

# Dos and Don'ts for the General Science & Ability Paper

Hi there — you've prepared well!

Remember, knowing the content is one thing, but presenting it in the paper exactly as required is another. Here are a few key points to keep in mind:

1. For a 5-mark part, aim to write at least 2 and at most 3 sides of the answer sheet.

Often, a question has two or three parts, and the marks are divided accordingly — so address each part fairly.

2. Manage your time wisely — you have about 35 minutes per full question, which comes down to around 8 minutes for each 5-mark part. Stick to this to avoid rushing later.

3. Make your answers look scientific, not just theoretical. Use flowcharts and diagrams wherever they add clarity.

4. Neatness matters — keep your handwriting clean, avoid cutting or overwriting.

5. Mind your spelling and grammar — while GSA doesn't deduct marks for these, your expression leaves an impression.

6. In the ability portion, explain analytical ability questions in words. For a 5-mark part, show all steps and provide clear explanations.

Good luck for CSS 2026 — you're going to ace it, in sha Allah! ✨

# 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.

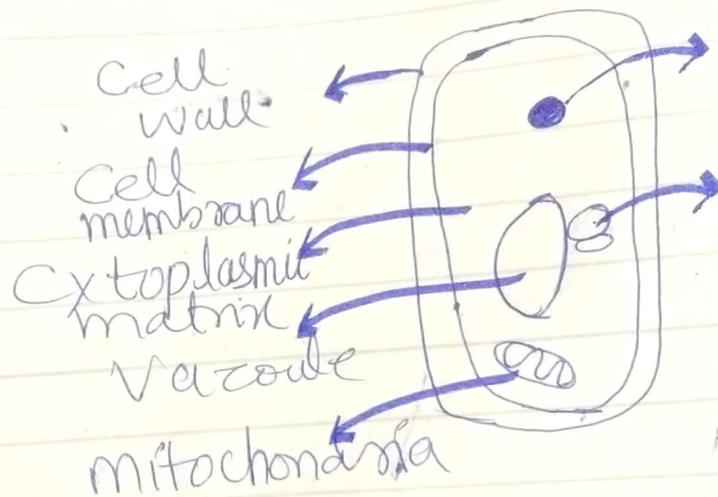
### Composition:

