

QUESTION NO 2

(d)

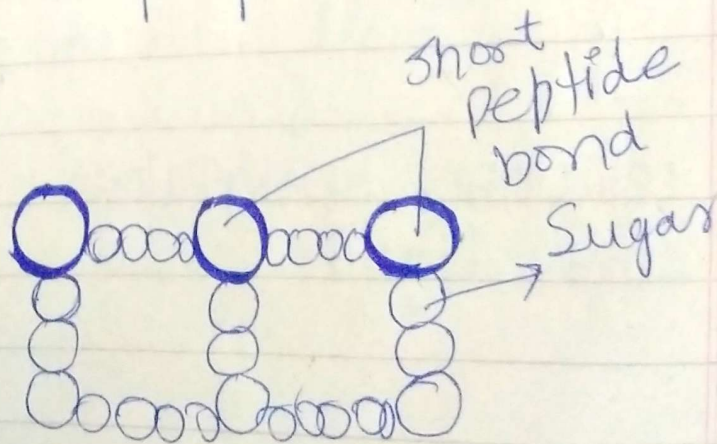
Structure of Cell Wall:

Cell wall is the main organelle. It is ~~present~~ in ~~plant~~ cell. It is absent in animal cell.

The cell wall is also present in algae, fungi and bacteria.

→ In Bacteria:

The cell wall of bacteria is made up of **peptidoglycan**. It has long chain of sugar (glycan) that linked with short peptides.



Types of Bacteria On the basis of Cell wall

Gram-positive

It has thick
layer of peptidoglycan.

It has less
periplasmic
space.

Gram negative

It has
less (thin)
layer of
peptidoglycan.

It has
high
periplasmic
space.

In plant Cell:

The cell wall of plant
cell has three structure

Primary cell wall

Secondary cell wall.

Tertiary cell wall.

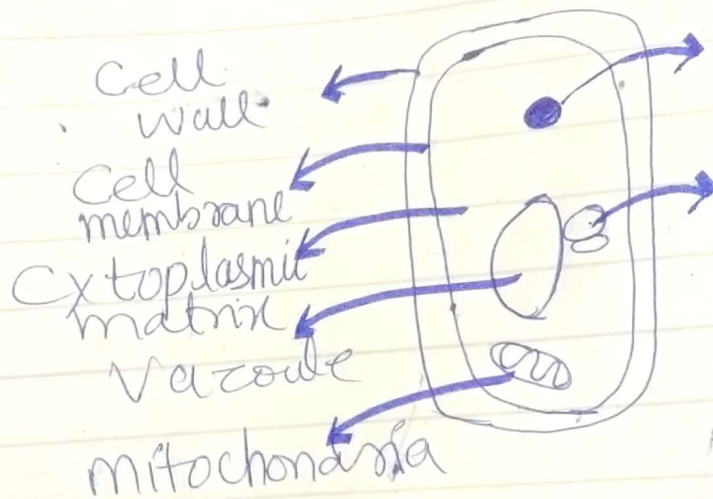
Composition:

The cell wall of plant
cell is made up of
cellulose, hemicellulose, pectin
and lignin.

(i)
(ii)
(iii)

Function of Cell Wall;

1. Cell wall maintain rigidity of plant cell.
2. It also provides shape to plant.
3. Secondary growth causes the increases the girth of plant cell.

