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PART-II

Section - J

General Instructions

Q. NO. 3

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings
3. Do not use table for comparison and contrast questions.
4. Draw figures/diagram/flowchart where needed.
5. Start new question from fresh page.
6. Write unit of the answer in ability section.

Following are the main causes behind their formation:

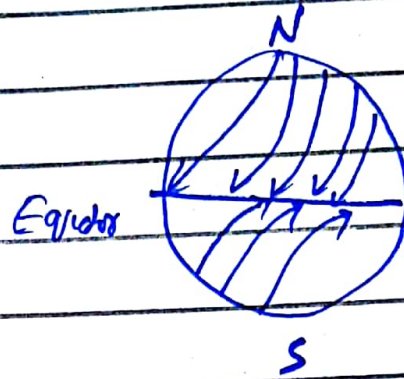
1. Explain mathematical steps and the reasoning for better score.
2. Change colour scheme for references to give them more visibility.
3. Manage time well.
4. Wide page borders are discouraged. Should be reasonable.
5. Avoid writing wrong references.
6. Give more weightage to expressly asked part/s of the question.

A) Descriptive Difference:
Due to high temperature approximately 26.5°C on ocean surface, large amount of water is evaporated, which causes a vacuum in that respective region. This vacuum there is a difference between of pressure. Therefore, air from lateral sides rushes towards it to fill the gap. The ultimate result is a cyclone formation.

B) Coriolis effect:
It is also the major factor of cyclone formation. According to this phenomenon, air moves from northern and southern side towards equator in curly

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path instead of a straight one
This effect is called Coriolis
effect



2 Destructive part of cyclone

Eyewall

The lateral sides of cyclone, instead of the centre are considered as the most dangerous and destructive. This area has a high pressure which can cause huge catastrophe.

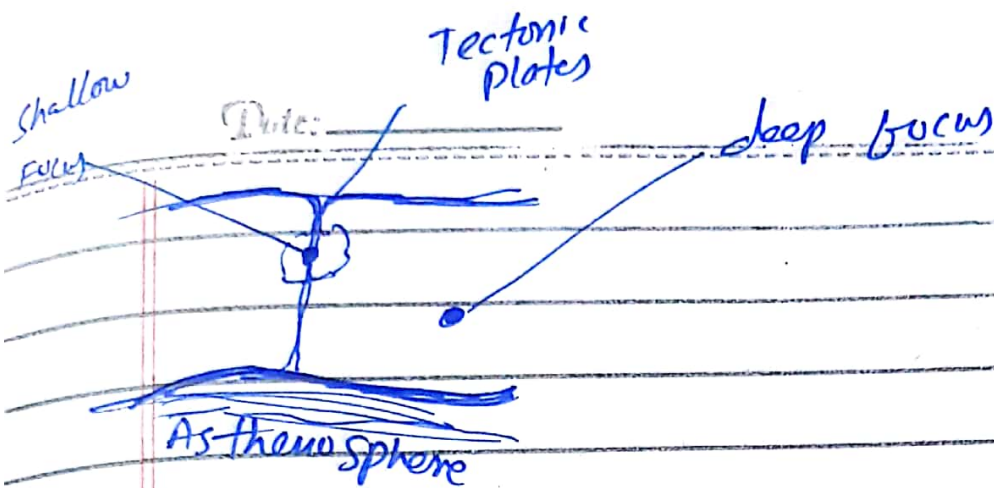
(b) Shallow Focus & deep Focus:

Focus is the point from which the earthquake waves emerge. Sometimes it is very near to the surface of earth and sometimes it is deep inside. If it is nearer to earth's surface it is called shallow focus.

while in case, it is in depth is considered as deep focus.

