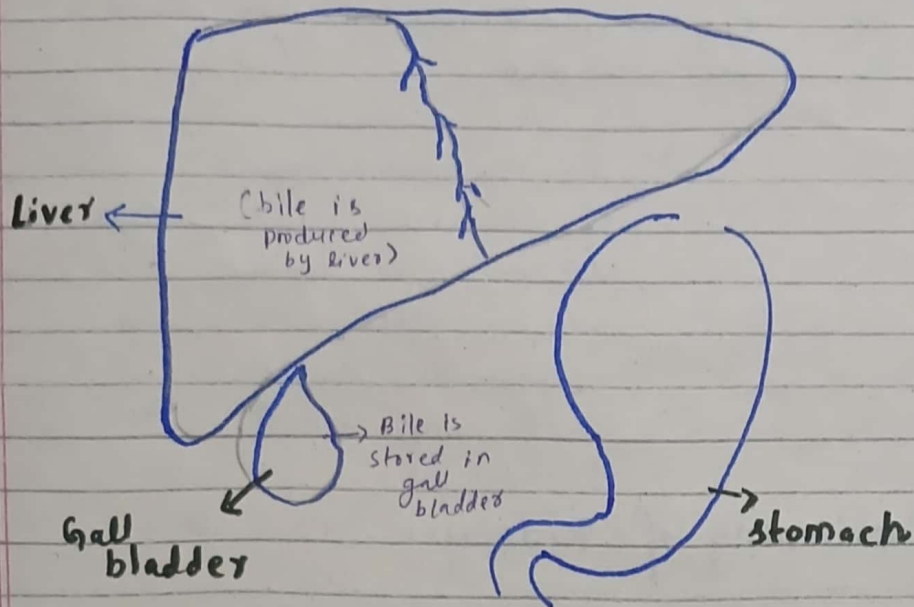
Q.No.4

a. **Bile: The Liver Juice:**

Bile is a greenish liquid excreted by liver and stored in gall bladder. This 'liver juice' is of high importance as it performs several metabolic and digestive functions.

" The liquid produced by liver is called bile which is the saviour of the body as it performs

multiple digestive functions'



Functions of the Liver Juice 'Bile.'

Bile performs multiple functions in the digestive system of a body

- 1) It aids the process of digestion.
- 2) It regulates the working of small intestine depending on its secretion and concentration.
- 3) It is involved in breaking down the fats so they can be stored as fatty acids.

Fats \longrightarrow fatty acids
 \downarrow
by Bile

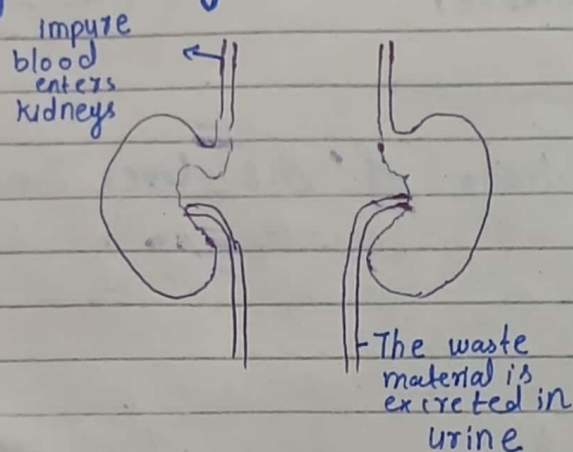
Q.No.1
(1)

Kidneys and their Role in Excretion:

Kidneys are the two ^{bean} shaped organs of human body located at the back of lower abdomen.

"The excretory organs of human body are known as kidneys which clean the blood and excrete the impurities."

Functioning of Kidneys:



→ The blood brings the impurities with itself when it enters kidney through renal arteries. Once the impure blood enters the kidneys, the process of cleaning starts.

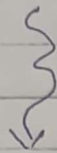
→ kidney clean the blood by absorbing the excessive water, salts and acid.

→ After the absorption of the

impurities, blood is transported back via renal veins.

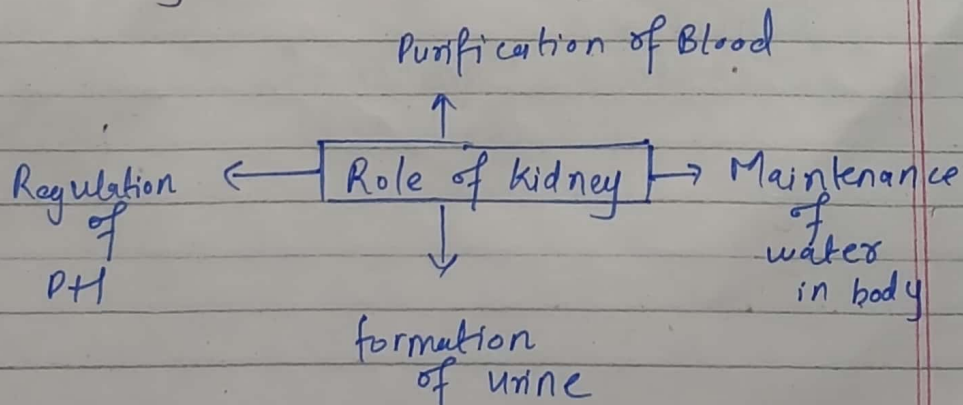
→ The water level is maintained by kidneys as they ^{keep} maintain a check on the concentration of water in the body.