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

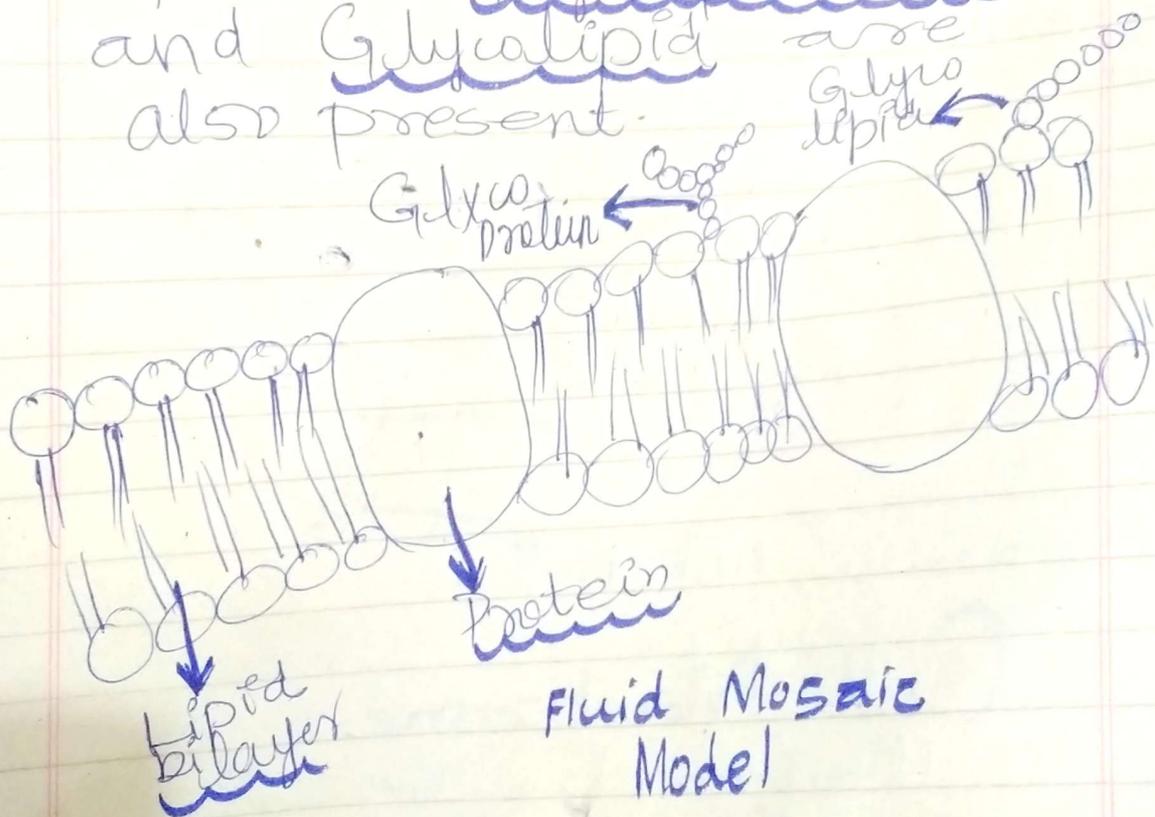


## Cell Membrane:

Cell membrane is present in both animals and plant cells. There are different model 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.

This much detail isn't required

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.

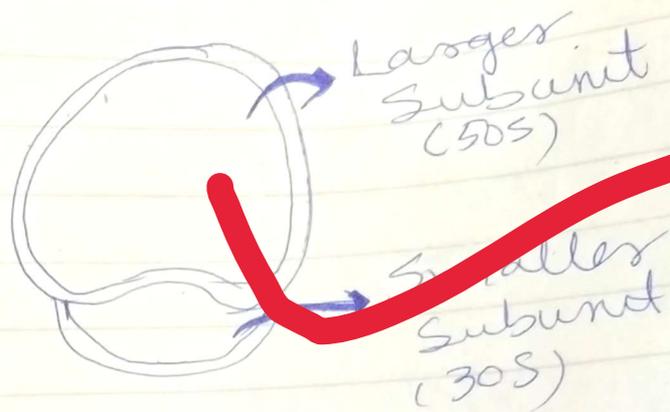
## Ribosomes:

(i)



Ribosomes are embedded in cytoplasm. It is the factory of protein synthesis.

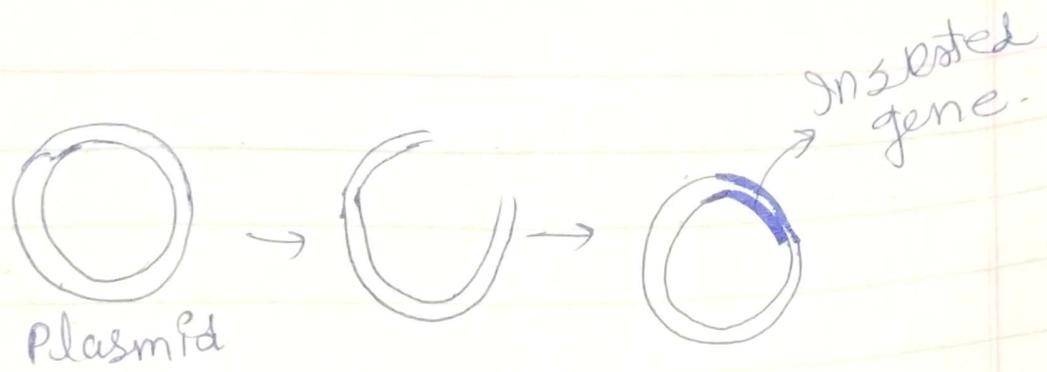
- Ribosomes has smaller and larger subunit.
- The size of ribosomes in animal cell is 80S.
- Endoplasmic reticulum has been integrated with ribosomes.



