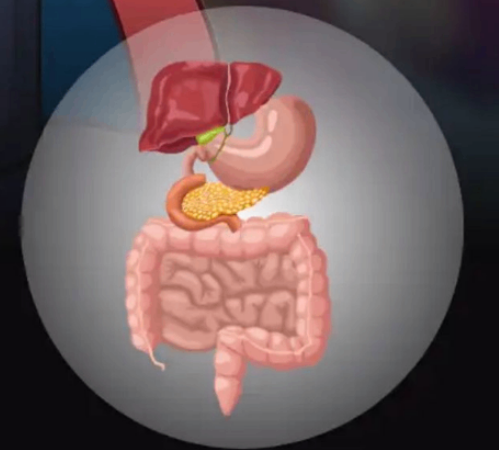
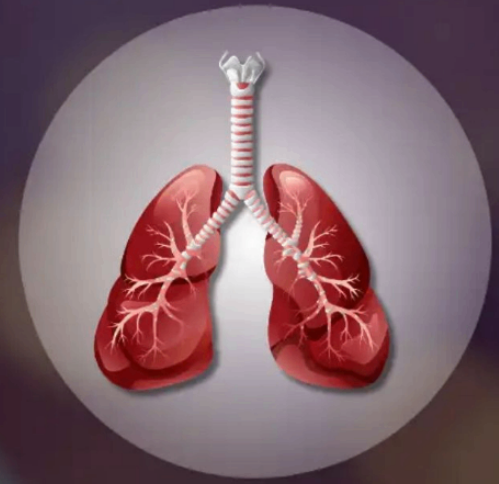
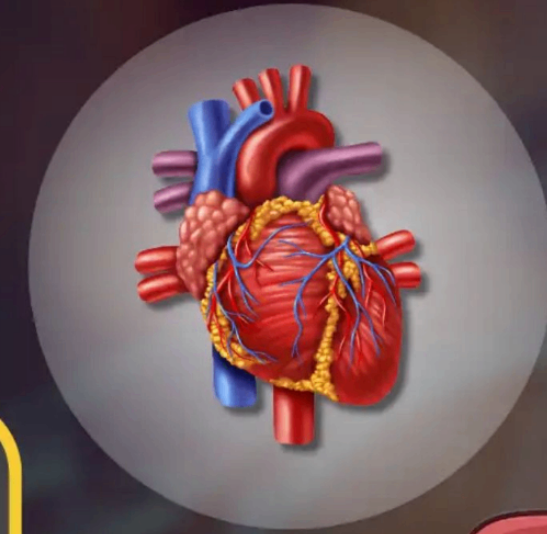


THE GUN SHOT

100% Exam Paper
yahi se hoga

Life Processes



Learning Outcomes



Life Processes ✓



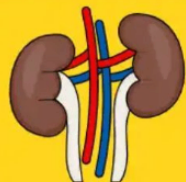
Nutrition ✓



Respiration ✓



Transportation ✓



Excretion ✓

30+
PYQs

LIFE PROCESSES

The basic and essential functions / process performed by living organisms to maintain & sustain their life

Nutrition:

The process of obtaining & utilisation of food.

Respiration:

The process of breaking down of food to obtain energy.

Transportation:

The process of transfer of substances from one part of the body to other parts.

Excretion:

The process of removal of waste materials produced in the cells of the body.



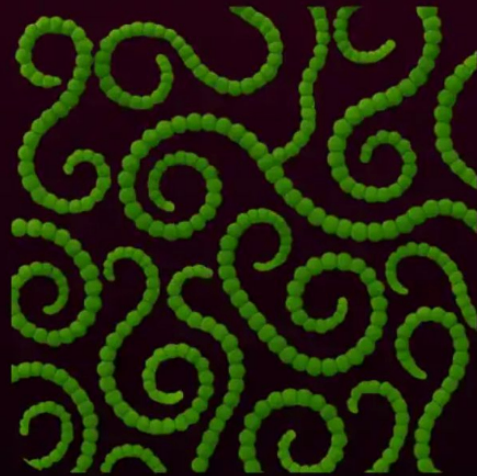
NUTRITION

Autotrophic Nutrition

- The organism makes its own food from simple inorganic materials
- e.g; Green plants, autotrophic bacteria



Green plants



Autotrophic Bacteria

Heterotrophic Nutrition

- Organism can not make (or synthesize) its own food from simple inorganic materials.
- e.g; human, cats, fungi, leech etc.



Human



Cat

Heterotrophic Nutrition

Holozoic

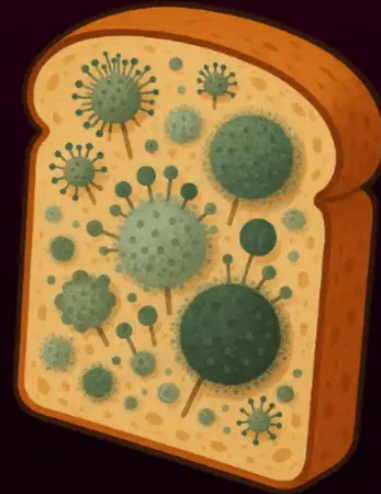
- Organisms consume and internally digest organic food substances. ✓
- e.g; Human beings, dog, cat, amoeba, paramecium ✓



Dog

Saprophytic

- Organisms feed on dead and decaying organic matter.
- e.g; Fungi (bread moulds, yeast, mushroom) ✓



Bread mould

Parasitic

- Organisms obtain nutrition by living on (External parasite) or in (internal parasite) the body of the another living organism (host), often causing harm to the host.
- e.g; lice, leech, tapeworm, cuscute (amar-bel) ✓
- ✓ Cuscuta is a Parasitic plant . It does not contain chlorophyll



Leech

1. Which of the following organisms exhibits saprotrophic nutrition?

- a) Mango tree ✗
- b) Amoeba ✗
- c) Mushroom ✓
- d) Paramecium ✗

(CBSE 2021, 2020, 2017)

2. Which of the following organisms shows parasitic mode of nutrition?

- a) Amoeba ✗
- b) Algae
- c) Mushroom ✓
- d) Cuscuta

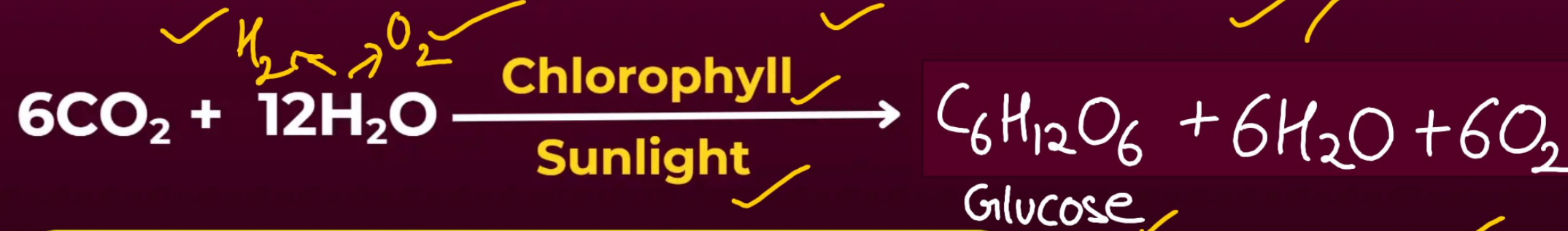
(CBSE 2023, 2021, 2019)

PHOTOSYNTHESIS

The process by which green plants make their own food from carbon dioxide and water by using sunlight energy in the presence of chlorophyll is called photosynthesis.

Conditions necessary for photosynthesis :

a) Sunlight b) Chlorophyll c) Carbon dioxide d) Water



Absorption of light energy by chlorophyll

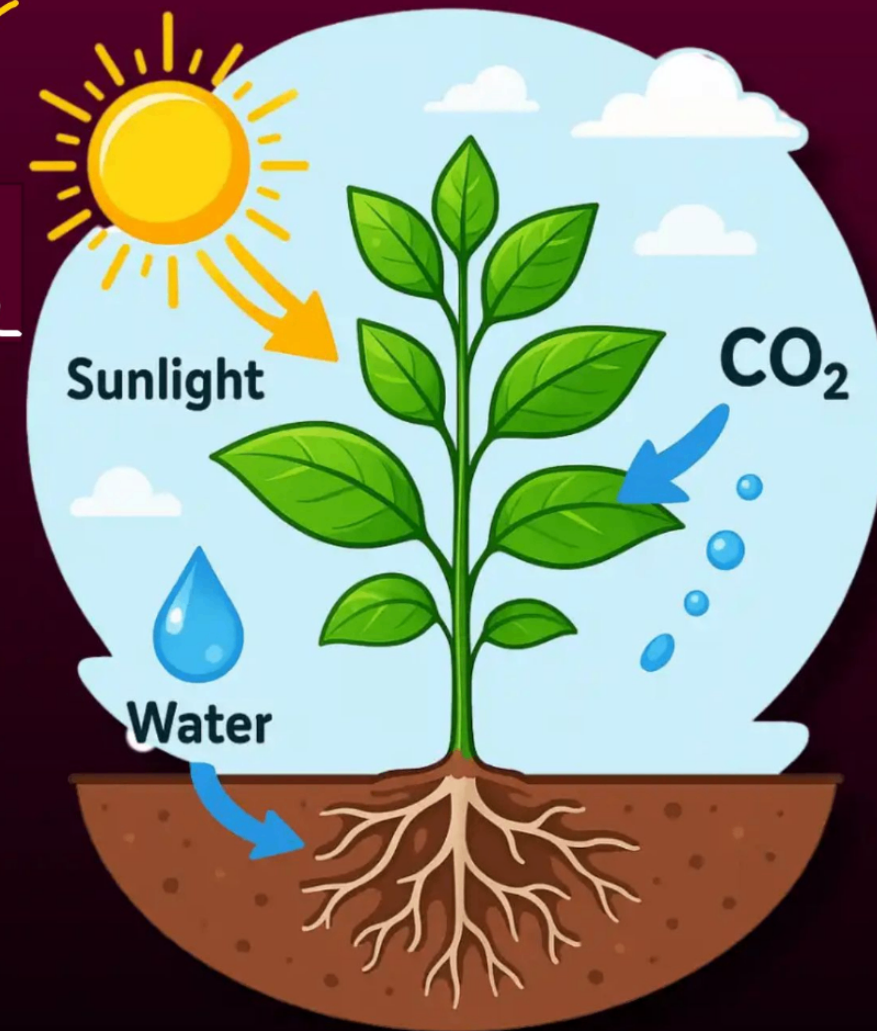


Conversion of light energy to chemical energy and splitting of water molecules into hydrogen and oxygen.