Excessive water in Body



More water absorption by kidneys and vice versa

- Furthermore, the pH of body is also maintained by kidneys as they absorb uric acid according to the pH of the body.
- Kidneys form liquid waste, urine, that is a mean of getting rid of impurities and waste material by the body.
- The role of kidney is significant as it forms the excretory material and cleans the body.



No. 4

c

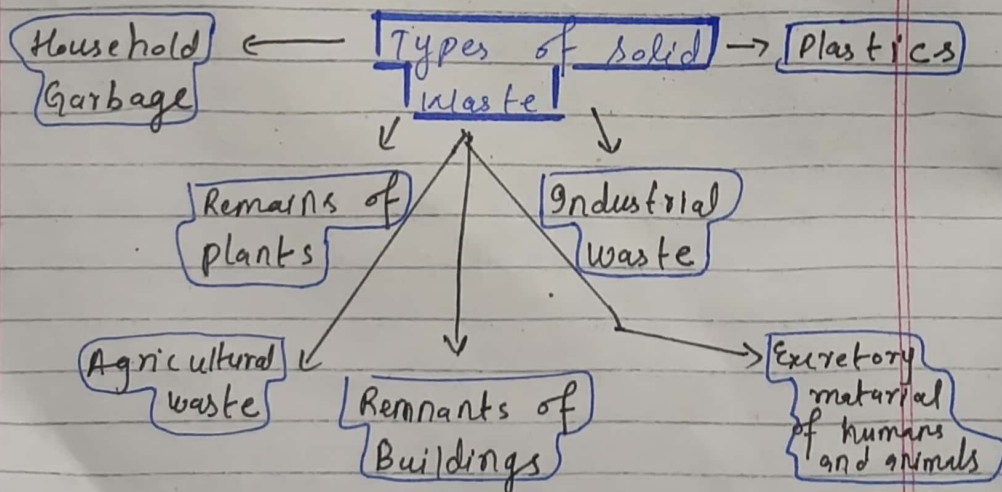
Solid Waste Management:

The solid waste is a hazard ^{for} the earth and ~~new~~ living beings. Therefore, it is necessary to manage the solid waste as early as possible.

“Solid waste Management involves the strategies that are employed to manage and control the solid waste”

Solid Waste:

Solid waste involves wide range of discarded and useless material. It is of various types.



Methods of Solid Waste Management.

There are multiple ways used to manage the solid waste depending upon its condition and type.

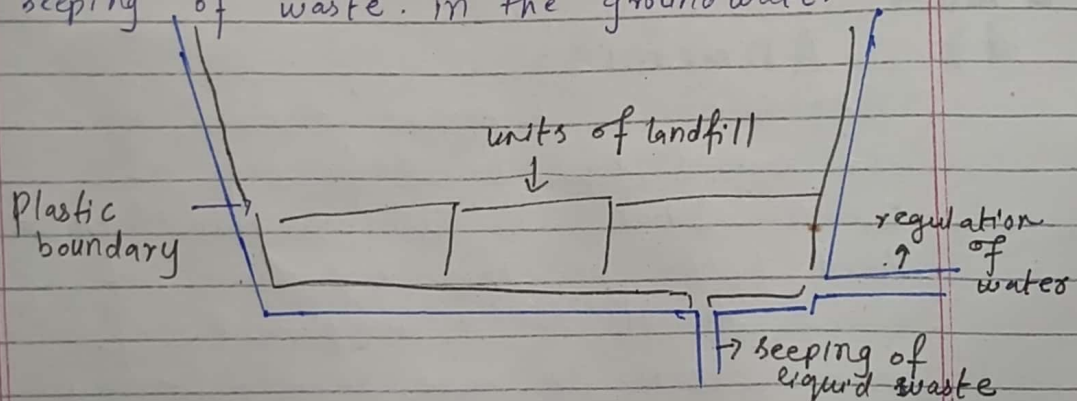
Methods of Solid Waste Management

1 - Recycling

The first and foremost way of managing the solid waste is recycling it. It involves the reuse of the discarded material.