### (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.

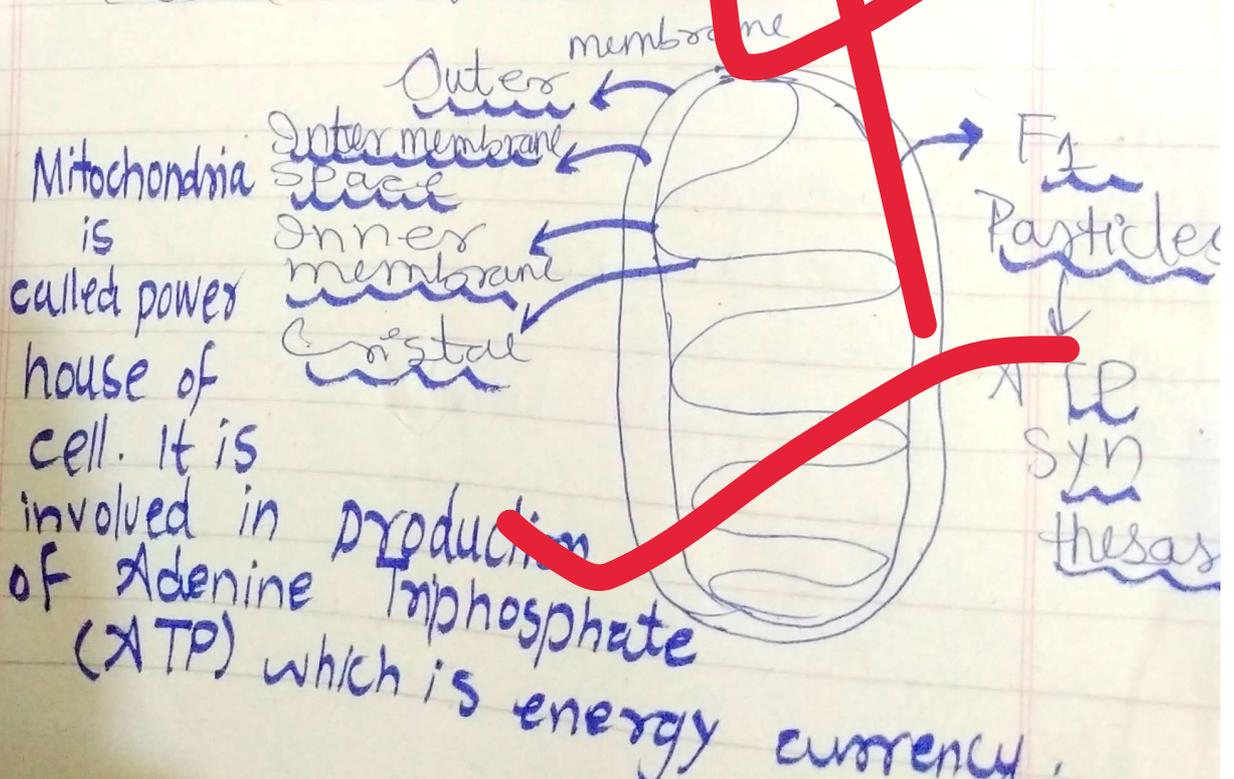
**Inner membrane:** The inner membrane is present beneath the outer membrane.

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

**F<sub>1</sub> particles:** F<sub>1</sub> 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 impacts 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 is helpful for maintenance of growth.
3. Exercise and proper maintenance of circadian rhythm is crucial for health.