60 km

300 km



② Causes of earthquake

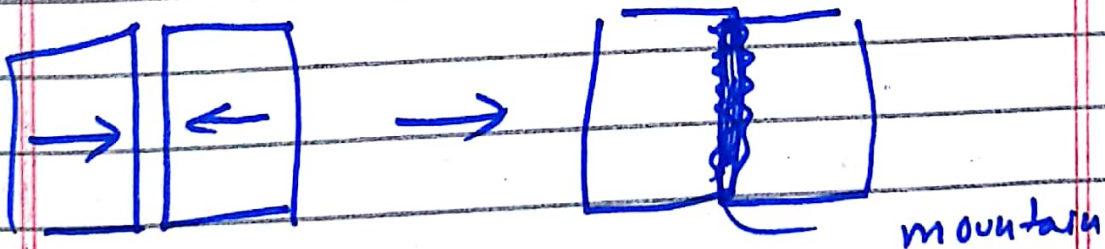
① Movement of tectonic plates:

Tectonic plates are large pieces of earth floating on asthenosphere belt. Their movement and friction becomes the outcome of earthquakes.

They move in three directions

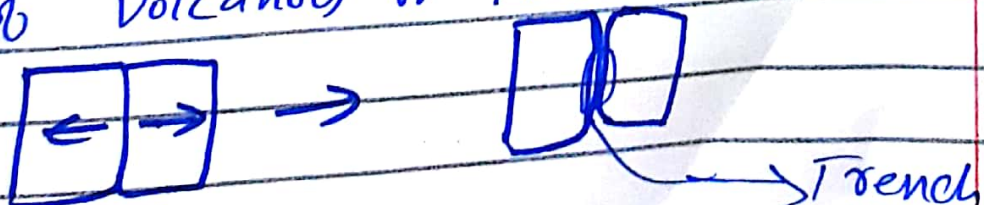
(i) Convergent Movement

Move closer to each other and result in formation of mountains.



(ii) Divergent Movement

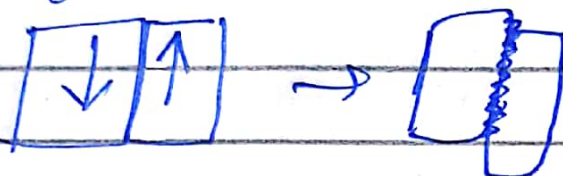
When they move against each other and result in the formation of volcanoes or trenches.



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(iii) Transform Movement:

Sometimes they move in lateral sides and also result in mountainous ranges. eg. in Chile



Elastic Rebound theory

② Volcanism

Volcanism also causes earthquakes. Because a large amount of pressure is expelled out during volcanic eruption which also results in shaking the earth.

③ Landslides:

Landslides are also a cause of earthquakes.

② Magnitude of earthquake in Morocco:

It was about 6.8 on Richter scale.

(C)

Dengue fever: This is the fever caused by Aedes virus which is transmitted through Aedes mosquito. It is more common in tropical and subtropical

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regions. Its incubation period is five to seven days.

(1) Symptoms

Dengue fever has the following symptoms:

High fever, Headache, bodyaches, etc

(2) Primary Causes

Following are the primary causes of dengue fever

(i) Mosquito infected with Dengue Virus

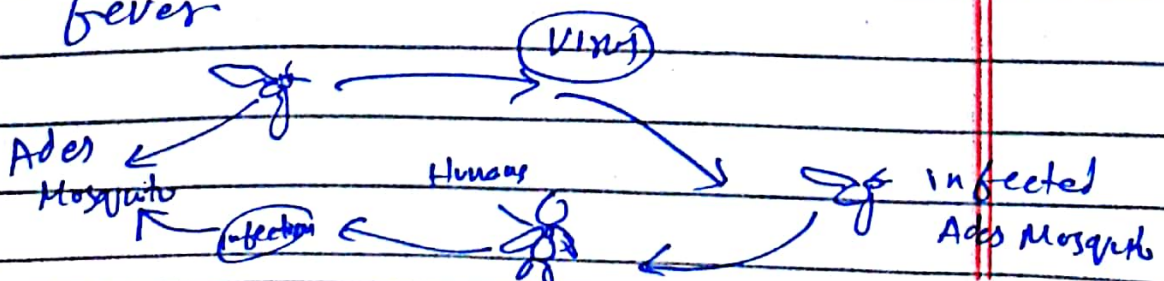
Mosquitoes infected by dengue virus ~~can~~ have the potential to spread the dengue disease

(ii) Stagnant Water

Standing water is the breeding ground for many microscopic organisms. Mosquitoes also breed there and become cause of the fever

(iii) Solid wastes

Many Mosquitoes and insect on solid wastes. Therefore, solid wastes also become the cause of dengue fever



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(3) Preventive measures:

(i) Solid waste management

Solid wastes should be properly managed so that no mosquitoes can breed on them.