Reduction of carbon dioxide to carbohydrate

**3 STEPS
of
PHOTOSYNTHESIS**



- Site of photosynthesis : **Chloroplasts** ✓

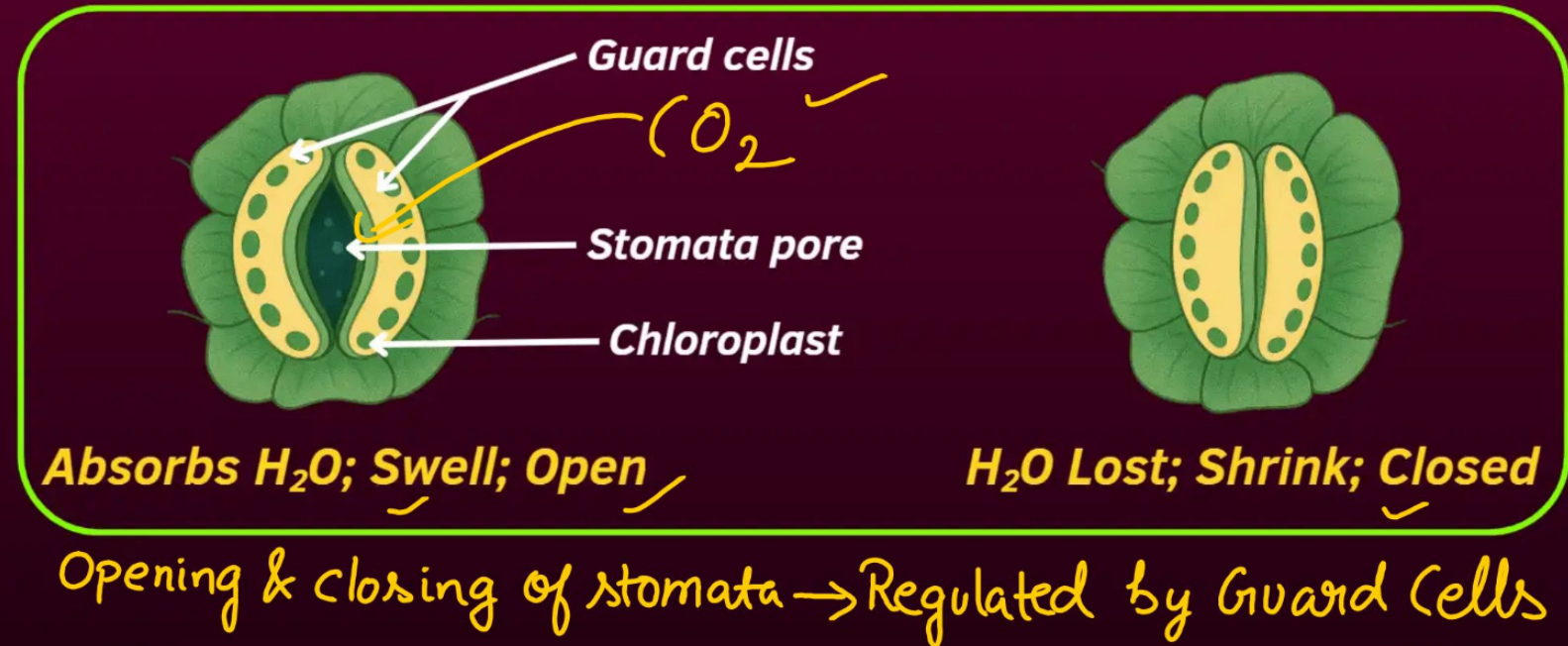
ooo

- Chlorophyll is present in the green - coloured organelles called 'chloroplasts' inside the plant cells. The leaves are green because they contain chloroplasts. ✓
- Chlorophyll is present in which a) organelle - Chloroplast b) organ - Leaf ✓

- **CO₂** enters through stomata.
- **Stomata** : Tiny pores present on the surface of the leaves. ✓

- ✓ • **Water** - Taken up by the roots from soil
- Nitrogen, phosphorous, magnesium and iron are also taken. ✓
- Nitrogen is taken in form of nitrates and nitrites ✓

- **In plants**, food (glucose) is stored in the form of **starch**.
- **In animals**, it is stored in the form of **glycogen**.



Photosynthesis in Desert Plants

Day Time - Stomata remains closed to conserve Water
Night Time - Stomata Opens - Absorbs CO₂.
CO₂ taken at night used to prepare Glucose in daytime

3. What is photosynthesis? Identify the organelle and the organs where it occurs, explain the process using the balanced equation, and state the source of the oxygen released during this process.

(CBSE 2021, 2022, 2023, 2024)

The process by which green plants make their own food from carbon dioxide and water by using sunlight energy in the presence of chlorophyll is called photosynthesis.

a) organelle - Chloroplast b) organ - Leaf



The source of Oxygen released is the splitting of Water molecules into Hydrogen and Oxygen

Variegated Leaf

Activity 5.1 & 5.2



1. Boiling water

2. Boiling alcohol
Removes colour of leaf

3. Iodine Solution
*blue black colour with starch
only on green sites*



Conclusion - Starch is present at green sites only proving chlorophyll is essential for photosynthesis

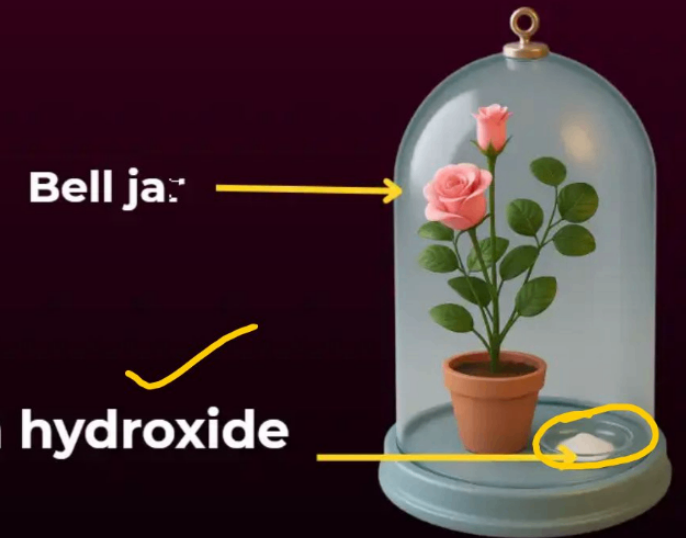
1. Glass jars sealed and kept in Sun

2. KOH in jar to absorb any Carbon dioxide present

3. iodine Test for Starch

Observation - No Blue black colour seen

Conclusion - Carbon Dioxide is essential for Photosynthesis



4. A student sets up an experiment to show that carbon dioxide is necessary for photosynthesis. He places a potted plant in a transparent air-tight bell jar. Inside the jar, he also keeps a watch glass containing potassium hydroxide (KOH).

(a) What is the role of KOH in this experiment?

(b) Why is the plant kept in sunlight after setting up the apparatus?

(c) What result will confirm that CO_2 is necessary for photosynthesis?



(CBSE 2024, 2023, 2022, 2020)

a) KOH absorbs any Carbon dioxide present in jar ✓

b) To provide sunlight. So as to make sure that all other conditions for Photosynthesis are satisfied. ✓

c) After few hours , if we test leaves with iodine solution , they dont turn ble black , proving no starch is formed and hence no photosynthesis occured ✓

Nutrition in Amoeba (Unicellular organisms)



- Amoeba takes in food using temporary finger-like projections of the cell surface called Pseudopodia, Which also helps in movement of Organism. ✓
- **Food vacuoles** are formed : enzymes are secreted which break down complex substances → simpler soluble substances ✓
- Absorption of digested food in cytoplasm by diffusion. ✓
- Undigested food moves to cell surface & thrown out. ✓

Food particles

Pseudopodia

Food vacuole

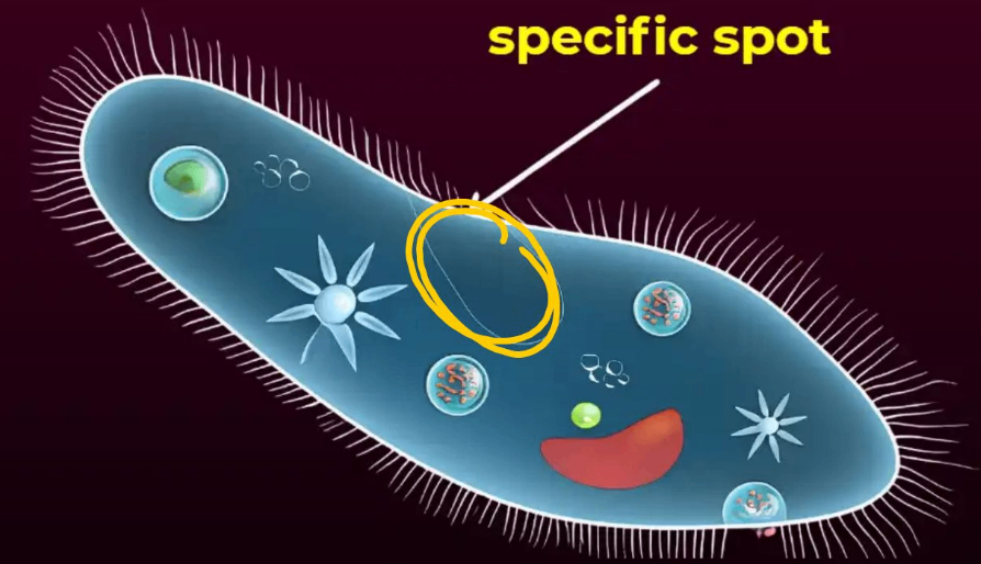


Holozoic Nutrition ✓

Nutrition in Paramecium (Unicellular organisms)



- The cell has a definite shape (like Slipper) ✓
- Food is moved to a *specific spot* (vacuoles) by the movement of **cilia** (hair like structure), which also helps in movement of organism



Holozoic Nutrition ✓

5.Name the type of nutrition exhibited by Amoeba. Explain how food is taken in and digested by this organism.

(CBSE 2023)

Amoeba exhibits **Holozoic Nutrition**. ✓

Amoeba takes in food using temporary finger-like projections of the cell surface called Pseudopodia .