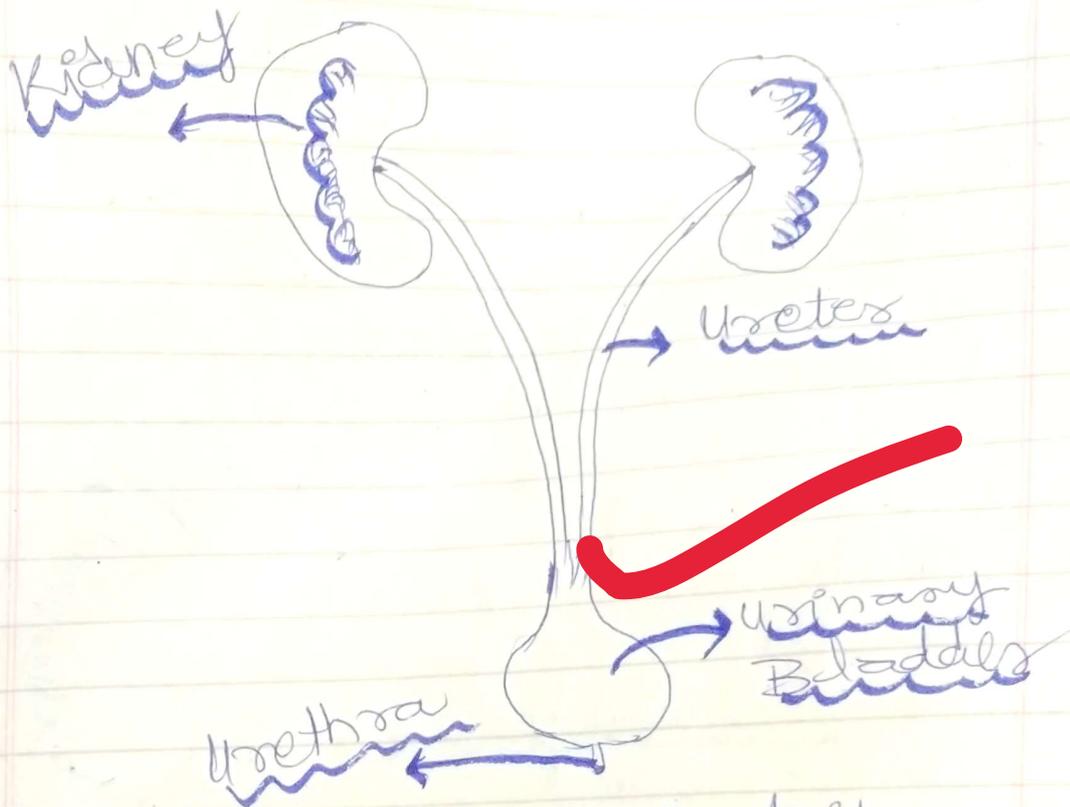
## (b) URINARY SYSTEM,

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  
Ureters, urethra,  
Urinary bladder and  
nephron.

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

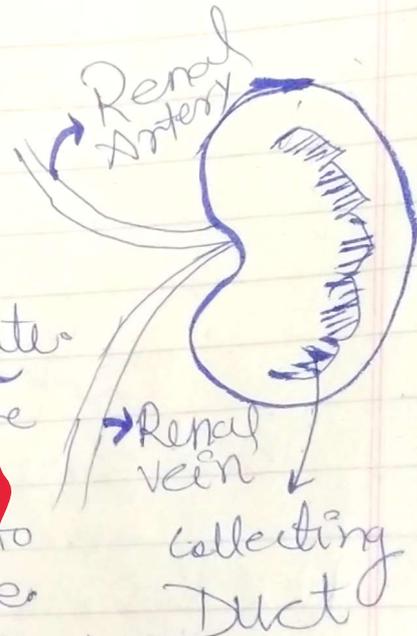
# Pathway for Excretion:

→ 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 Bowman 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

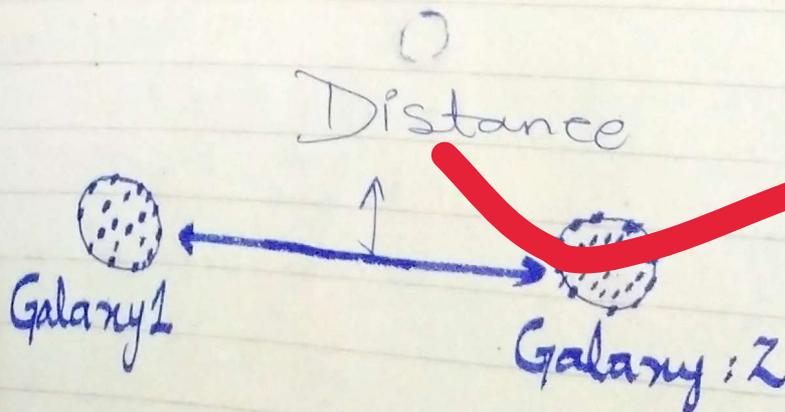
### (1) Universe Expanding Hypothesis:

→ The universe expanding Hypothesis was stated by \_\_\_\_\_.

→ The galaxy does not expand.