(ii) Sprinkling oil on standing/dirty water:

Oil layer prevents the reproduction of Anopheles Mosquitoes and hence helps protect from diseases.

(iii) wearing full sleeve shirts:

Body should not be exposed to Mosquito bites. Therefore, full sleeve shirts are a best option.

(iv) Using Mosquito net:

It is the best way to avoid the dengue infection.

(v) Mosquito Killing sprays:

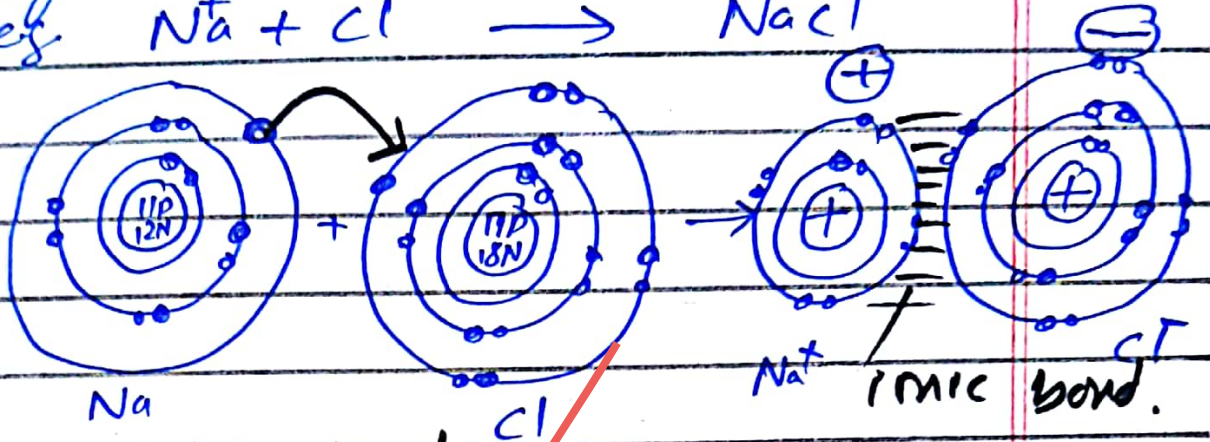
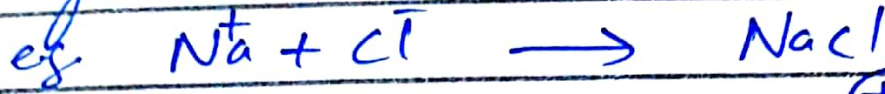
Mosquito Killing sprays or repellents are also available to avoid the dengue fever. Hence can be used.

(d) Ionic bond:

It is a type of chemical bond which is formed by complete ~~str~~ transfer of electrons from one metal to another non-metal.

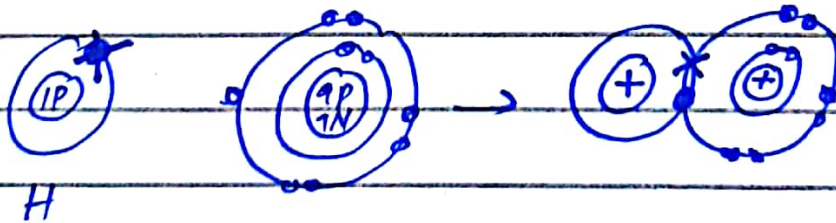
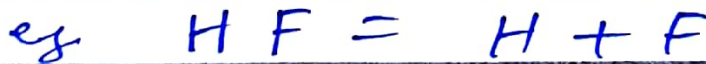
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It is mostly formed when electronegativity difference is higher than 1.7.



② Covalent bond

It is that type of chemical bond which is formed by mutual sharing of electrons. It usually occurs between non-metals. They are formed when electronegativity difference is less than 1.7.



Q. NO. 5 (a)

① Structure of Human ear:

Human structure is basically divided into three parts:

(i) outer ear: It is the visible

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part and is bell shaped. As ~~ear~~

Ear pinna is the main part of outer ear. It also

consists of external auditory canal.