2 - Landfills

The useless ^{waste} and discarded solid waste is collected and dumped in a structure called landfills. The advantage of landfills lies in its structure that blocks the seeping of waste in the groundwater.



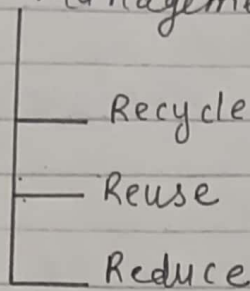
3 - Dumping:

Another technique of managing the solid waste is of dumping. It is practiced in the community setting where waste is thrown inside a dumping unit instead of in the landfills.

4- 3Rs

The technique of 3Rs is used to make the solid waste manageable.

3Rs of Solid Waste Management



The above mentioned techniques and methods are used to manage the solid waste.

Q.No. 4

d)

Anaemia:

Anaemia is a severe disease that is caused by the deficiency of Iron. Iron is an essential element that helps in the regulation of blood as it is a component of haemoglobin. In case, there is deficiency of iron, the blood is unable to perform its functions and resultantly the functioning of the body is hurt.

This is known as Anaemia.

Deficiency of iron

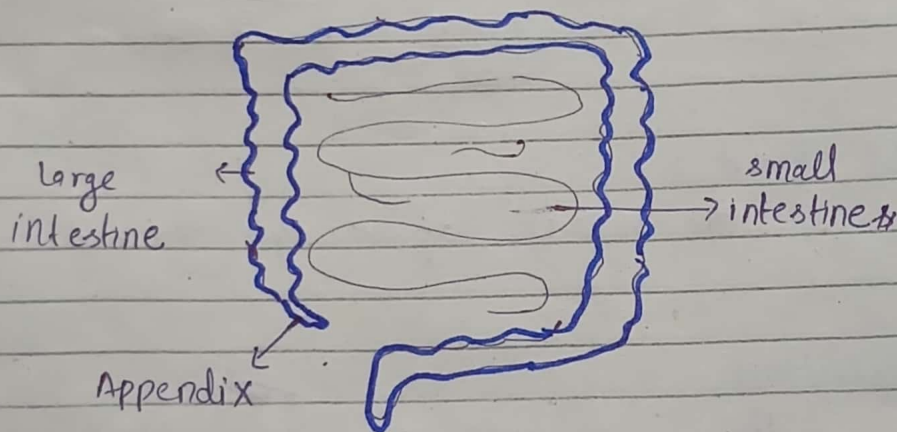
↓
Defected working of Haemoglobin

↓
Anaemia

b) Appendicitis:

Appendicitis is the condition in the appendix is inflamed.

"The inflammation of appendix is known as appendicitis."



In case of sedentary posture, wrong eating habits and internal malfunctioning of body the end of large intestine is inflamed.

It is treated by removing the appendix.

Section-II

Q. No. 7 Given

A cylinder having a radius of 30 cm and height of 1 m.

Therefore, the
shape = cylinder
radius = 30 cm
height = 1 m

Since radius = $r = 30$ cm, it will be converted into meters as following

$$\begin{aligned} r &= 30 \text{ cm} \\ \text{since } 1 \text{ m} &= 100 \text{ cm} \\ \text{therefore} \\ r &= \frac{30 \text{ cm}}{100} = \boxed{0.3 \text{ m}} \end{aligned}$$

To find:

the volume of a cylinder = ?

Solution:

The volume of a cylinder is denoted by the formula

$$V = \pi r^2 h$$

As we know,

$$\pi = \frac{22}{7}$$

$$r = 0.3 \text{ m}$$

$$h = 1 \text{ m}$$

so volume of a cylinder is

$$\begin{aligned} V &= \pi r^2 h \\ &= \left(\frac{22}{7}\right) (0.3)^2 (1) \\ &= (3.14) (0.09) (1) \\ &= (3.14) (0.09) \\ &= 0.2826 \text{ m}^3 \end{aligned}$$

$$\begin{array}{r} 0.3 \\ \times 0.3 \\ \hline 09 \\ 00 \\ \hline 009 \\ \hline 1.3 \\ 3.14 \\ \times 0.09 \\ \hline 2826 \\ 0000 \\ \hline 0.2826 \end{array}$$

Hence the volume of the given cylinder is 0.2826 m^3

Q. No. 7

b) Given:

Average of the ages of three boys = 15 years
The ratio of their ages = 3:5:7

To

Find:

The youngest boy = ?