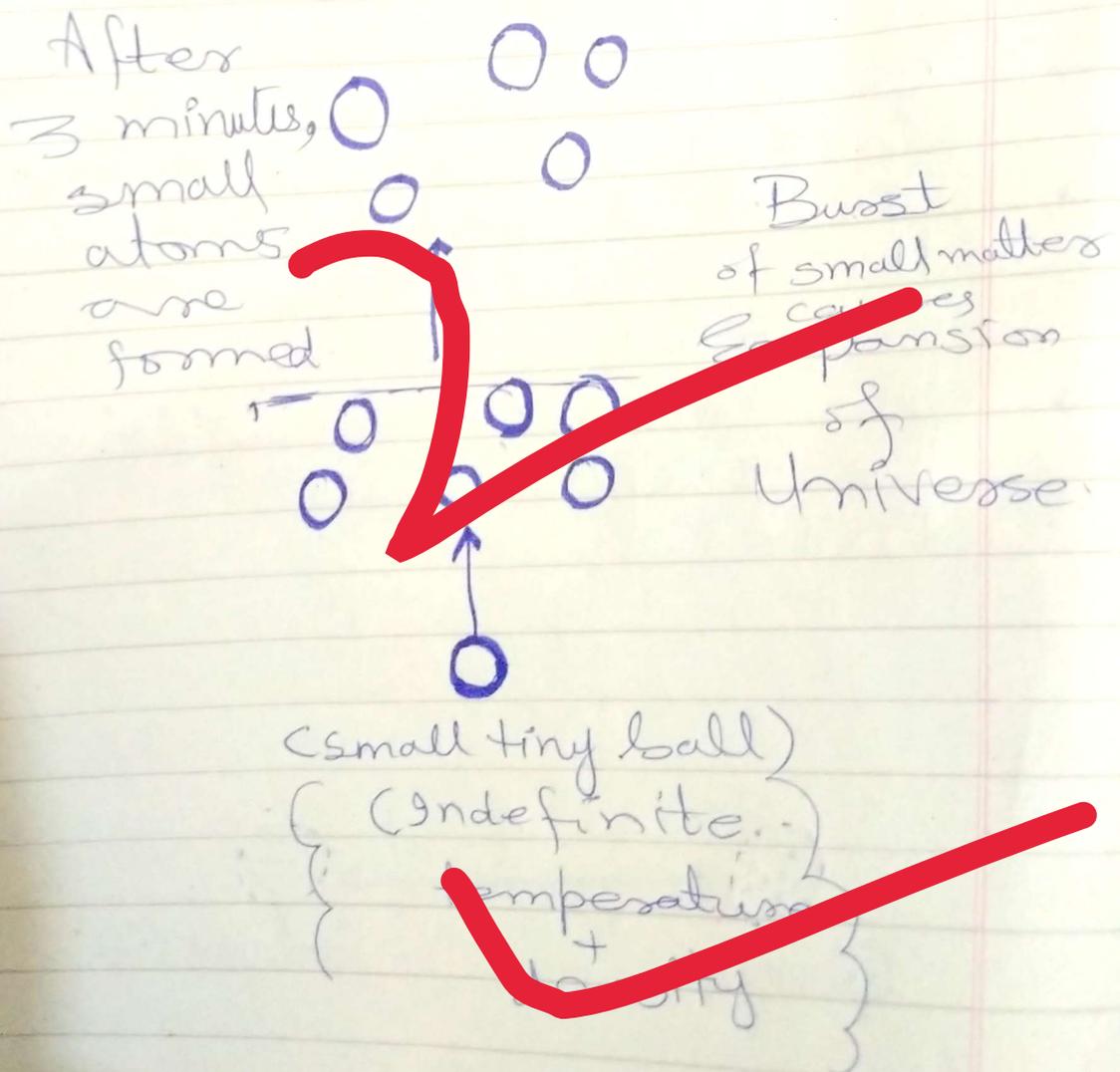
→ The distance between the galaxy has been increased

→ 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 of complex material.

(C)

## Working of Optic Fibre:

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

Optic fibre are used as a <sup>grounded</sup> 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.