(ii)

Middle Ear.

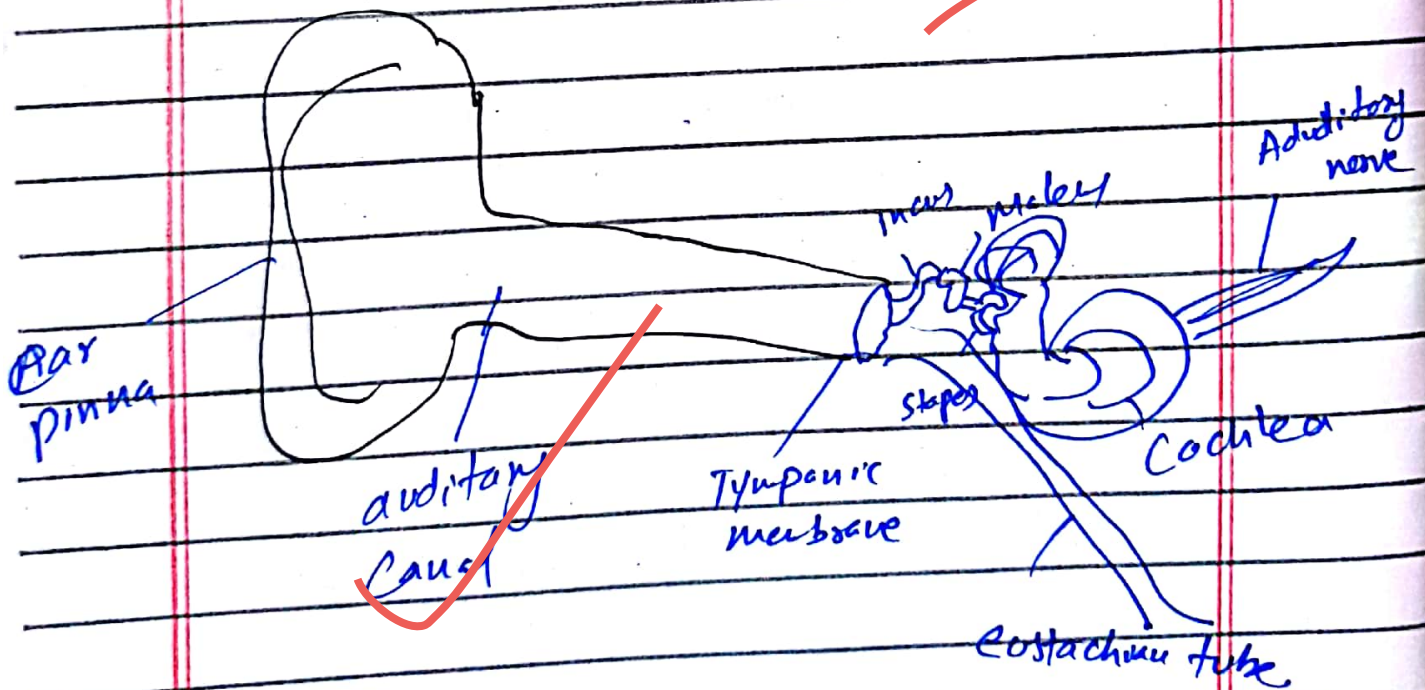
It consists of ossicles.

These are tiny bones in human ear which help in hearing.

(iii)

Inner ear. It consists of

semicircular canals, cochlea and auditory nerve



②

Function of human Ear

① Hearing. It is the most important function of human ear, which helps in hearing.

(a) Balancing:

Human body is balanced by liquid present in semicircular canals. They control various movements of our head.