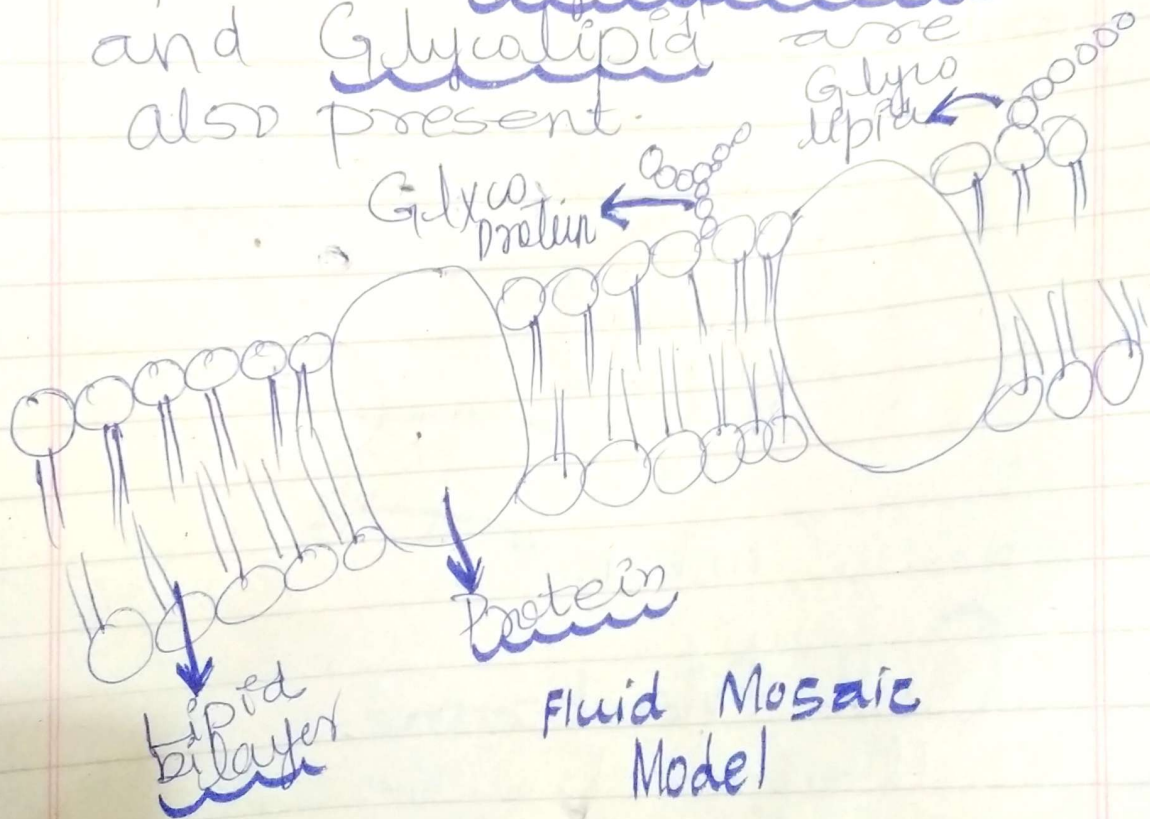


Cell Membrane:

Cell membrane is present in both animals and plant cells. There are different models who represent the composition of cell membrane.

Fluid Mosaic Model:

Cell membrane are arranged in Mosaic manner. According to this model, lipid bilayer is sandwiched between protein. Glycoprotein and Glycolipid are also present.



Bacterial Cell Membrane

(i) **Mesosome**

Cell membrane invaginates to form a circular structure

called Mesosomes.

Function

- They are involved in respiration.
- It is also performs the function of DNA replication

In some bacteria, cell wall is absent. Cell membrane is first layer. Example of that *Mycoplasma* and *Spirillum*.



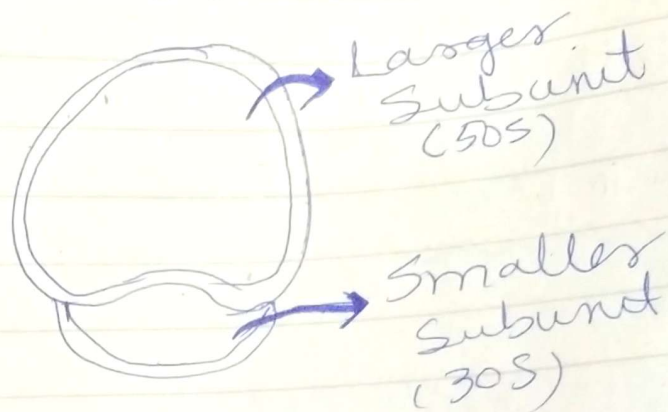
CYTOPLASM:

The cytoplasm has liquid surface area where many metabolism reactions takes place. It has semi-fluid matrix called cytosol.

Ribosomes:

- (i) → Ribosomes are embedded in cytoplasm.
- It is the factory of protein synthesis.

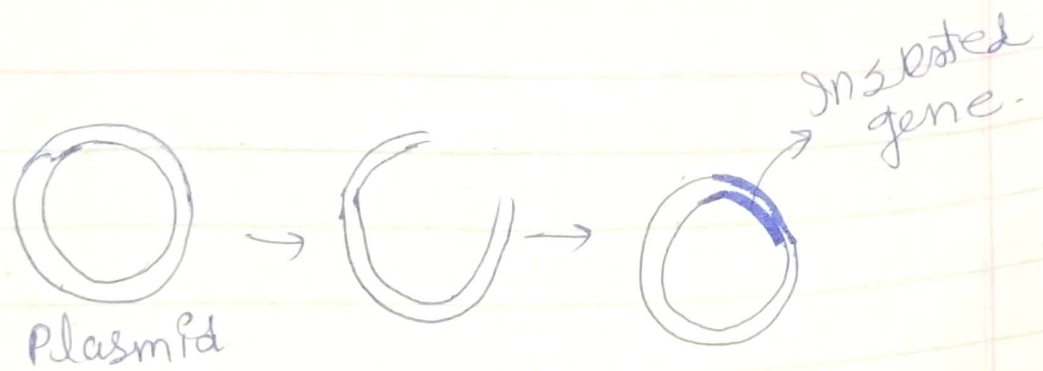
- Ribosomes has smaller and larger subunit.
- The size of ribosomes in animal cell is 80S.
- Endoplasmic reticulum has been integrated with ribosomes.