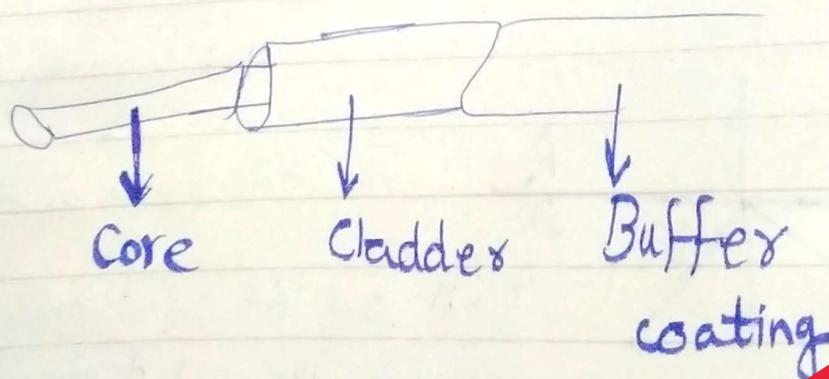
## 2. Cladding:

It is encoded into core.

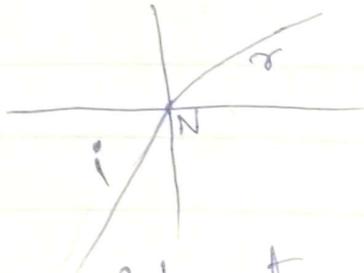
It is made up of glass and plastic. It has lower refractive index.

## 3. Buffer coating:

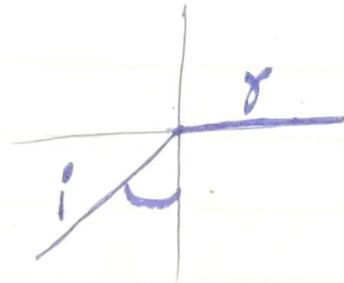
Buffer coating provides insulation to the transmission of signal over large distance.



# Cases of TIR (Total Internal Reflection)

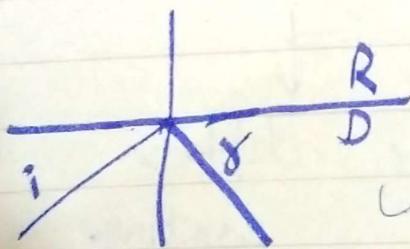


incident ray is move from denser to rarer medium. It caused refraction.