(b)

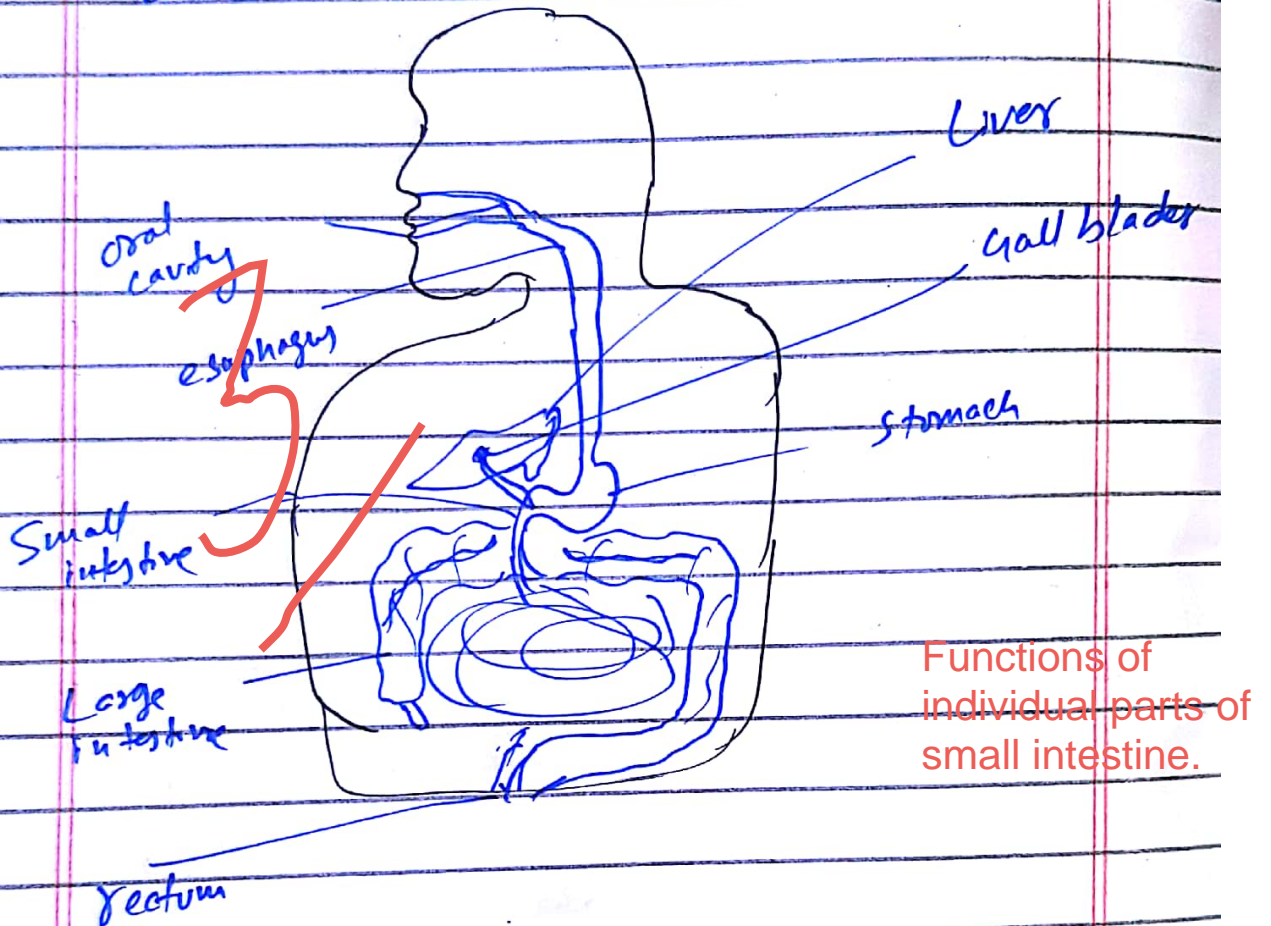
① Digestive System:

The organ system which helps in breakdown, and assimilation of food material is referred as digestive system. It has a tubular structure called elementary canal which consists of following parts

- ① oral cavity: first part where digestion starts
- ② Esophagus: oral cavity extends to a tube like structure called ~~digestive~~ esophagus.
- ③ stomach: it is J shaped and located in abdominal cavity.
- ④ Small intestine: it comes after the stomach it is large in size but smaller in diameter
- ⑤ Large intestine: it is small in

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- (c) size but has high diameter
Rectum: This is the last part of elementary canal where feces are stored



② Role of Small Intestine in digestion:

- (i) Protein metabolism: proteins are completely digested in small intestine
- (ii) Lipid metabolism: Lipids are also digested in this part. Here, both bile juice and pancreatic juice help in lipid break down

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(iii)

Absorption of nutrients:

Major part of nutrients are reabsorbed by the capillaries present inside small intestine.