Solution:

$$\text{Average} = \frac{\text{Sum of all ages}}{\text{No. of boys}}$$

$$15 = \frac{\text{Sum of all ages}}{3}$$

$$\begin{aligned}\text{Sum of all ages} &= 15 \times 3 \\ &= 45 \text{ years}\end{aligned}$$

Now, according to the given condition

$$3x + 5x + 7x = 45$$

$$15x = 45$$

$$15x = 45$$

$$x = \frac{45}{15}$$

$$x = 3$$

$$x = 3$$

So the age of the youngest boy

$$= 3x$$

$$= 3(3)$$

$$\therefore x = 3$$

$$= 9 \text{ years.}$$

Therefore the age of the youngest boy is 9 years

Q.No. 7

c)

i) 8, 19, 52, 151, 447, ...

The number after 151 should be 448 instead of 447.

This series follows a recurring pattern of multiplication with 3 and then subtraction the multiplied with 5 as $8 \times 3 = 24 - 5 = 19$.

So the correct series is 8, 19, 52, 151, 448, ...

ii) 11, 13, 17, 19, 23,

The next number is 29.

The given number series is a list of prime numbers.

Prime numbers are the numbers that are the multiples of one and themselves.

Hence, the prime number after 23 is 29.

Q. No. 7

d) Given:

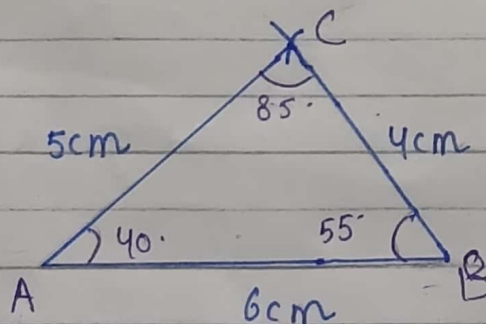
Sides of triangle = 5cm
= 4cm
= 6cm

To find:

The angle formed at each side of the triangle.

Solution:

The triangle is constructed by making the longest side as the base.



Hence the angle

$$\angle A = 40^\circ$$

$$\angle B = 55^\circ$$

$$\angle C = 85^\circ$$

No. 8

b) Given:

Five class mates = Hassan - H

Ali = A

Akbar = Ak

Nasir = N

Shahbaz = S

Pocket money of Hassan = $\frac{1}{3}$ Ali

Pocket money of Ali = 5 (Akbar)

Pocket money of Akbar = 3 (Nasir)

Pocket money of Shahbaz = S = N = A

Solution

Let the pocket money of Nasir = X

Then Akbar's pocket money = 3X

Ali's pocket money = 5(3X)
= 15X

Hassan's pocket money = $\frac{1}{3}$ (Ali)

= $\frac{1}{3}$ (15X)

= 5X

Shahbaz pocket money = X

According to the given condition

$$\text{sum of all pocket moneys} = 8000$$

$$x + 3x + 15 + 5x + x = 8000$$

$$25x = 8000$$

$$x = \frac{8000}{25}$$

$$x = 320$$

Now the pocket money of Nasir = Rs 320

pocket money of Shahbaz = Rs 320

pocket money of Akbar = Rs 320 (3)

$$= \text{Rs } 960$$

pocket money of Ali = $5(x)$

$$= 5(960)$$

$$= \text{Rs } 4800$$

Pocket money of Hassan = $\frac{1}{3}(M)$

$$= \frac{1}{3} (4800)$$

$$= 1600$$

$$= \frac{5x}{3}$$

$$= \frac{5 \times 960}{3}$$

$$= \text{Rs } 1600.$$

Q.No. 8

c)

Given:

$$\text{Surface area of a sphere} = 4\pi r^2$$

$$\text{Radius of sphere} = 7 \text{ m}$$

To find:

$$\text{Surface Area} = ?$$

$$\text{Volume} = ?$$

Solution:

$$\begin{aligned} \text{Surface Area of a sphere} &= 4\pi r^2 \\ &= \frac{4 \times 22}{7} \times (7)^2 \\ &= 4 \times (3.14) \times 49 \\ &= 616 \text{ m}^2 \end{aligned}$$

$$\begin{aligned} \text{Volume of sphere} &= \frac{4}{3}\pi r^3 \\ &= \frac{4}{3} \times \left(\frac{22}{7}\right) \times (7)^3 \\ &= \frac{4}{3} \times 3.14 \times 343 \\ &= 1.33 \times 3.14 \times 343 \\ &= 1436 \text{ m}^3 \end{aligned}$$

So, the surface Area of the sphere is 616 m^2 and the volume is 1436 m^3 .

$$\begin{array}{r} 8 \\ 49 \\ \times 4 \\ \hline 196 \end{array}$$

$$\begin{array}{r} 146 \\ \times 314 \\ \hline 4 \end{array}$$

$$\begin{array}{r} 649 \\ \times 7 \\ \hline 3143 \end{array}$$

$$\begin{array}{r} 1.3 \\ 3 \overline{)4.00} \\ \underline{-3} \\ 10 \\ \underline{-9} \\ 10 \\ \underline{-9} \\ 1 \end{array}$$