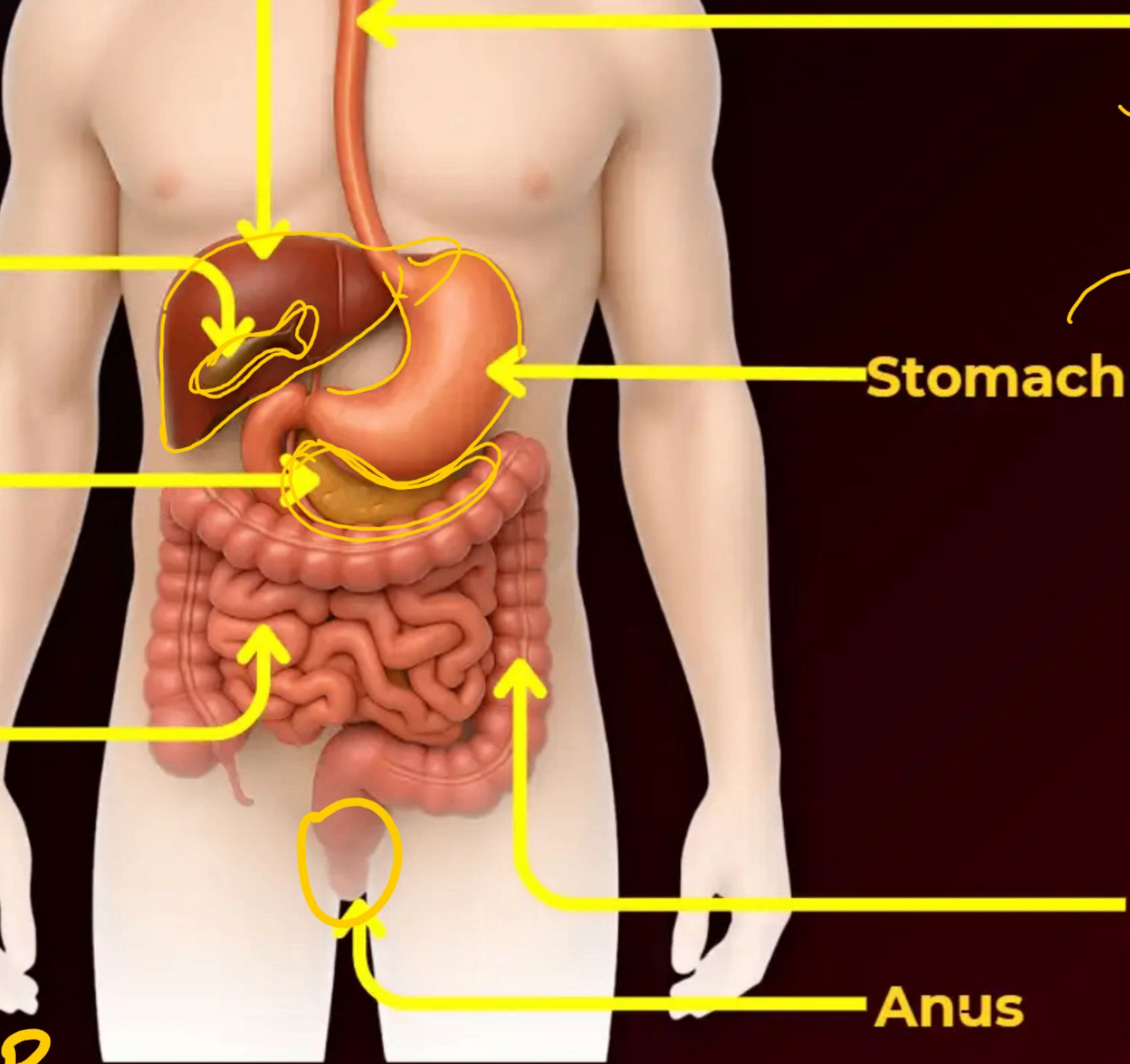
Food vacuoles are formed : enzymes are secreted which brekas down complex substances → simpler soluble substances

The digested food is absorbed in cytoplasm by diffusion. Undigested food moves to cell surface & thrown out.

6. Differentiate between Amoeba and Paramecium based on:
1. Mode of nutrition 2. Locomotion (movement)

(CBSE 2024, 2022, 2020, 2019)

	Amoeba	Pramecium
Mode of Nutrition	Holozoic , takes in food using finger like extension Pseudopodia ✓	Holozoic , food is moved to a specific spot using hair like structure Cilia ✓
Locomotion ✓	Finger like projection Pseudopodia helps in movement	Hair like structures Cilia helps in movement



- **Peristaltic movement** → contraction & expansion of wall of food pipe, pushes food into stomach. (Regulates movement of Food to stomach)

Gastric glands : *Gastric Juice*

Hydrochloric acid → creates acidic medium for enzyme pepsin. kills bacteria & germs

- **Pepsin** → protein digesting enzyme
- **Mucus** → protects inner lining of stomach from acid

Large intestine (colon) :

Unabsorbed food → sent to large intestine

- ✓ absorbs more water from this material.
- ✓ Rest of the materials is removed via anus.

Anus : Exit of waste material via anus is regulated by **anus sphincter**

Proteins → Amino acids
Carbohydrates → glucose
Fats → fatty acid + glycerol

- **Herbivorous** → Longer small intestine for digestion of cellulose which is hard to digest & requires more time to break down and get absorbed
- **Carnivorous** → Shorter small intestine since meat is easier to digest

7. State the role of the following in human digestive system:

(a) Hydrochloric acid *Gastric Gland*

(b) Bile *Liver*

(c) Pepsin

(CBSE 2024, 2022, 2020)

a) Hydrochloric acid → creates acidic medium for enzyme pepsin & kills bacteria or germs

b) Bile - makes acidic food coming from stomach alkaline & emulsification of fats → breaks down fats into smaller globules

c) Pepsin → protein digesting enzyme

8. In human beings, when the process of digestion is completed, the (i) proteins, (ii) carbohydrates, and (iii) fats are respectively finally converted into:

- (a) (i) Amino acids, (ii) glucose and (iii) fatty acids
- (b) (i) Amino acids, (ii) glucose, (iii) fatty acids and glycerol ✓
- (c) (i) Glucose, (ii) fatty acids and glycerol, (iii) amino acids
- (d) (i) Sugars, (ii) amino acids, (iii) fatty acids and glycerol ✓

F C P

(CBSE 2024, 2022, 2020)

9. Which enzyme is secreted in the mouth and what does it digest?

- a) Pepsin – proteins
- b) Amylase – starch ✓
- c) Lipase – fats
- d) Trypsin – proteins

(CBSE 2025, 2023, 2021, 2019)

10. What are villi? How do they help in absorption of food?



(CBSE 2024, 2022, 2021, 2020)

Villi are lots of finger-like projections, present on inner lining of Small intestine.

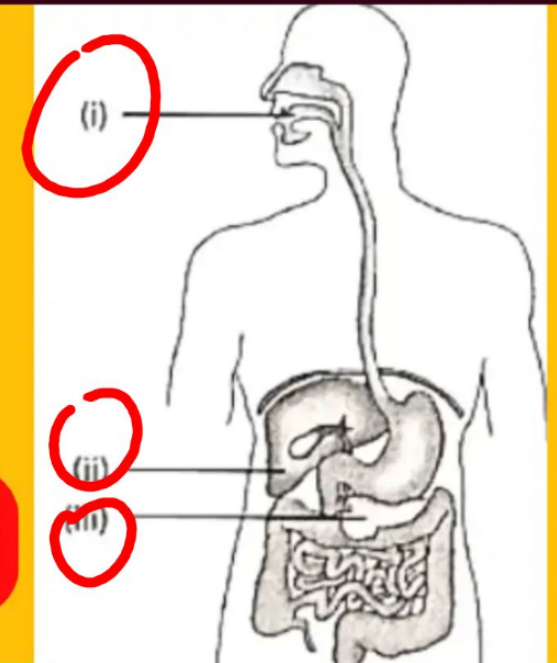
Villi increase surface area for absorption.

They are supplied with blood vessels (capillaries), through which absorbed food is supplied to all cells of body.

11. In human alimentary canal, the specific enzyme/ juice secreted in locations (i), (ii) and (iii) are

- (a) (i) Amylase (ii) Pepsin (iii) Bile
- (b) (i) Amylase (ii) Bile (iii) Trypsin ✓
- (c) (i) Lipase (ii) Amylase (iii) Pepsin
- (d) (i) Trypsin (ii) Bile (iii) Amylase

(CBSE 2022)



A.



Starch + Saliva ✓
(breaks down starch)

- **No colour change**
- **Starch not present** ✓

B.



Starch ✓

- **Colour change** ✓
- **starch present** ✓

Conclusion : Saliva causes break down of starch ✓

12. What is the name of the enzyme found in the fluid of our mouth cavity, and which gland produces it? Explain the action of saliva on food with the help of an activity.

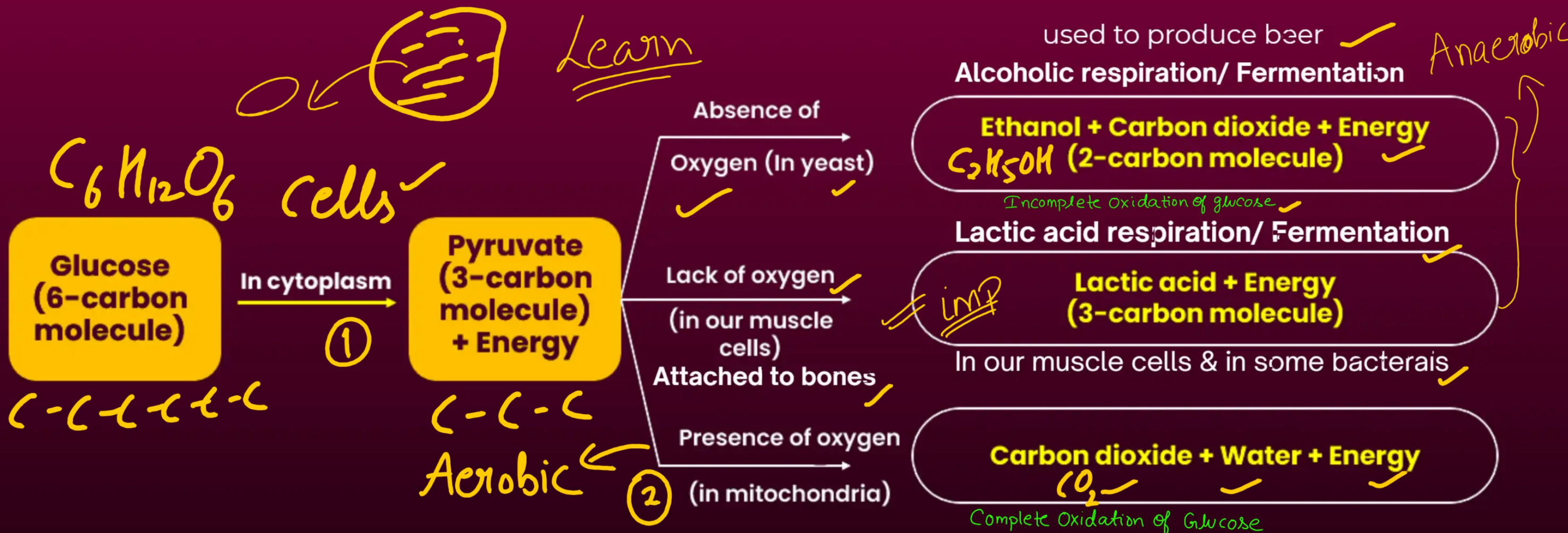
(CBSE 2024, 2023)