(C)

Vitamins: These are the essential organic compounds which are required by the body in smaller quantities. Their absence can cause various type of diseases.

Types:

①

Water Soluble Vitamins

These are the vitamins which are soluble only in water not in organic solvents. Their excess is ~~not~~ much dangerous as they ~~can~~ be eliminated through ~~urine~~.
examples: Vitamin B and C

②

Fat Soluble Vitamins:

These are insoluble in water, but soluble in fats. Their excess is toxic for the body as they cannot be eliminated.

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by Urine e.g.

Vitamin A, D, E, and K, etc

Q Functions of pituitary gland

It is called as master gland as it controls various functions of human body.

① It produces STH (Somatotrophic Hormone)

② It produces TSH (Thyroid Stimulatory hormone)

③ It also produces some growth hormones.

SECTION - II

Q. No. 7 (a)

Data given:

Selling price = 80 Rs

Raised percentage = 20% of original price

Original price = ?

Now let's consider original price = x

then Selling price will be

$$20\% \text{ of } x + x = 80$$

$$\frac{20}{100}x + x = 80 \quad (i)$$

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taking L.C.M

$$\frac{20x + 100x}{100} = 80 \Rightarrow \frac{120x}{100} = 80$$

$$120x = 80 \times 100$$

$$x = \frac{80 \times 100}{120}$$

$$x = \frac{200}{3} \text{ or } 66.66 \text{ Rs}$$

Hence, the original price will be 66.66 Rs

(b)

BROTHER = Q D G S N Q A
SISTER = ?

~~BROTHER = Q D G S N Q A~~

Here the pattern shows that +1 with reversed order will give the answer.

Hence

~~SISTER = Q D S R H R~~

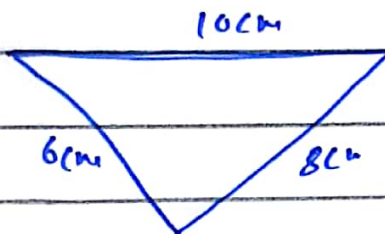
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Hence $SISTER = QDSRHR$

(C)

(i) Scalene Triangle:

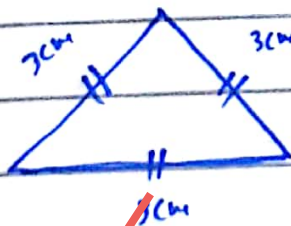
TYPE of triangle having all sides unequal to each other is called Scalene triangle. e.g.



What about angles?

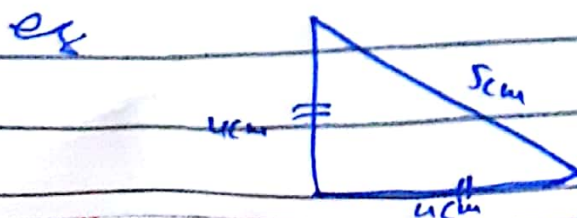
(ii) Equilateral triangle:

Triangle having all its sides equal is called equilateral triangle.



(iii) Isosceles triangle: (Right angle)

Right angle triangle having two sides equal and one side different in length



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(d)

