

Section - II

General Instructions

Q.No: 7.

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.
7. Explain mathematical steps and the reasoning for better score.
8. Change colour scheme for references to give them more visibility.
9. Manage the time well.
10. Wide page borders are discouraged. Should be reasonable.

11. Avoid writing wrong references.
12. Give more weightage to expressedly asked part/s of the question.

Given data:
Code Brother = AWG S N G A
Find = code for Sister = ?

B R O T H E R
A W G S N G A

B = A
R = G
O = N
T = S
H = G
E = D
R = Q

Thus, word Sister would

be
S = Q

I = D

S = S

T = R

E = H

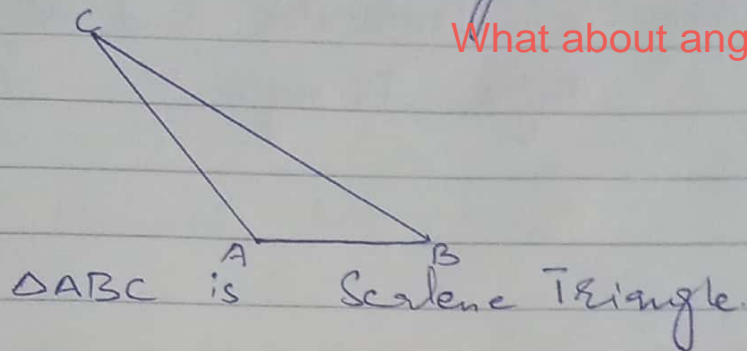
R = R

∴ Sister = Q D S R H R

c)
i) Scalene Triangle.

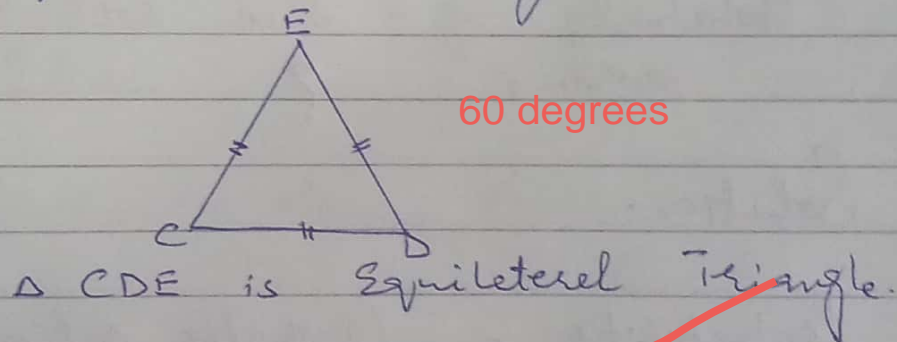
A triangle whose all three sides are unequal is called as scalene triangle.

What about angles?



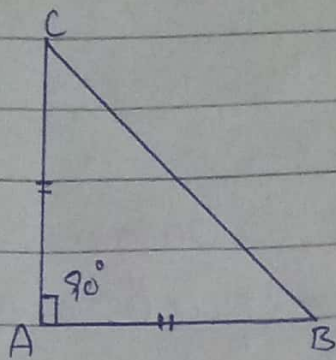
(ii) Equilateral Triangle

A triangle having all three sides equal is called an equilateral triangle.



(iii) Isosceles Triangle and Right Angle Triangle

A triangle having two sides equal and a right angle is said to be both Isosceles and right angle triangle.



ΔABC is isosceles and Right angle Triangle

d)

Given data:

Total Slices of pizza = 8 slices
Slices with Raisin = 3 slices

To find:

Probability of a slice with a Raisin = ?

Solution -

$$\text{Probability} = \frac{\text{Favorable outcomes}}{\text{Total outcomes}}$$

$$P(E) = \frac{n(E)}{n(S)}$$

$$= \frac{3}{8} = 0.375$$

Thus, probability to get slice

with basis is 0.72

Q.No: 8

b)

Given = Cubes of 1st five prime numbers.