Respiration

The process of breaking down of food to release energy in form of ATP is called Respiration

Breathing	Respiration
Physical process	Chemical process
Process of inhaling and exhaling the air	Process of breaking down of food to produce energy
No energy released instead energy is required.	Energy is released in form of ATP
Happens in lungs	Happens in cells



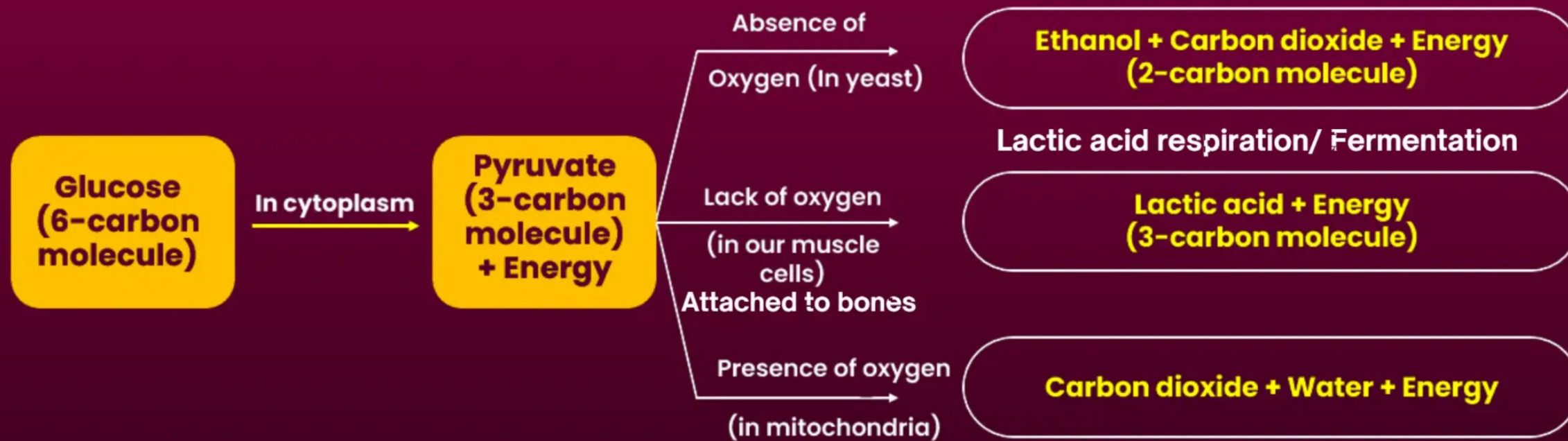


During intense exercise, muscles rapidly convert glucose to lactic acid for quick energy, ✓
 This lactic acid buildup causes fatigue & cramp in muscle ✓

13. Complete the following pathway showing the breakdown of glucose.



(CBSE 2024, 2022, 2020)



Aerobic Respiration	Anaerobic Respiration
Oxygen is required ✓	Oxygen is not required ✓
More energy produced ✓	Less energy produced ✓
Complete oxidation and breakdown of glucose ✓	Incomplete oxidation and breakdown of glucose ✓
Occurs in cytoplasm and mitochondria ✓	Occurs only in cytoplasm ✓
End products : $\text{CO}_2 + \text{H}_2\text{O}$ ✓	End products : $\text{CO}_2 + \text{Ethanol} / \text{Lactic acid}$ ✓

14. Name the substances whose build up in the muscles during vigorous physical exercise may cause cramps? ✓✓

- (a) Ethanol + Carbon dioxide + Energy
- (b) Lactic acid + Energy ✓✓
- (c) Carbon dioxide + Water + Energy
- (d) Pyruvate

(CBSE 2024, 2022, 2020)

15. Which gas is released during anaerobic respiration in yeast? ✓

- a) Oxygen
- b) Carbon dioxide ✓
- c) Hydrogen
- d) Nitrogen

(CBSE 2024, 2022, 2019, 2016)

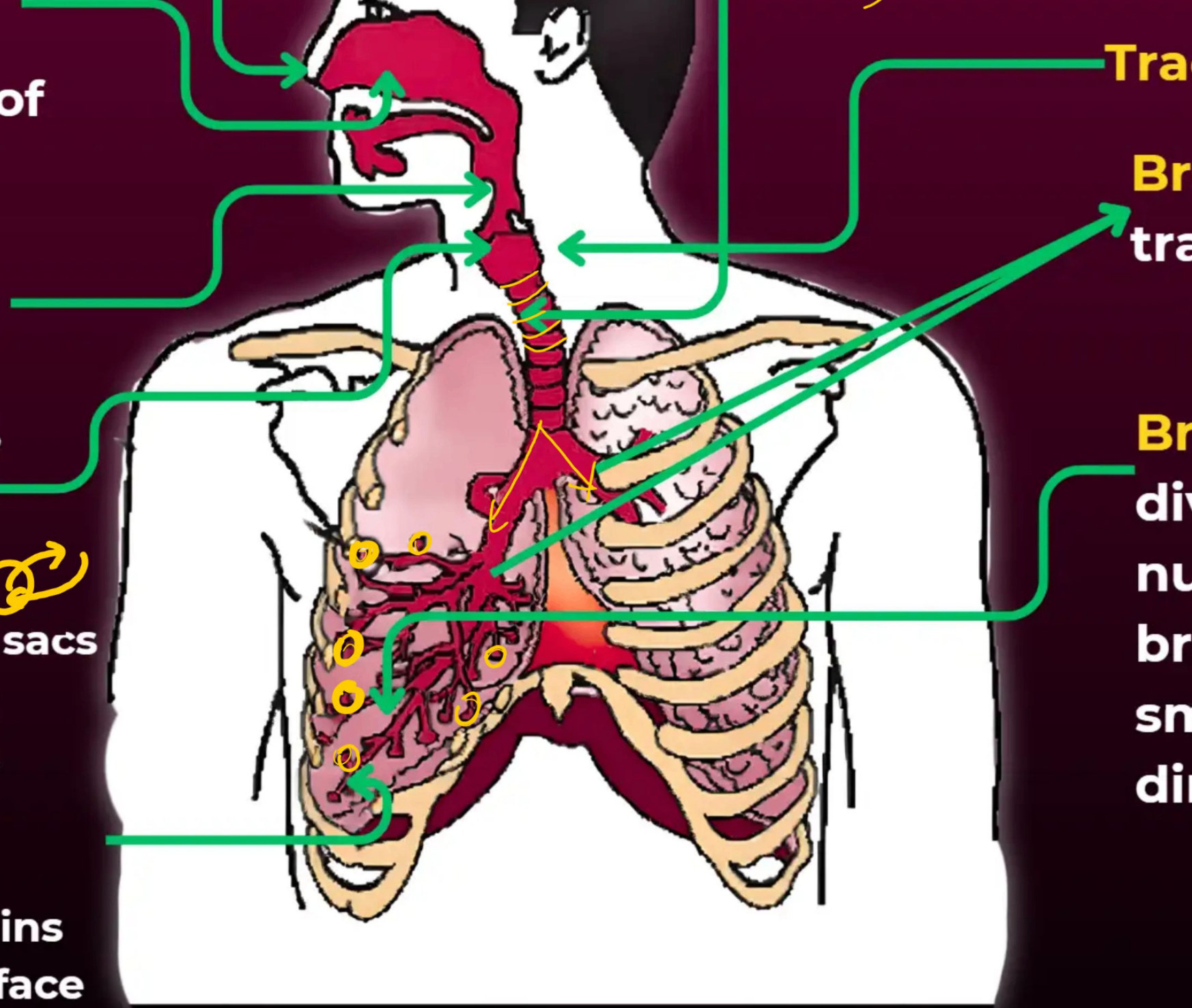
- Passage lined with mucus ✓
- To trap dirt & dust & filtration of air ✓

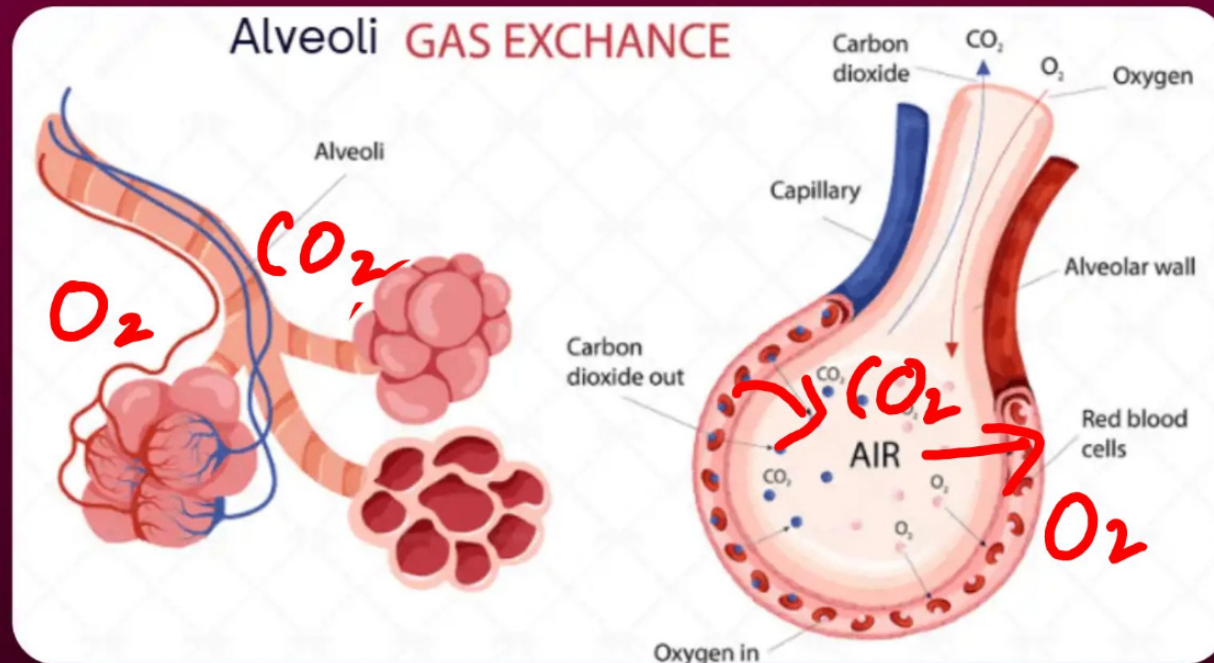
Pharynx : Common passage for food and air ✓

Larynx (voice-box) : Produces sound, contains vocal cords

Allows air to pass into the trachea. ↻

Alveoli : Alveoli are tiny, balloon-like air sacs located at the end of bronchioles. Thin-walled and moist for easy gas diffusion. Surrounded by a network of blood capillaries. They are the site of gas exchange in the lungs. Each lung contains millions of alveoli, providing a large surface area for efficient diffusion.