(iii) Plasmid:

Plasmid is small, extra-circular chromosomal DNA.

- Plasmid are involved in genetic engineering by serves as a **vector**.
- A cut has been taken at point of plasmid.
- A carry gene is inserted for the **synthesis of protein**.



Use of plasmid in Genetic Engineering

Mitochondria

Mitochondria is double membrane bounded organelles. It is present in animal and plant cell. It is the power house of cell.

→ Composition:

It is composed of complex structure,

- (i) Outer membrane
- (ii) Inner membrane
- (iii) Intermembrane Space
- (iv) Cristae
- (v) F_1 particles

Outer Membrane:

The outer membrane makes the surface of mitochondria.

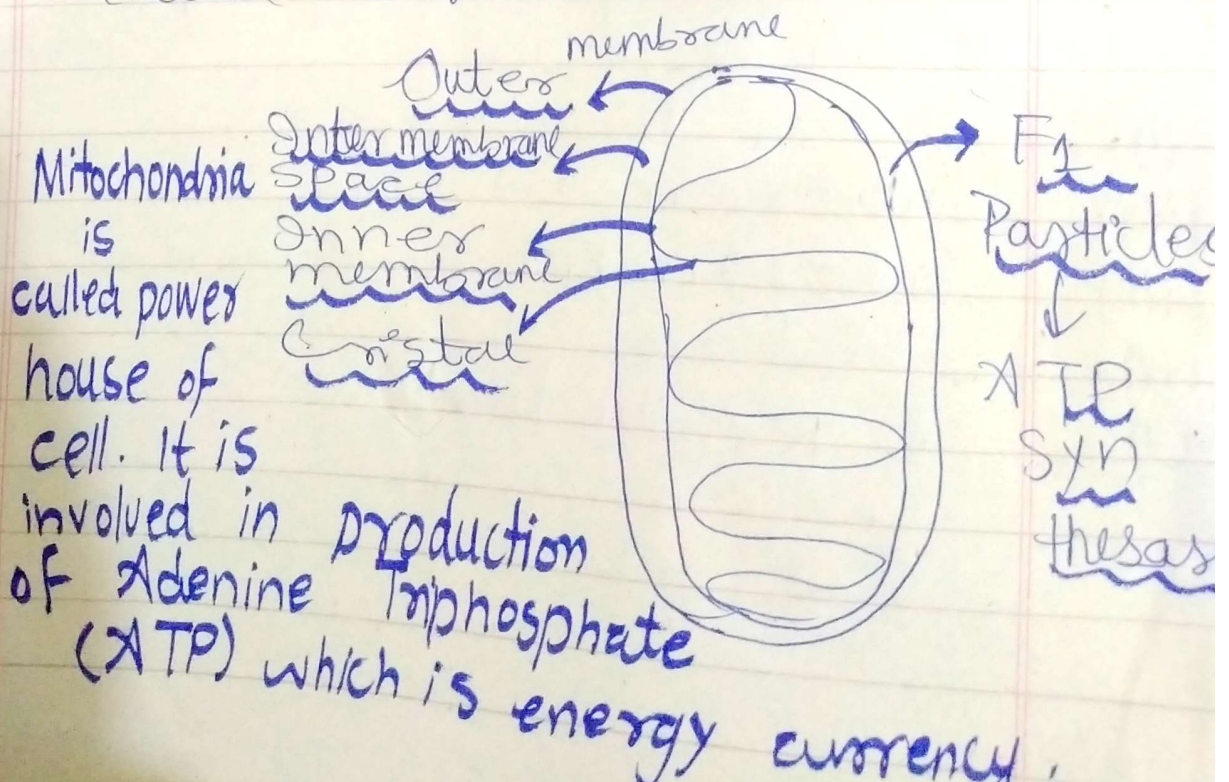
Inner membrane: The inner membrane is present beneath the outer membrane.

Intermembrane Space: The space which is present between outer and inner membrane.

F₁ particles: F₁ particles contain ATP synthase enzyme which involved in production of ATP.

Cristae:

The folding material of mitochondria is called cristae.



(C)

Unbalanced Healthy Diet:

The unbalanced healthy diet is composed of high intake of saturated fatty acid. It adversely impact the health of an individual. It causes various diseases.