∴ Prime Numbers

2, 3, 5, 7, 11

their cubes will be

8, 27, 125, 343, 1331

To find
Arithmetic mean = ?

Solution.

$$\text{Arithmetic Mean} = \frac{\sum x_i}{\sum n_i}$$

$$= \frac{8 + 27 + 125 + 343 + 1331}{5}$$

$$= 366.8$$

Thus, arithmetic mean of
cubes of 1st prime numbers
is 366.8

c)

Men	length	Days
50	20	40
70	20	x

$$\therefore \frac{50}{70} = \frac{x}{40}$$

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

$$= 28.5$$

Thus 70 men will take 28.5 days.

d)

Given Data

Property worth = 1750,000/-

Debt = 150,000/-

To find

Share of brother's daughter = ?

Share of son = ?

Solution =

First debt is to be subtracted
as

$$1750,000 - 150,000 \\ = 1600,000 \Rightarrow \text{Amount to} \\ \text{be distributed}$$

Total shares = 2 Son + 1 daughter
= 3

Dividing the amount into 3
portions =

$$\frac{1600000}{3} \\ = 533,333.3$$

As Son's share is double hence.

$$\text{Son's share} = 2(533,333.3) \\ = 1066666.6$$

And share of daughter
will be

$$= 533,333.3$$

Thus, Share of Son = Rs. 1066666.6
Share of daughter = Rs. 533,333.3

SECTION - I

Q.5

a)

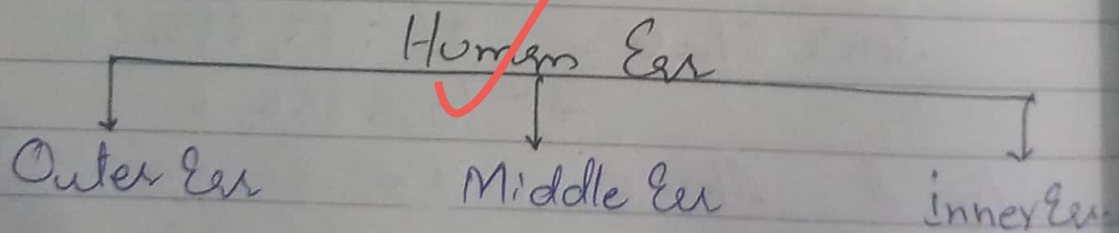
Human Ear

Human ear is an important organ of man. It is one of the sensory organs.

Structure:

The structure of a human ear is divided into three main parts -

- i) Outer ear
- ii) Middle ear
- iii) Inner ear



2) Outer Ear.

It consists of Pinna, Auditory Canal and Ear drum.
- Pinna = It is outer muscular part which is visible to eye.
• It collects sound waves from environment.

- Auditory Canal = it is a passage through sound waves travel.

- Ear Drum = it is a disc shaped structure which vibrates with coming into contact of sound waves.

Outer Ear

Pinna

Auditory Canal

Ear drum

⇒ Middle Ear

It consist of three tiny bones called ossicles. Their names are -

• Malleus

• Incus

• Stapes

- These bones transfer vibrations to inner ear.

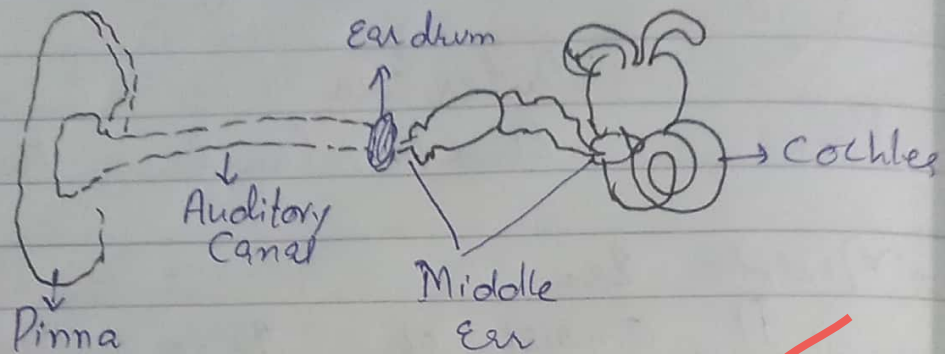
- These also increase pressure of sound waves.