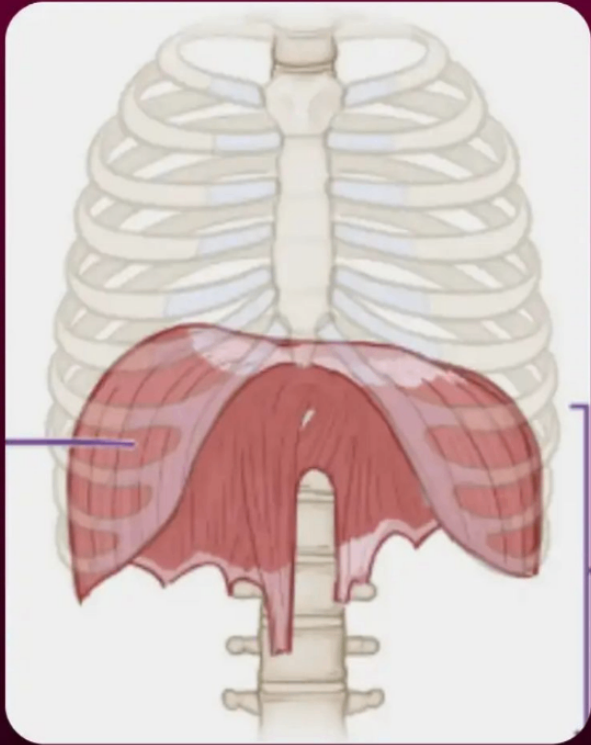


Alveoli are richly supplied with blood vessels for efficient exchange of gases (oxygen & Carbon dioxide)
Oxygen from alveoli diffuses into the blood capillaries.
Carbon dioxide from blood diffuses into the alveoli

16. Describe the exchange of gases in alveoli and Why are alveoli richly supplied with blood vessels?

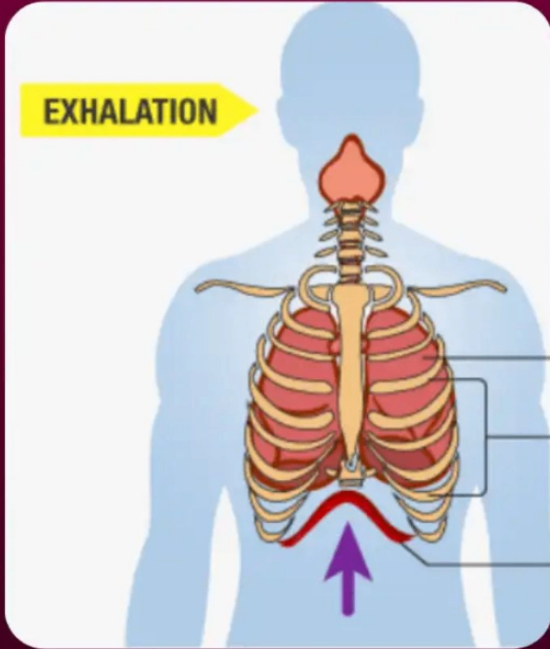
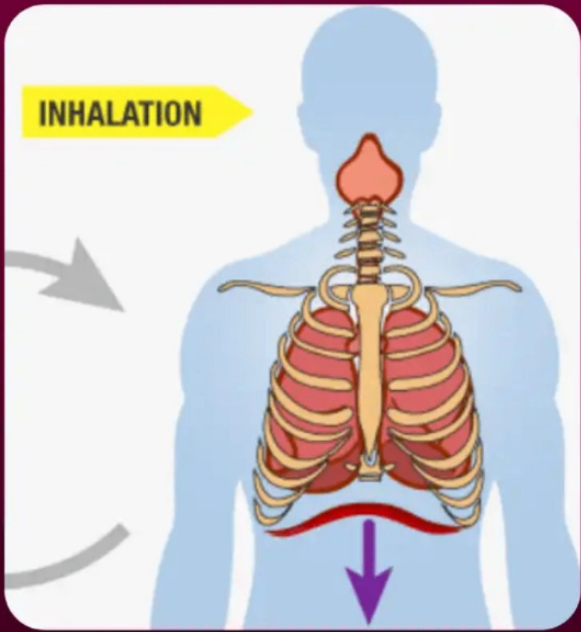
(CBSE 2024, 2022, 2020, 2018)

The diaphragm is a large, dome-shaped muscle that separates the chest from the abdomen



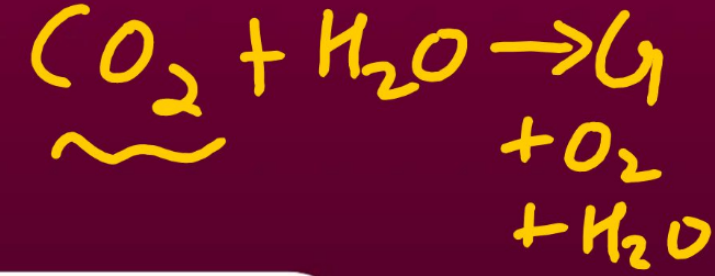
Residual volume - Amount of air always remaining in lungs (to provide sufficient time to absorb O₂ and release CO₂)

(CBSE 2023, 2021, 2019)



Inhalation / Inspiration ✓	Exhalation / Expiration ✓
diaphragm contracts ✓	diaphragm relaxes
diaphragm moves downward and becomes flat. ✓	diaphragm moves upward and becomes dome-shaped. ✓
Chest cavity becomes larger ✓	Chest cavity becomes smaller ✓
Air is sucked into the lungs ✓	Air is pushed out from the lungs ✓

Respiration in Plants



- Exchange of Gases → Occurs through stomata

Day Time

- **Photosynthesis** → Oxygen produced ✓
- **Respiration** → Carbon dioxide is produced ✓
↓
Used in photosynthesis
- **Net Result** → O_2 is given out

Night Time

- **No Photosynthesis**
- **Respiration** → Carbon dioxide is produced ✓
- **Net Result** → CO_2 is given out ✓

17. Which of the following statements about respiration in plants is correct?

- a) Respiration in plants occurs only during the daytime. ✗
- b) Oxygen is not required for respiration in plant cells. ✗
- c) Only leaves carry out respiration in plants. ✗
- d) Both photosynthesis and respiration occur in leaves during the day. ✓

(CBSE 2025, 2024, 2021, 2019)

Breathing in fish

Fish → take in water through Mouth → force it past the gills → dissolved O_2 is taken by blood ✓

Mouth Open, Gill closed
Vice-Versa ✓



Terrestrial Organisms ✓

- Breathe Oxygen in atmosphere ✓
- Rate of breathing is less

Aquatic Organisms ✓

- Use dissolved oxygen in water ✓
- Rate of breathing is more as they have to obtain oxygen dissolved in water

Transportation

The process of transfer of substances like food , oxygen, carbon dioxide , water & waste from one part of the body to other parts.

Transportation in Humans



Circulatory System ✓

Lymphatic System ✓

The circulatory system consists of the **Heart, blood, and blood vessels.**

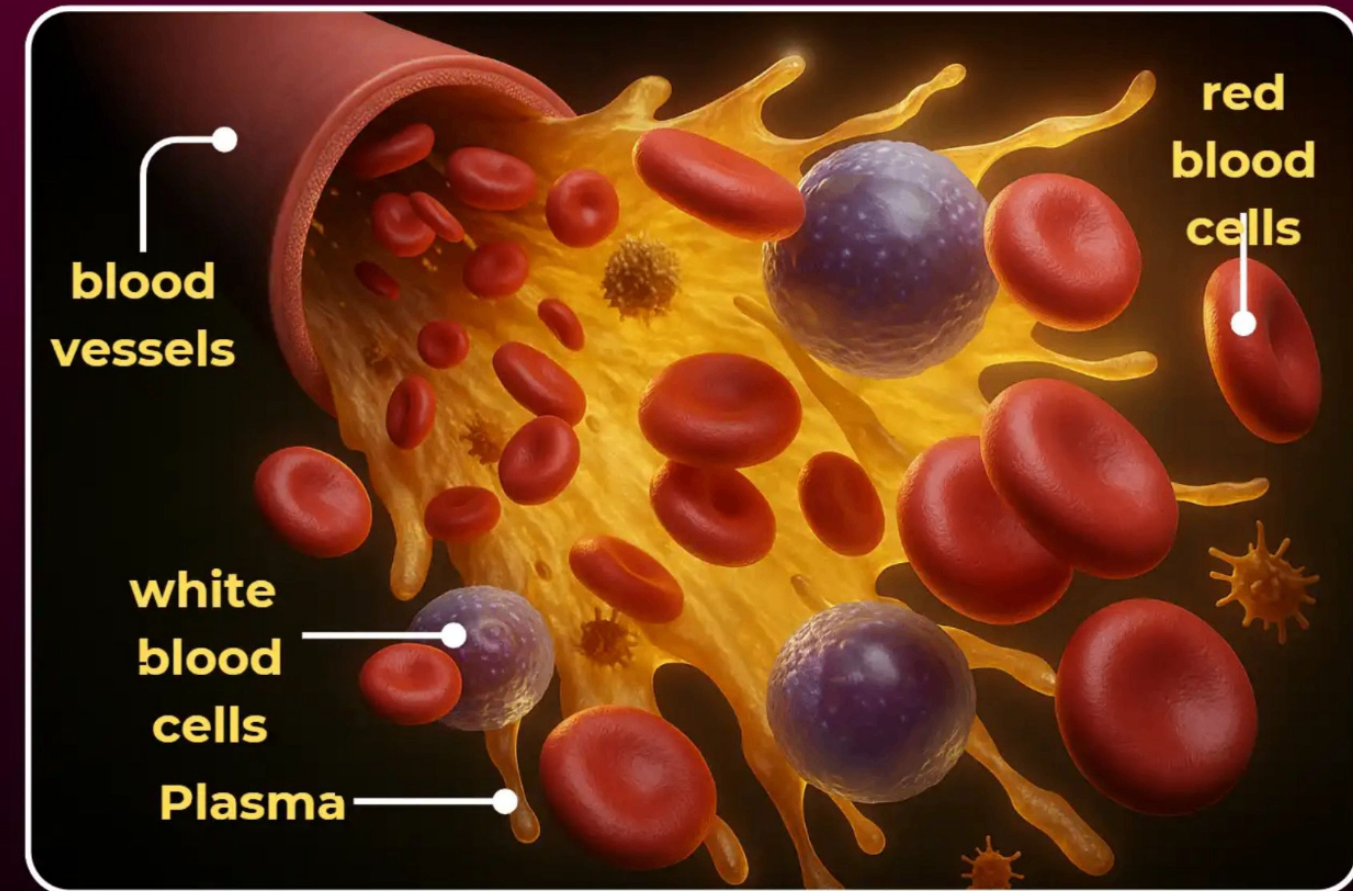


BLOOD

Blood is a red coloured body fluid (connective tissue) that circulates throughout the body, carrying essential substances to cells and removing waste products