Lack of	Diseases
Vitamin A	(i) Dry Eye
	(ii) Impaired vitamin A storage
Vitamin D	(iii) Cystic fibrosis
	1. Rickets
	2. Osteoblastitis
	3. Osteoporosis
Vitamin E	→ Aging

Recommendation:

1.

High intake of polyunsaturated fatty acid such as fruits, vegetables and nuts.

2. An intake of Antioxidants (C+E) in vegetables and fruits causes the balanced diet that helpful for maintenance of growth.
3. Exercise and proper maintenance of circadian rhythm is crucial for health.

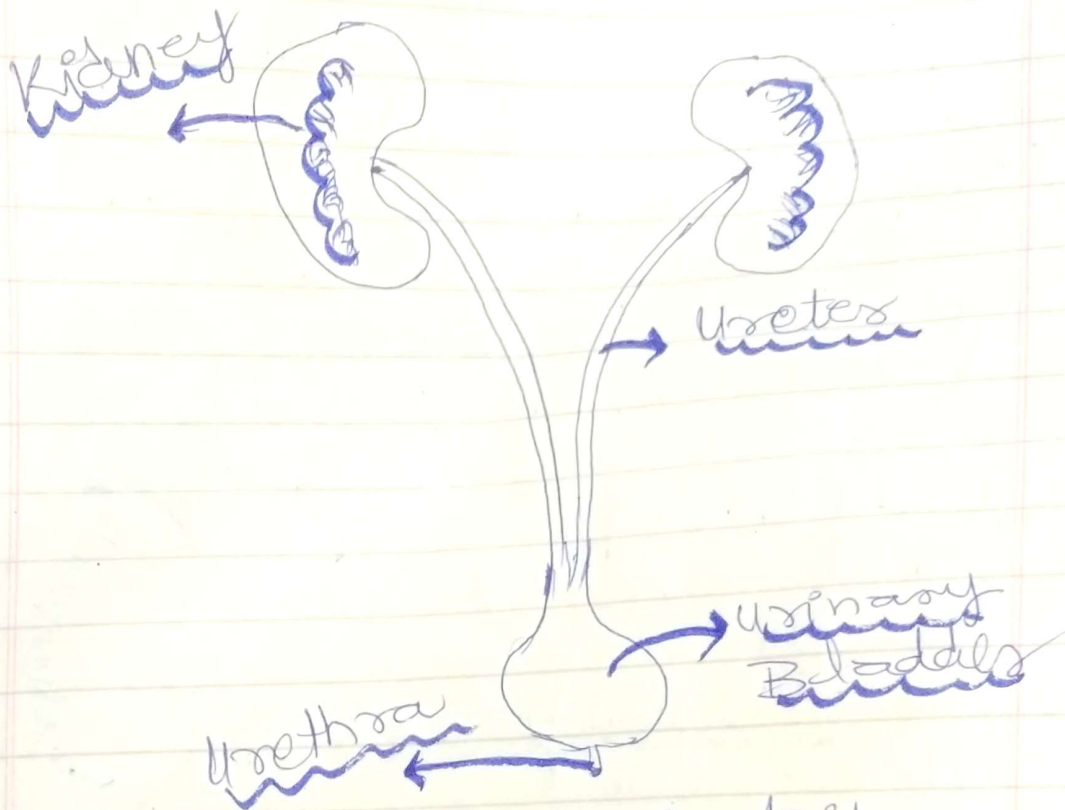
(b) URINARY SYSTEM,

Urinary system is the part of excretory product. Excretion is the removal of waste product include Urea, Urine and Uric acid.

Structure of Kidney:

The kidney is the main part of urinary system. The structural component of kidney is Nephron.

One kidney contain
one billion nephron.



The structure of kidney
is composed of
ureter, urethra,
urinary bladder and
nephron.

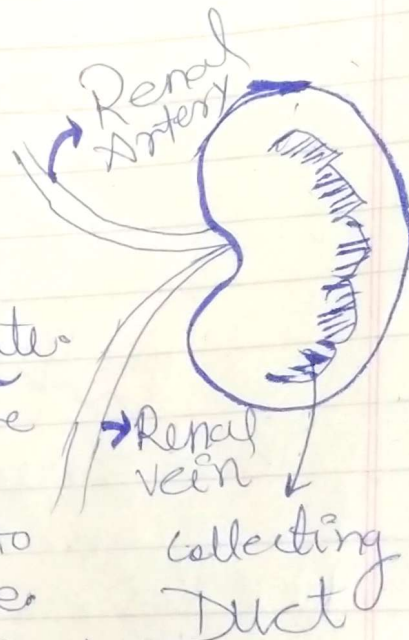
The main function
of kidney is
the removal of
toxic material
and purification.

Pathway for Excretion:

→ Heart distributed the blood into the body.