⇒ Inner Ear

• It consists of a bony structure which is composed of three semi-circular bones.

• It also contain a snail like structure called Cochlea.

- Cochlea contains tiny hair and fluid.
- Cochlea converts sound waves into electrical signals and send to brain.



Structure of Human Ear.

Functions of Human Ear:

As a Sensory Organ. Human ear is one of sensory organs. It helps in hearing process.

Body equilibrium: It helps to maintain body position and posture.

b. Digestion System and Role of Small Intestine

Digestion System:

A system which is responsible for digestion or break down of food into small absorbable particles is called digestion system.

The system involves following body organs:

1. Mouth: It is responsible for chewing and lubricating the food.
2. Oesophagus: It is a passage which carries food from mouth to the stomach.
3. Stomach: A sac-like structure which is responsible for digesting proteins.
4. Liver: It produces bile for digestion of fats.
5. Small Intestine: It is responsible for digestion of proteins, fats and carbohydrates.

Diagram?

↳ Large Intestine: It helps in absorption of nutrients and excretion of waste material.

Role of Small Intestine in Digestion.

Small intestine is a tube-like structure extending from stomach to large intestine.

It receives enzymes in bile from liver. These enzymes are responsible for digestion of food as following.

Enzyme	Targeted food
Chemo trypsin	Proteins
Lipase	Fats
Maltase	Carbohydrates
Trypsin	Proteins
Sucrase	Carbohydrates

Thus, small intestine has an important role in digestion of food.

Q.No: 5 (C)

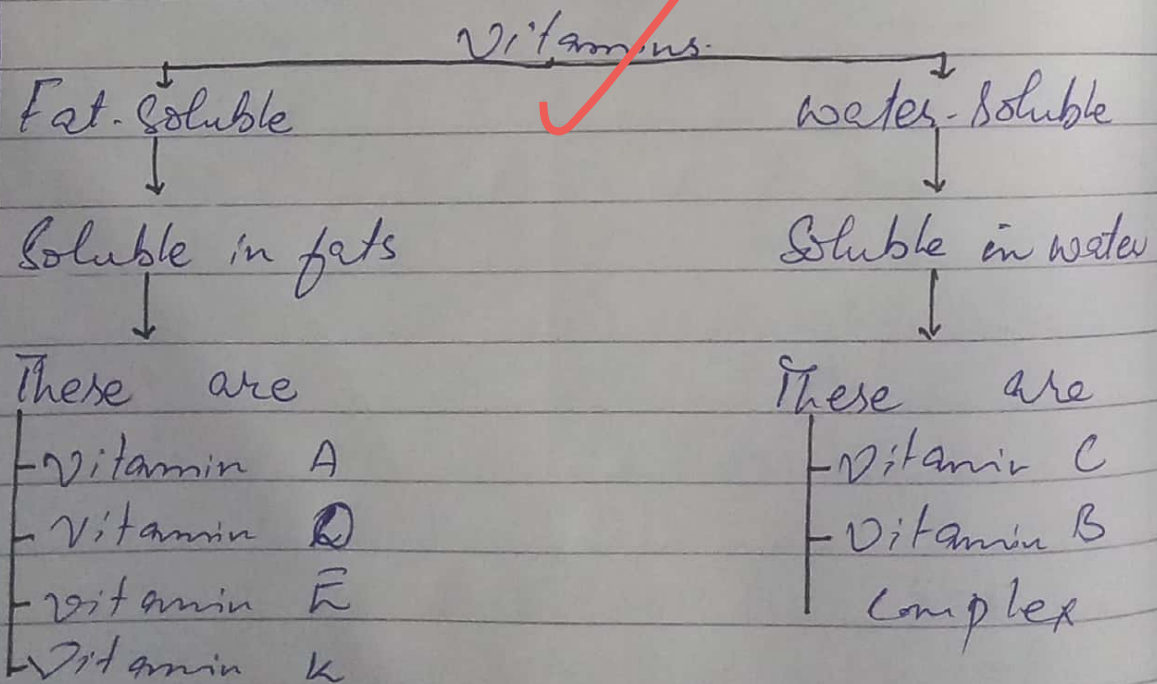
Vitamins.