When incident ray is away from normal

Critical angle is 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

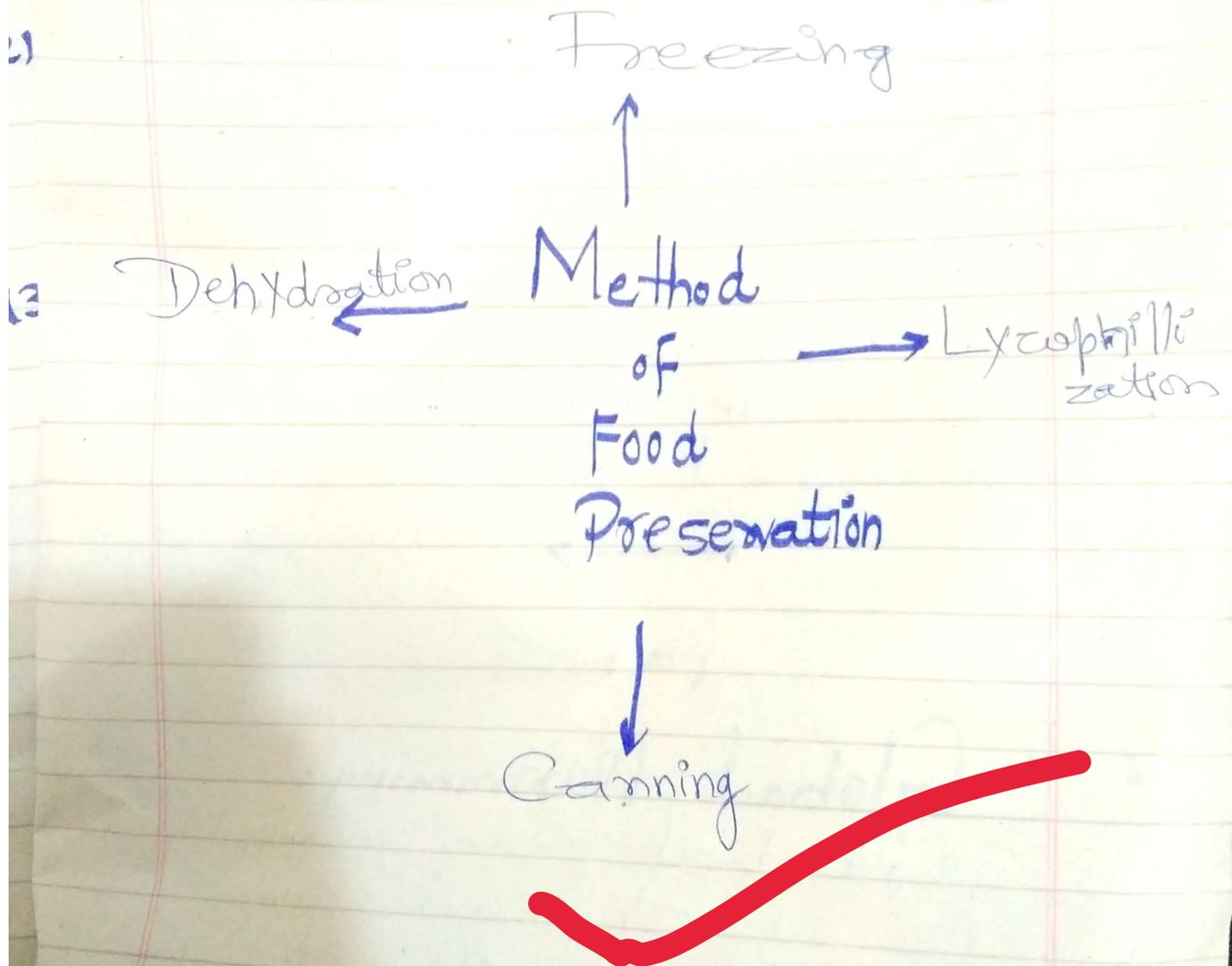
① Allanine Yellow Dye

~~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 reversed 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  $\dots\dots\dots$   
 $\dots\dots\dots$  numbers  $y$

Given

of = multiply  $\cdot (x)$   
number =  $x$ , number  $y$

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

Find:  $x = y = ?$

Solution:

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

Add given, asked, solution,  
formula and answer

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

$$50 \frac{1020}{25450} x = \frac{2}{3} y$$

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

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

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

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

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

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



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

Given

$$\text{Man years} = 24$$

After 2 years

$$\text{Man years} = 2x$$

Find

$$\text{Age of son} = ?$$

Solution:

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

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

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

Kamran takes 5 hours = 40 pages

Kamran takes 1 hour = 40

$$\frac{16}{3} + \frac{40}{1} = 8 \text{ pages}$$

# Question No 08 :-

(A)

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

Solution :-

• Houses in a row

i - A is to the right of B

ii - C is to left of C

right of A -

iii - B is to the right of

Order : D → B → A → E → C

So, the middle house is 'A'

(B)

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

Solutions :-

• ~~Running directions~~

• start → run 4km North

• Turn left → run 5km West

• Turn left → run 5km South

• Turn left → 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 out - - - - -  
- - - RETAEWS -

Solution:

Odd anagram out

Anagrams:

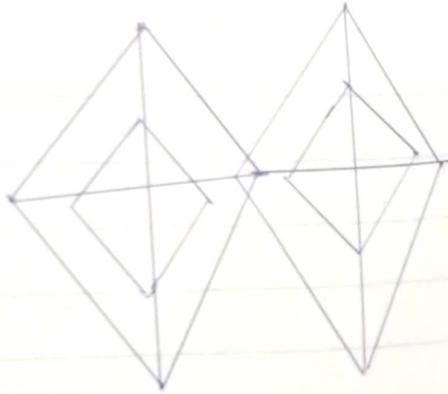
- THRSI  $\rightarrow$  shirt
- ADTIC  $\rightarrow$  coat
- EOUBSL  $\rightarrow$  Bousel
- KTRIS  $\rightarrow$  skirt
- RETAEWS  $\rightarrow$  Sweater

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

(D)

How many triangle - - - -  
- - - below .

Solution :



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