BLOOD COMPONENTS

- **Plasma:** Fluid medium, transports food, carbon dioxide and nitrogenous waste. (pale yellow colour)
- **RBCs:** Contain haemoglobin and transport oxygen. Haemoglobin - a protein found in red blood cells, binds with oxygen, transports oxygen & Carbon dioxide. It also gives red colour to blood.
- **WBCs:** Fight infections. Produce antibody to kill pathogens. Provides immunity
- **Platelets:** Stops bleeding by Clotting blood

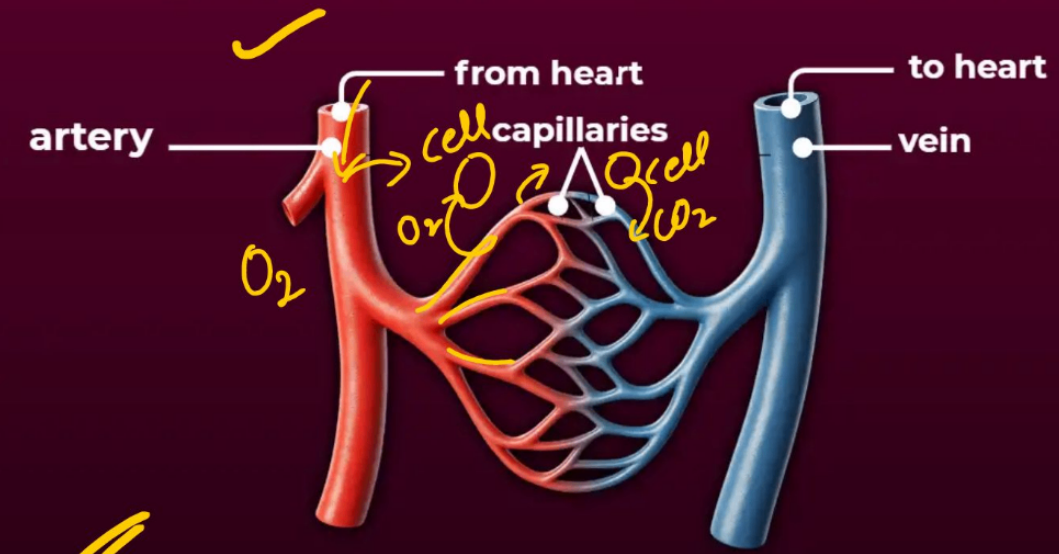


BLOOD VESSELS

Network of tubes through which blood is pumped around the body.

Feature	Arteries	Veins	Capillaries
Direction of Blood Flow	Carries blood away from the heart	Returns blood to the heart	Connects Arteries & Veins
Oxygen	Rich in oxygenated blood	Contains deoxygenated blood $CO_2 \uparrow$ $O_2 \downarrow$	Transports both oxygenated & deoxygenated blood
Pressure	High pressure	Low pressure	Moderate pressure
Walls	Thick and elastic walls	Thin and less elastic walls	Very thin (one cell thick)
Valves	Not present	Present (to prevent backflow)	Absent

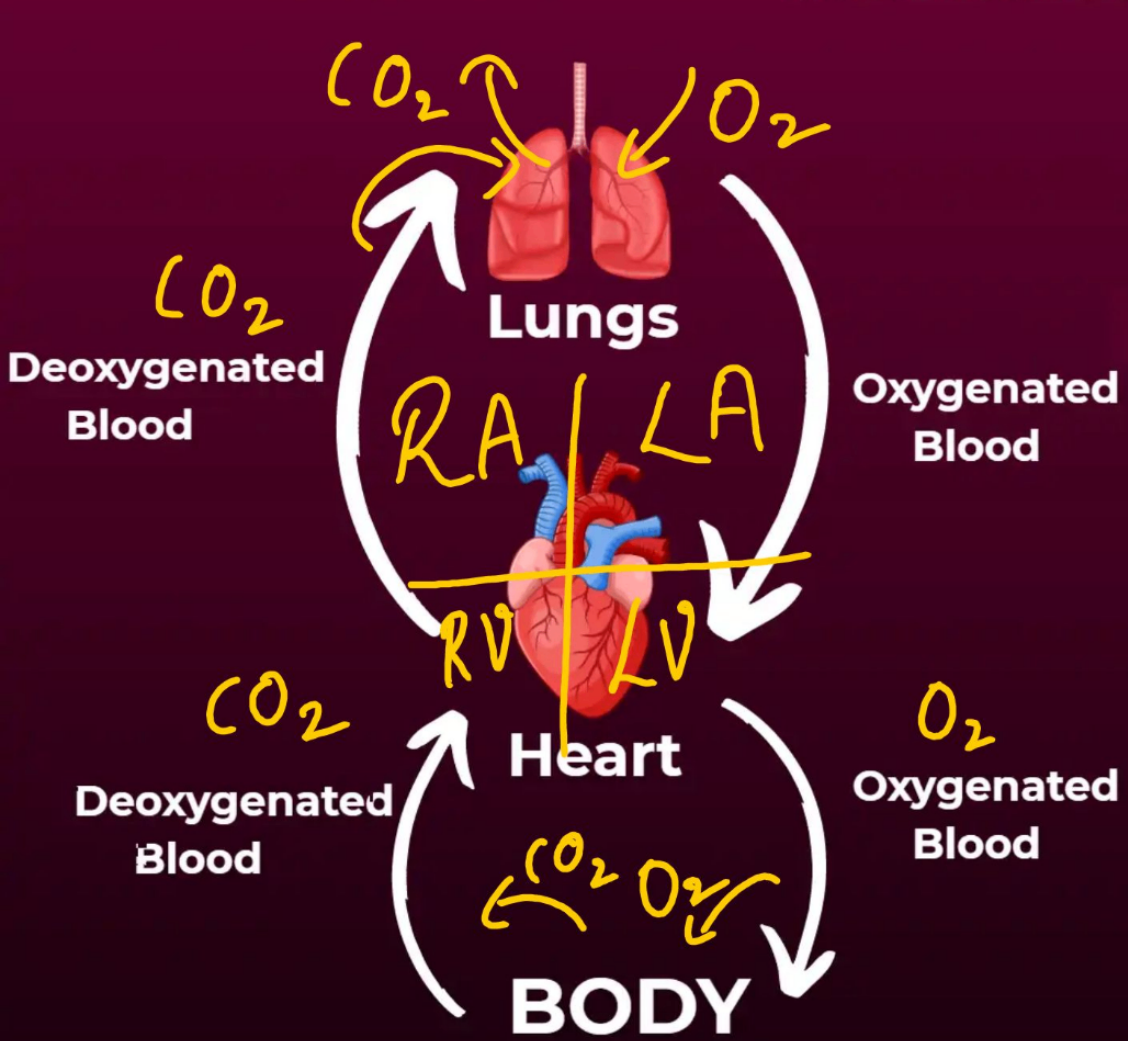
Exceptions -
Pulmonary artery- Carries deoxygenated blood
Pulmonary vein- Carries oxygenated blood



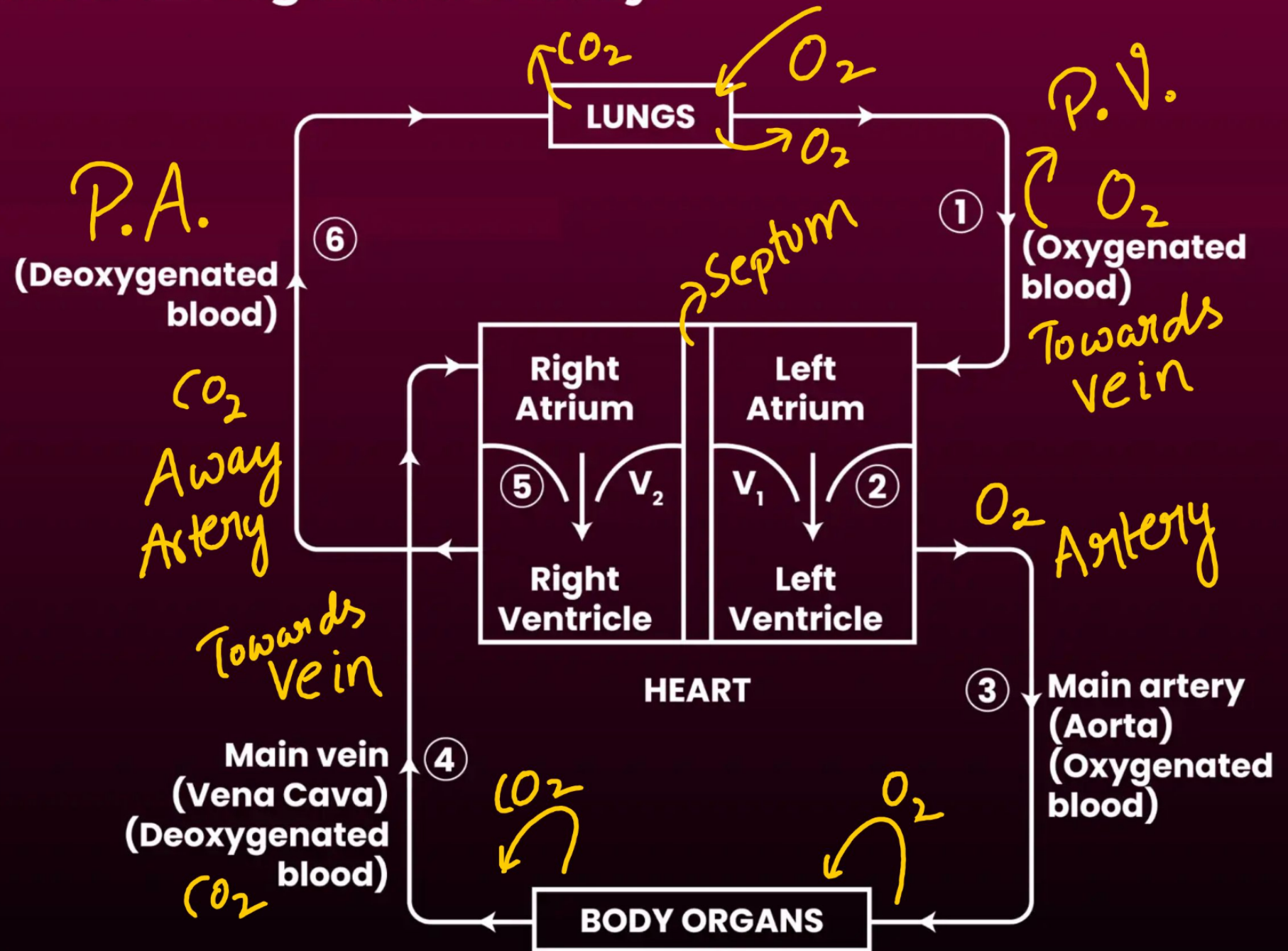
Valves in veins play a crucial role in ensuring blood flows in the correct direction, specifically towards the heart, even against gravity. These one-way valves, found primarily in the veins of the legs to prevent the backflow of blood