Data given = Total slices = 8
slices containing resin = 3

Now according to probability formula

$$P(E) = \frac{\text{Number of events occurring}}{\text{Total outcomes}}$$

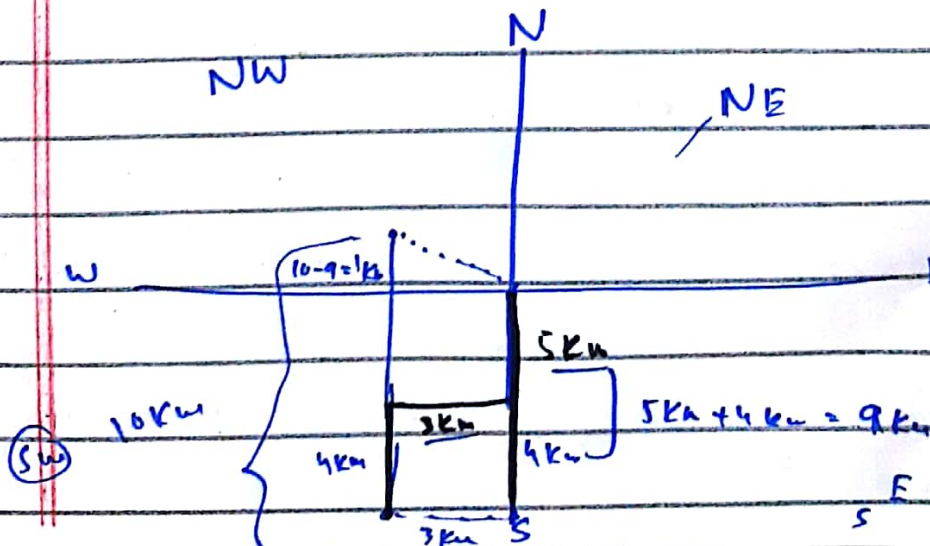
$$P(\text{slice with resin}) = \frac{3}{8}$$

$$P(\text{slice with resin}) = \frac{3}{8} \text{ or } 0.375$$

Hence probability of slice with resin
is = 0.375 or $\frac{3}{8}$

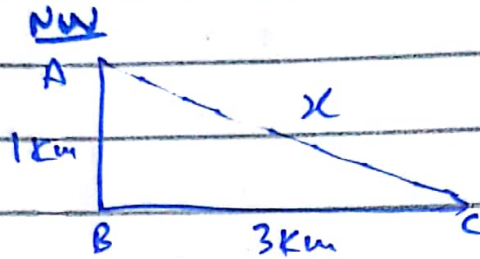
Q.8 (A)

Graphical representation



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Now making a triangle for
the respective distances



According to Pythagoras Theorem

$$(\text{Hyp})^2 = (\text{perp})^2 + (\text{base})^2$$

$$(x)^2 = (1\text{km})^2 + (3\text{km})^2$$

$$x = \sqrt{1\text{km}^2 + 9\text{km}^2}$$

$$x = \sqrt{1 + 9}$$

$$x = \sqrt{10}$$

$$x = \boxed{3.16\text{km}}$$

Hence He is 3.16km
in North West direction

(b)

Cubes of first five prime numbers

$$(2)^3 = 8$$

$$(3)^3 = 27$$

$$(5)^3 = 125$$

$$(7)^3 = 343$$

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$$(11)^3 = 1331$$

Arithmetic mean = $\frac{\text{Sum of cubes}}{\text{Total no. of cubes}}$

$$= \text{A. Mean} = \frac{8 + 27 + 125 + 343 + 1331}{5}$$

$$\text{A.M.} = \frac{366.8}{5} =$$

$$\text{Arithmetic Mean} = \underline{366.8}$$

(C)

<u>Men</u>	<u>Km</u>	<u>Days</u>
↓ 50	↑ 20km	↑ 40
↓ 70	↑ 20km	↑ 28

$$\frac{x}{40} = \frac{20}{20} \times \frac{50}{70}$$

$$x = \frac{20}{20} \times \frac{50}{70} \times 40$$

$$x = \frac{200}{7}$$

$$x = \underline{28.5 \text{ days}}$$

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(d)

$$\text{Property worth} = 1750,000 \text{ Rs}$$

$$\text{Debt} = 150,000 \text{ Rs}$$

$$\text{Rest money} = \underline{160,000}$$

$$\text{Daughter's share} = 1$$

$$\text{Son's share} = 2(1) = 2$$

Sum of their ratios

$$1 + 2 = 3$$

$$\text{Daughter's share} = \frac{1}{3} \times \frac{533333.33...}{160,000}$$

$$= \boxed{5,33,333.33 \text{ Rs}}$$

$$\text{Son's share} = \frac{2}{3} \times \frac{533333.33...}{160,000}$$

$$= \boxed{1066666.67... \text{ Rs}}$$

Cross check

$$\text{Total money left} = \text{daughter share} + \text{son's share}$$

$$533333.33 + 1066666.67$$

$$= \boxed{1600,000 \text{ Rs}}$$