→ Glomerulus is the fundamental part of Nephron. It has cup shape. It is made up of multiple cappillaries.

→ A capsule like structure called Bowman capsule which involves the purification of sodium benzoate. Urea, Salt are removed. The blood is enter into Bowmann capsule.



Heart → Blood → Body →
Afferent Arterioles → Glomerulus

Pathway for excretion

Collecting Duct
↑
Distal convoluted Tubule

Loop of Henle

Proximal convoluted Tubule

Bowman Capsule

(a)

Big Bang Theory:

Big Bang Theory is one of the earliest theory which elucidated about origin of universe

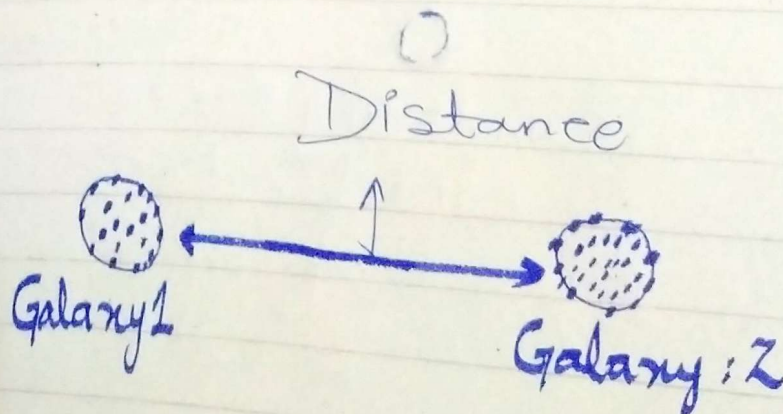
(1) Universe Expanding Hypothesis:

→ The universe expanding Hypothesis was stated by _____.

→ The galaxy does not expand.

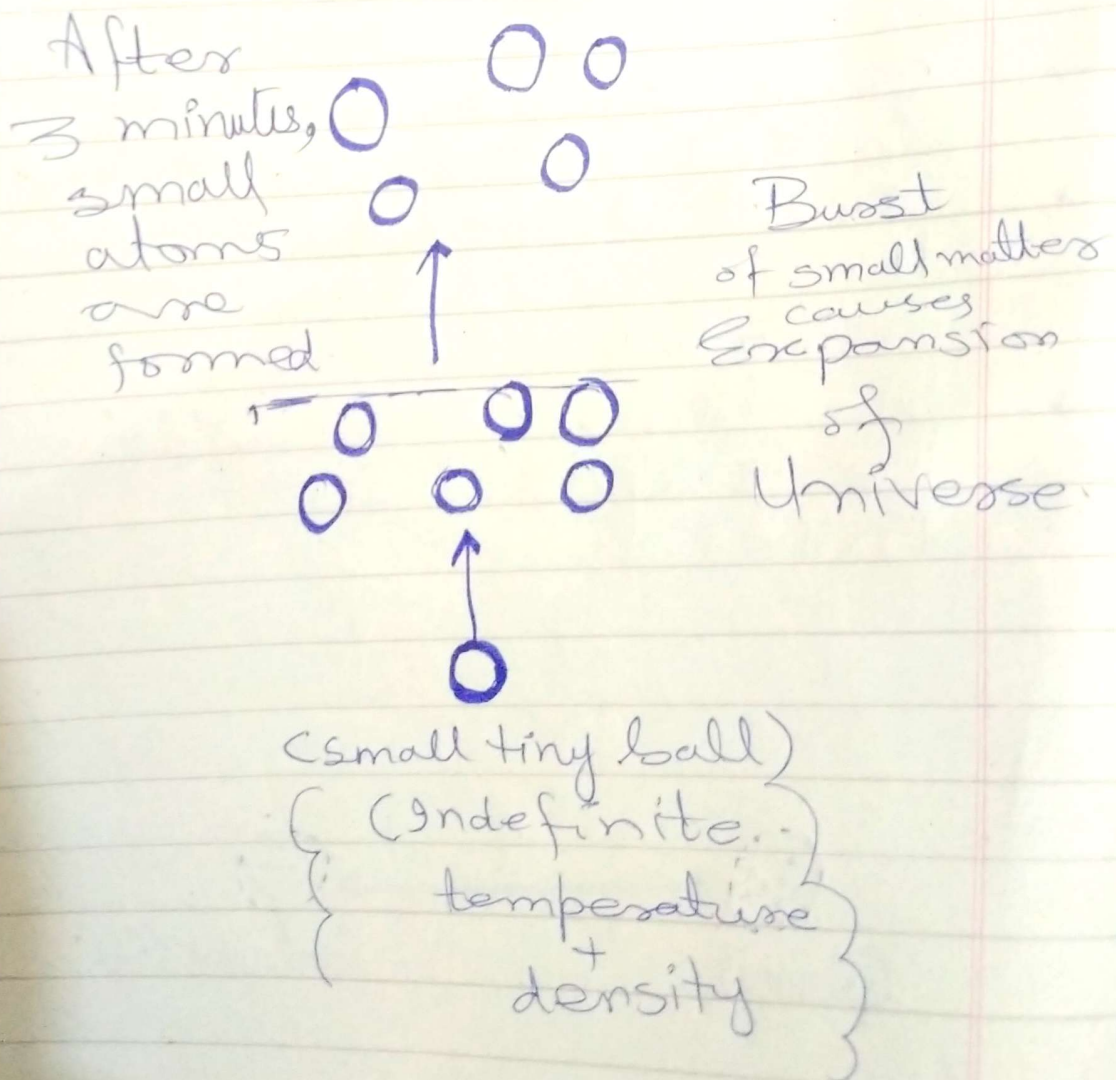
→ The distance between the galaxy has been increased