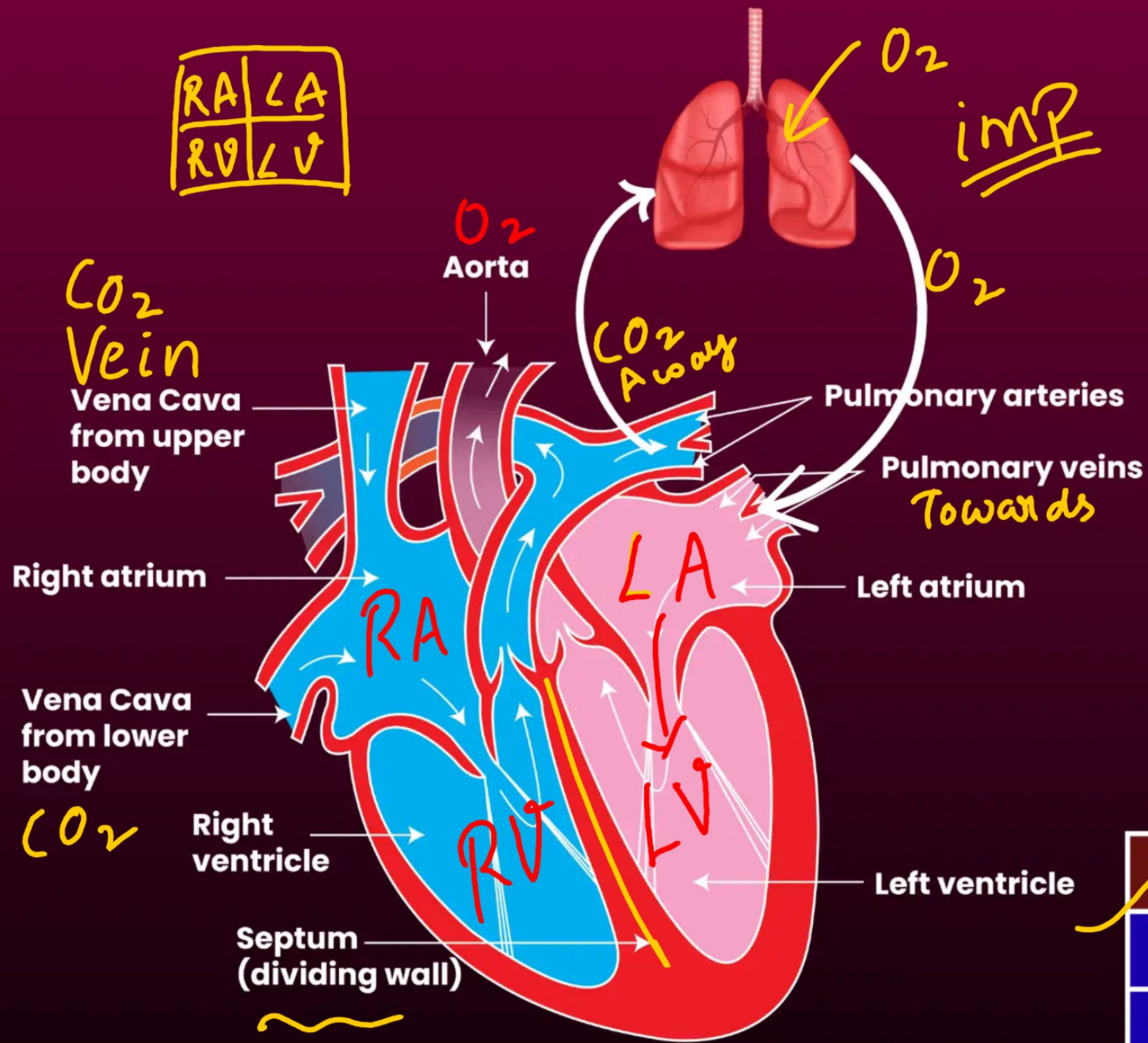
HEART

a muscular organ, roughly the size of a fist, that acts as a pump to circulate blood throughout the body



Largest artery- Aorta
Largest vein- Vena cava





Why 4 Chamber in Heart??

1) Warm-blooded creatures such as humans require a constant, high level of oxygen to maintain body temperature and energy requirements.

A four-chambered heart enables that by preventing oxygen-rich and oxygen-poor blood from mixing.

2) Since oxygenated blood doesn't mix with deoxygenated blood, every cell in the body receives the richest possible supply of oxygen - helping us think, move, digest, and function better.

Atrium	Ventricle
Upper chambers of the heart	Lower chambers of the heart
Walls are thin	Walls are thick and muscular
Receive blood from veins	Pump blood into arteries
Low Pressure	High Pressure

Double Circulation

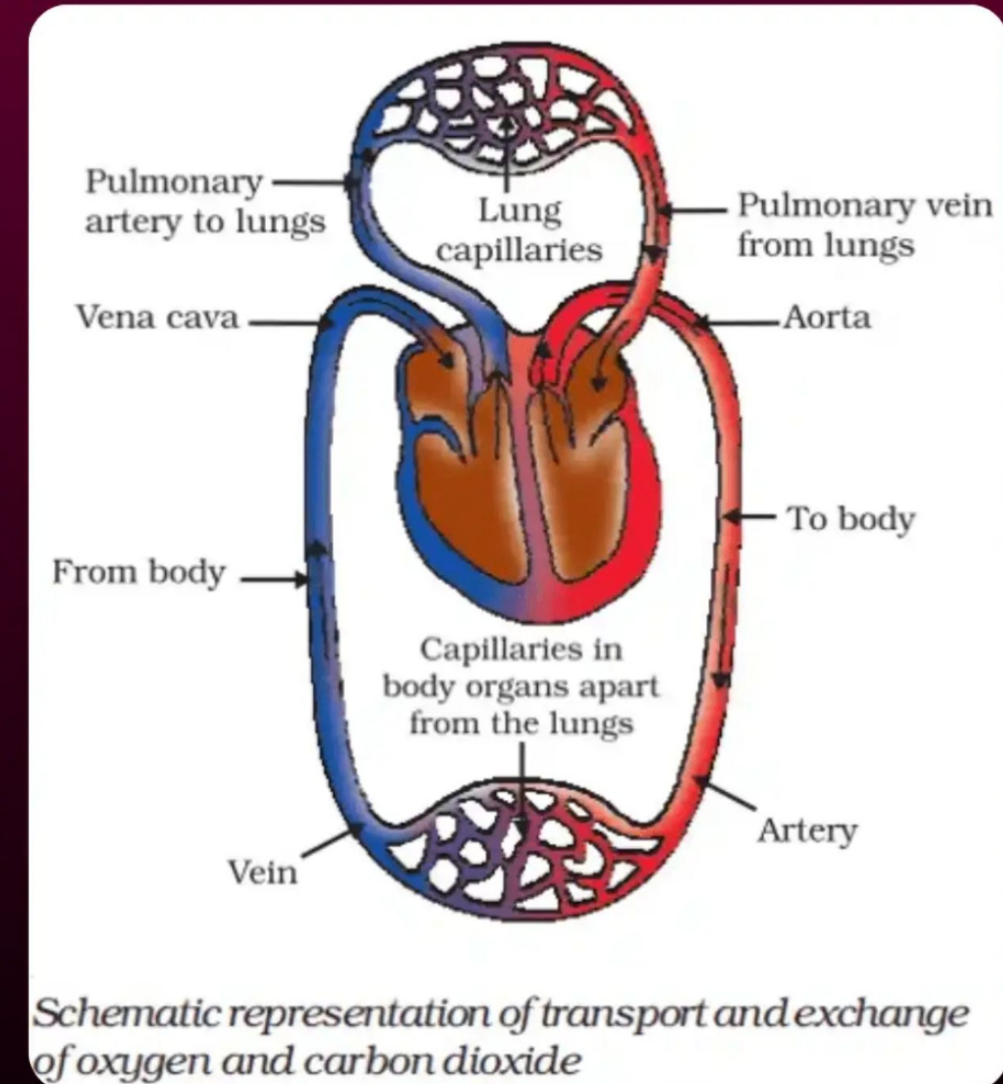
Blood flows twice through the heart before completing a full circuit. ✓

Single Circulation ✓

Blood passes only once through the heart in a complete cycle.



Animal Group	Heart Chambers	Circulation Type	Body Temperature Regulation
Birds (Aves), Mammals ✓	4 ✓	Complete double circulation ✓	Warm blooded ✓
Amphibians, Reptiles ✓	3 ✓	Partial double circulation ✓	Cold blooded ✓
Fishes (Pisces) ✓	2 ✓	Single circulation ✓	Cold blooded ✓



18. Which of the following statement(s) is (are) true about the human heart?

- (A) Right atrium receives oxygenated blood from lungs through pulmonary artery.
- (B) Left atrium transfers oxygenated blood to left ventricle which sends it to various parts of the body.
- (C) Right atrium receives deoxygenated blood through vena cava from upper and lower body.
- (D) Left atrium transfers oxygenated blood to aorta which sends it to different parts of the body.