Vitamins are organic compounds which are required in minute quantities and are essential for normal growth and body functioning.

Types of vitamins.

There are two types of vitamins.

1. Fat-soluble vitamins.
2. Water-soluble vitamins.



Sources: The sources of vitamins are:

Vitamin	Source
Vitamin A	Green leafy vegetables and red carrot
Vitamin D	Cod liver oil and Sunlight
Vitamin E	vegetables and Cod liver oil
Vitamin K	Green leafy vegetables
Vitamin C	Citrous fruits
Vitamin B complex	Egg, meat, milk

Deficiency of Vitamins:

The deficiency of vitamins causes following disorders.

Vitamin	Disease / Disorder
Vitamin A	Night Blindness
Vitamin D	Rickets
Vitamin E	Haemophilia
Vitamin C	Scurvy
Vitamin B complex	Anaemia.

Q.5 - d.

Pituitary gland

It is a small granular gland present at bottom of human brain.

Functions:

- It is an endocrine gland and secretes hormones.
- It controls other endocrine glands.
- It also controls growth and metabolism in body.

Hormones secreted by Pituitary gland.

Pituitary gland secretes following hormones:

- Luteinising Hormone
- Thyroid Stimulating Hormone
- Somatotropin Hormone
- Adrenocorticotrophic Hormone
- Growth hormone.

Do not give one liners. Diagram?

Q. No: 3.

2) Cyclone

A large air mass which rotates around a strong centre of low atmospheric pressure is called as a cyclone.

Direction of Cyclone:

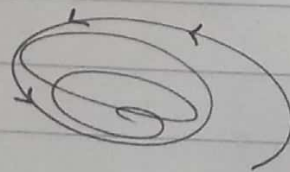
Each part or hemisphere of an Earth perform different direction of cyclone. It can be illustrated as follows:

Southern Hemisphere



Clockwise

Northern Hemisphere

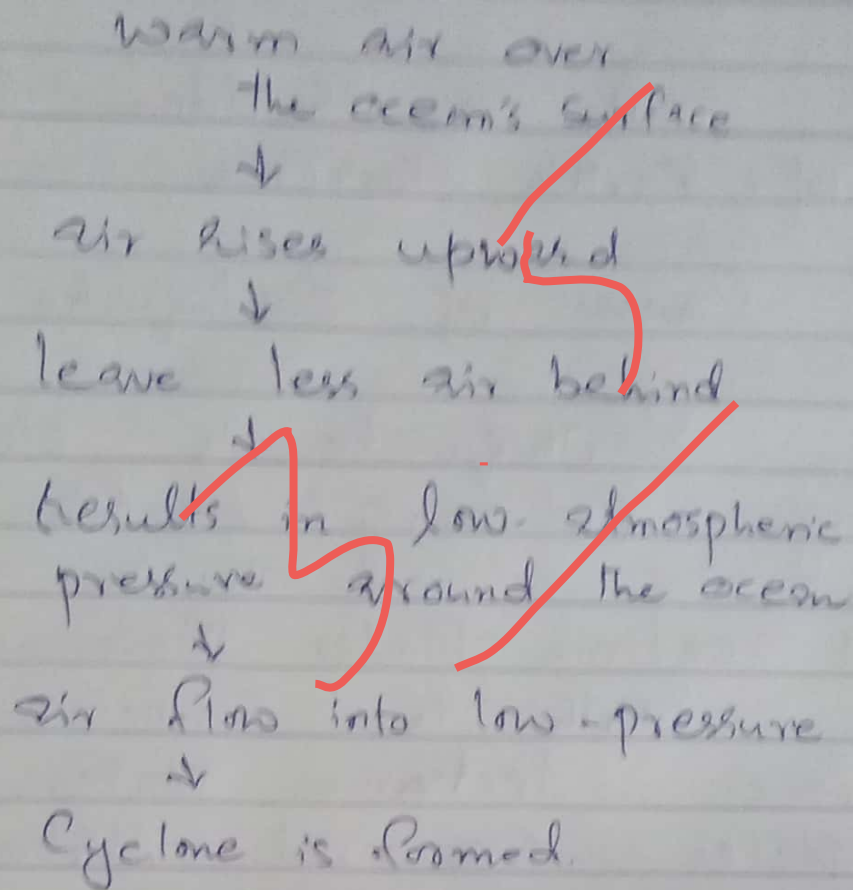


Counter clockwise

Causes of Cyclone:

Cyclone is mainly caused by warm and moist air over the

Ocean's surface. The whole process can be described as,



Strongest and destructive
part of cyclone

The strongest and destructive
part of a cyclone is Eyewall.

Eyewall: It is eye-shaped
central part of cyclone. It
causes heavy rainfall and
strongest winds.

b.

Earthquake.

It is sudden shaking of Earth's surface.

Causes of Earthquake.

Earthquake is caused by following factors.

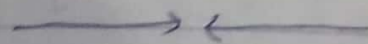
1. Tectonic Plates Movement:

Earth is composed of seven tectonic plates. These plates are not stationary; their movements are:

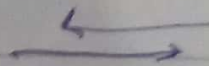
1- Divergence: Tectonic plates move far from each other



2. Convergence: Plates move closer to each other.



3. Lateral: Tectonic plates overlap each other.



Any abnormality in these movements cause earthquake.

2. Volcano.

Earthquake is also caused by volcanos.

3. Human Activity:

Any human activity can increase friction and vibrations on Earth's crust thus leading to Earthquake.

Shallow Focus.

The focus of an Earthquake within Earth's outer layer is called Shallow focus.

It is about 70 km deep.

Deep Focus.

The focus in which earthquake is deep into the Earth's surface is known as Deep focus.

It is below 70 km deep.

Magnitude of Earthquake in Morocco.

The magnitude of recently earthquake in Morocco is 6.8.

c) Dengue Fever.

Dengue fever is a viral infection in human being.

Causative Agent: Dengue Virus

Vector: It is spread by mosquito *Aedes Aegypti*.

Symptoms. These ranges from mild to high-grade fever, skin rashes, vomiting and headache.

Preventive Measures: It can be prevented by using
(i) Mosquito Repellents: To repel mosquitoes from human being

- ii) Reducing mosquito Habitat
- iii) wearing protective clothes.
- iv) Using mosquito nets.
- v) Proper ventilation of homes.

d.

Ionic And Covalent Bonds.

Definition:

Ionic Bond: A bond which is formed by ~~the~~ transfer of valence electrons is called Ionic Bond.

Covalent Bond: A bond which is formed by sharing valence electrons is called Covalent bond.

Solubility:

Ionic Bond: Compounds having this bond are soluble in polar solvents like water.

Covalent Bond: Molecules having covalent bond are soluble in non-polar solvents like Alcohol.

Electricity Conductivity,
Ionic Bond: Compounds with
these bonds conduct electricity
in their molten form.
For instance: NaCl in water conduct
electricity.

Covalent Bond: Molecules formed
with covalent bond do not
conduct electricity.

Melting Point.
Ionic Bond: it has high
melting point in its compounds

Covalent Bond: There is low
melting point of molecules
having covalent compounds.

Examples.

Ionic Compound: $MgSO_4$, NaCl
KCl.

Covalent Compound: water (H_2O),
 O_2 , N_2 , Cl_2

Diagram?