→ It ultimately cause the expansion of universe.



2) Assumption of George Laimetre

In 1920, George Laimetre introduced a concept that universe is originated from a tiny ball (matter) is composed of infinite temperature and density.



QUESTION 3

(b)

Ceramics:

A ceramics is an non-metallic, inerts, solid compound that formed by interaction of heating and subsequent cooling.

Properties

- (i) It has present in various forms.
- (ii) It has high durability.
- (iii) It has high elasticity.
- (iv) It is found in complex materials.

Applications:

It is used in electrical system.

It is used for making complex material.

(C)

Working of Optic Fibre:

The working of optic fibre is based on total internal reflection.

Optic fibre are used as a ^{grounded} medium for the transmission of optic signal over larger distance of longer several kilometre.

Working of- Optic Fibre:

1. Core:

The core is made up of glass, plastic and silica.

It has high refractive index.

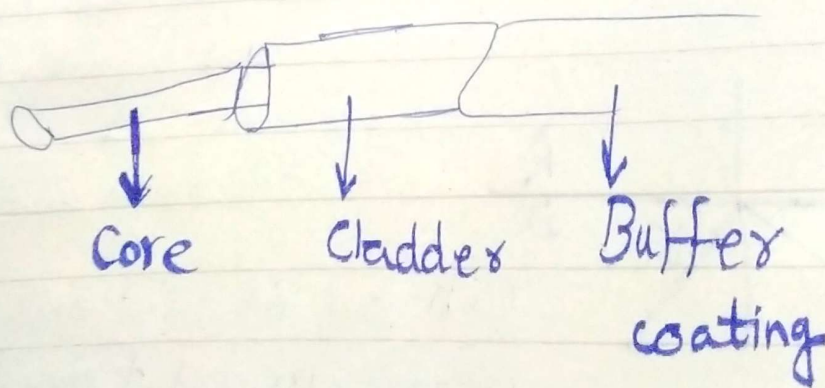
2. Cladding:

It is encoded into core.

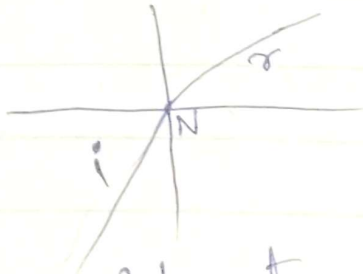
It is made up of glass and plastic. It has lower refractive index.

3. Buffer coating:

Buffer coating provides insulation to the transmission of signal over large distance.

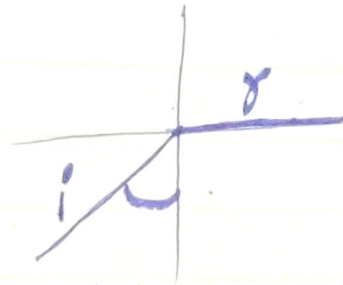


Cases of TIR (Total Internal Reflection)



incident ray is move from denser to rarer medium.

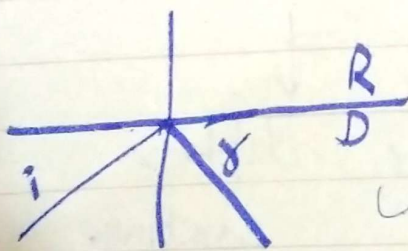
It caused refraction



When incident ray is away from normal

Critical angle.

It is equal to when angle of incidence becomes equal to angle of refraction.



When incident ray away from critical angle. It ray becomes reflected.

(d)

Food Additives:

Food Additives means the addition of compounds which prevents food spoilage, food poisoning and eradication of microbial compounds.

Example:

Compound	Diseases
Addition of Bisphenol-A	It acts like a Estrogen which impaired fertility. It causes a negative impact on Immune and nervous system.

American Academy Predicts policy "Food Additives and child" stated that food additives has negative impact on health of child.

Food Adulteration:

Food adulteration means the addition of a compound that devalue the food quality.

Example

Adulterant Compound Effects

- ① Unhygienic water
- ② Soap water
- ③ Hydrogen Peroxide

Milk

- 1) Cancer
- 2) Vomiting
- 3) Food Poisoning

- ① Vegetable Oil
- ② Animal Fat

Ghee

- 1) Enlargement of Heart

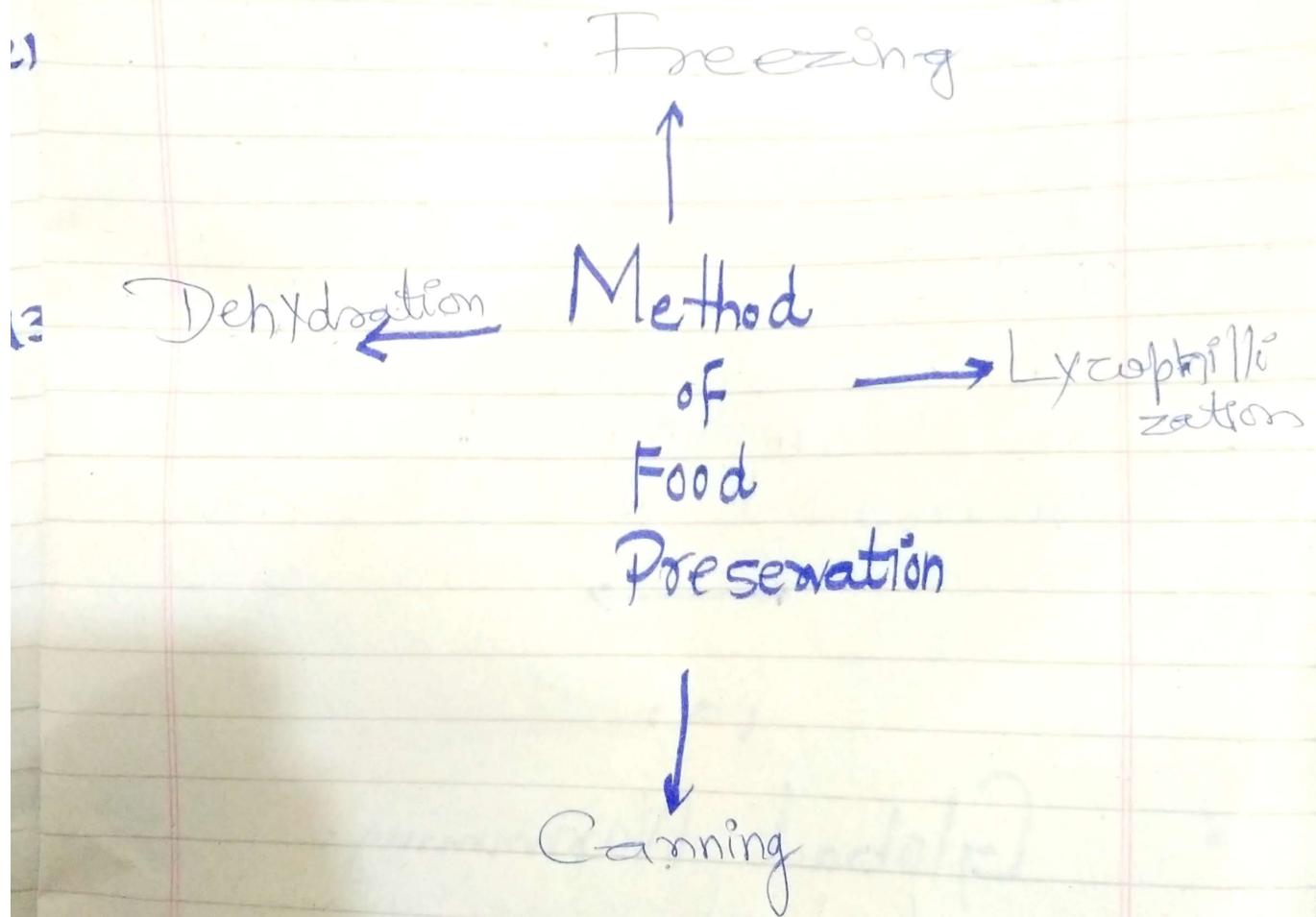
- ① Alkaline Yellow Dye

Turmeric Powder

- ① Cancer
- ② Stomach Disorders

Food Preservation

Food preservation is the method for the preservation of food for longer time by adding compounds.



Food contamination:

Food contamination is the spoilage of food by presence of microbes such as bacteria and fungi.

Example:

Bread becomes green due to presence of fungi.

Preservation of milk in freezer is the best method for removal of contamination



(a)

Global Warming:

Global warming is a phenomenon in which ultraviolet rays penetrate into Earth causes the

rise of temperature
that not suited for
proper life;

Reverse of Global Warming:
Global Warming is
reverse by the

(1) Reforestation method.

(2) A comprehensive
method for the mitigation
of gases that emitted
from vehicles.

(3) A proper implementation
of policy " **Green Punjab** "
is the best solution
for eradication of
gases.



QUESTION no 7

(A)

If 40% of a number
..... numbers,

Given

of = multiply (x)
number = x, number y

$$\frac{40}{100} \times x = \frac{2}{3} \times y$$

Find: $x : y = ?$

Solution:

$$\frac{40 \times x}{100} = \frac{2}{3} \times y$$

$$20 \frac{\cancel{40}}{100} x = \frac{2}{3} y$$

$$50 \frac{10 \cancel{20}}{25 \cancel{50}} x = \frac{2}{3} y$$

$$\frac{2 \cancel{10}}{5 \cancel{25}} x = \frac{2}{3} y$$

$$\frac{2}{5} x = \frac{2}{3} y$$

$$\frac{2}{5}x = \frac{2}{3}y$$

$$\frac{x}{y} = \frac{5 \times 2}{3 \times 2}$$

$$\frac{x}{y} = \frac{\cancel{10} 5}{\cancel{6} 3}$$

$x : y = 5 : 3$ is the ratio of $x : y$.



(C)
A man is 24 years older
..... age of
his son is ?

Given

Man years = 24

After 2 years

Man years = $2x$

Find

Age of son = ?

Solution:

$$x + 24 = (x + 2)2$$

$$x + 24 = 2x + 4$$

Man : Son

$$26 : (x + 2) \times 2$$

$$x + 24 : x$$

$$x + 24 = 2x + 4$$

$$x - 2x = -24 + 4$$

$$x = 20 \text{ years}$$

The present age of the son is 20 years.



(D)

Rashid and Kamran -----
----- 110 pages?

Given:

Rashid takes 6 hours = 32 pages

Kamran takes 5 hours = 40 pages

Find:

Working together on two different computers = 110 pages

Solution:

Rashid takes 6 hours = 32 pages

Rashid takes 1 hour = $\frac{32}{6}$ 16
3

Kamran takes 5 hours = $\frac{40}{5}$ 8 pages

Kamran takes 1 hour = 40

81
= 8 pages

Question No 08 :-

(A)

There are five - - - - -
- - - - - in the middle?

Solution :-

• Houses in a row

i- A is to the right of B

ii- E is to left of C $\rightarrow$
right of A -

iii- B is to the right of D -

Order : D $\rightarrow$ B $\rightarrow$ A $\rightarrow$ E $\rightarrow$ C



So, the middle house is 'A' -

(B)

If you start running - - - - -
- - - - - in which direction
will you have to run?

Solutions :-

Running directions

- start $\rightarrow$ run 4km North
- Turn left $\rightarrow$ run 5km West
- Turn left $\rightarrow$ run 5km South
- Turn left $\rightarrow$ run 6km East

- Turn left $\rightarrow$ run 1km North
- Net position :
 - i- North-South : $4\text{km N} - 5\text{km S} + 1\text{km N} = 0\text{km}$
 - ii- East-West : $-5\text{km W} + 6\text{km E} = 1\text{km E}$

1km East

- Final direction : North
- After 2nd turn : South
To reach start from finish : West

(C)

Find the odd man - - - - -

- - - RETAEWS -

Solution :

Odd anagram out
Anagrams :

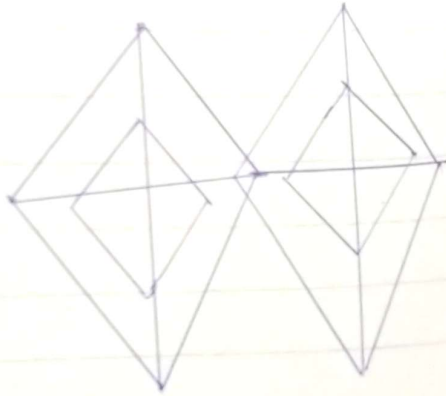
- THRSI $\rightarrow$ shirt
- ADTIC $\rightarrow$ Coat
- EOUBSL $\rightarrow$ Bousel
- KTRIS $\rightarrow$ Skirt
- RETAEWS $\rightarrow$ Sweater

$\rightarrow$ Odd one out : "(c) EOUBSL (Bousel)"

(D)

How many triangle
- - - below .

Solution :



- There are "ten (10)" triangle
in that figures -