(CBSE 2025, 2023, 2022, 2020)

(a) (A)

(b) (A) and (D)

☒ (c) (B) and (C)

(d) (B) and (D)



BC

19. States reasons for the following:

(i) The muscular walls of the ventricles are thicker than those of the atria.

(ii) arteries have thick and elastic walls

(ii) Circulation of blood in aquatic vertebrates differs from that in terrestrial vertebrates

(CBSE 2024, 2022, 2020, 2019)

i) The walls of the ventricles are thicker than the walls of the atria because ventricles have to pump blood with greater Pressure ✓

Art → Away

ii) Arteries carry blood from heart at high pressure so they have thick and elastic walls ✓

iii) Terrestrial vertebrates are warm blooded & hence require constant and high level of oxygen to maintain Temperature, so they have double circulation system.

Whereas Aquatic Vertebrates are cold blooded and do not require such high level of oxygen, so they have single circulation system. ✓

LYMPH or TISSUE FLUID

Some components of blood leak through pores in walls of capillaries (plasma, proteins and blood cells — **Not RBC**)

- **Colourless fluid** ✓
- Contains **less protein** than blood } Diff Blood

Leak
()

Lymph is a part of lymphatic system

- Lymph flows into lymphatic capillaries, which join to form larger lymph vessels. ✓
- These vessels finally merge into larger veins ✓

Functions -

- Carries **digested** and **absorbed fat** from intestine ✓
- **Drains excess fluid** back into the blood ✓
- Lymph contains **lymphocytes** that help defend the body against infections. ✓



20. What is lymph, and how does it differ from blood?

(CBSE 2024, 2022)

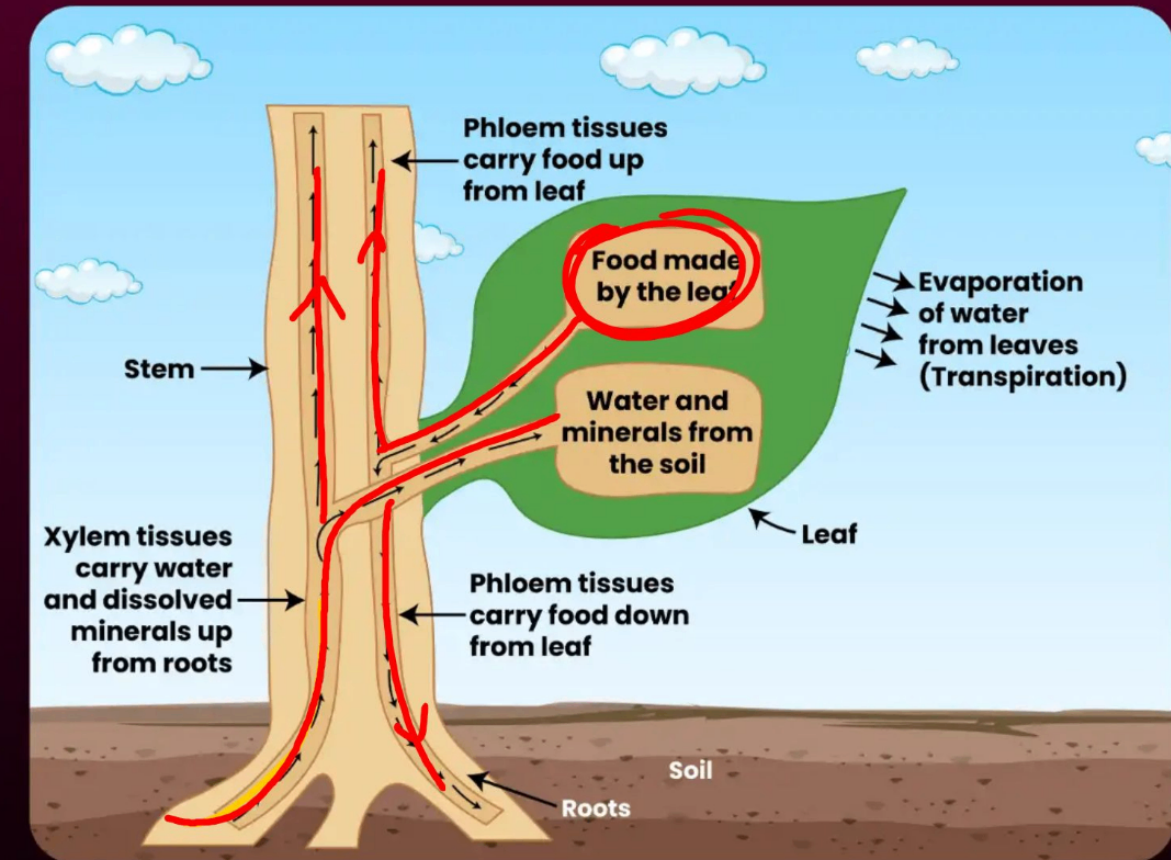
Transportation in Plants

Slow transportation system - 1) Plants do not move 2) have a large proportion of dead cells in many tissues. Hence they have low energy needs and use slow transport systems.

But, transportation distance can be very large

Xylem & Phloem are independent conducting tubes

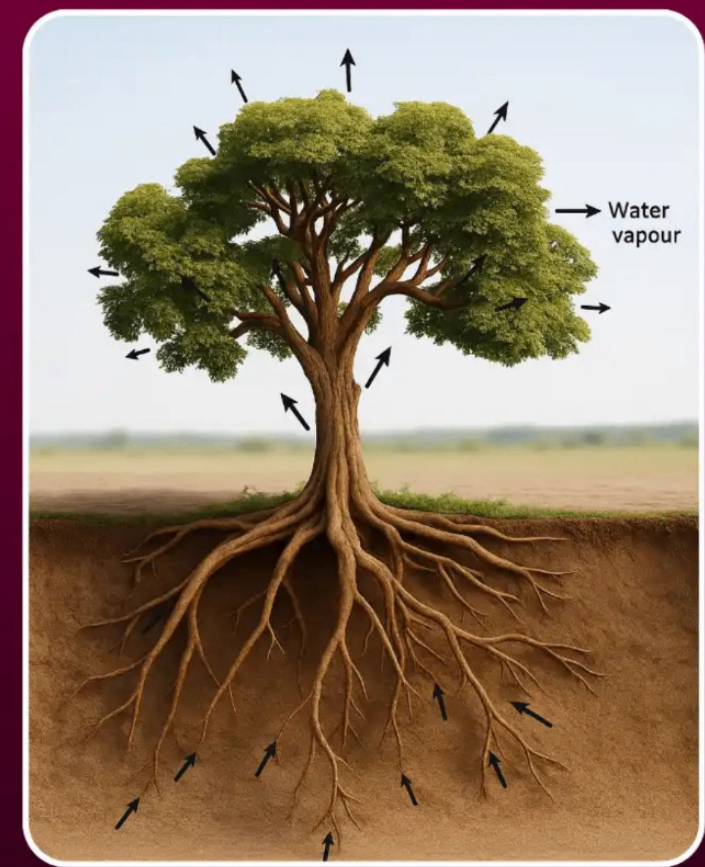
Feature	Xylem Transport	Phloem Transport
Transports	Water and minerals	Food, amino acids and other substances
Direction of Flow	Unidirectional (upwards from roots to aerial parts)	Bidirectional (both upward and downward)
Process Involved	Physical forces (such as root pressure and transpirational pull) <i>Passive Transport</i>	Active transport (requires energy in the form of ATP)
Main Tissues Involved	Xylem vessels, tracheids	Sieve tubes, companion cells



Transport of water → XYLEM ✓

- **Root pressure**—Roots take up ions from soil which creates difference in the concentration of these ions ✓
- water from soil moves into the roots ✓
- there is a constant movement of water into root xylem and water is steadily pushed upwards. ✓

Roots
mineral salts
Soil
Salt water



Transpiration The loss of water in the form of vapour from the aerial parts of the plant is called transpiration ✓

Role of transpiration ✓

T. Pull ✓

1. Absorption and upward movement of water and minerals from roots to leaves ✓
2. Temperature regulation (cooling due to evaporation) ✓

+ Root pressure

Day time— Major force is transpirational pull ✓

Night time —Root pressure ✓

Transport of food ✓✓

✓ Translocation → PHLOEM

- The transfer of food from leaves to other parts of the plant is called translocation ✓
- phloem translocates the food made in the leaves ✓
- These substances are especially delivered to the storage organs of roots, fruits and seeds and to growing organs ✓

21. The process in which transport of soluble products of photosynthesis takes place in plants is known as:

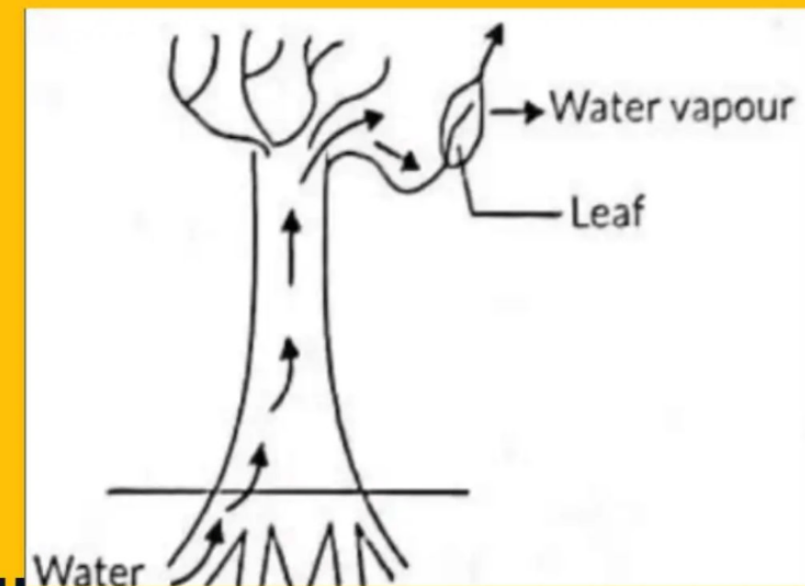
food

- (a) Transpiration ~~X~~
- (b) Evaporation ~~X~~
- (c) Conduction ~~X~~
- (d) Translocation ✓

(CBSE 2024, 2022, 2020, 2018)

22. Observe the following diagram and identify the process and its significance from the following options:

- (a) Evaporation : maintains water contents in leaf cells.
- (b) Transpiration: creates a suction force which pulls water inside the plant.
- (c) Excretion: helps in excreting out waste water from the plant.
- (d) Translocation: helps in transporting materials from one cell to another.



(CBSE 2025, 2023, 2021, 2019)

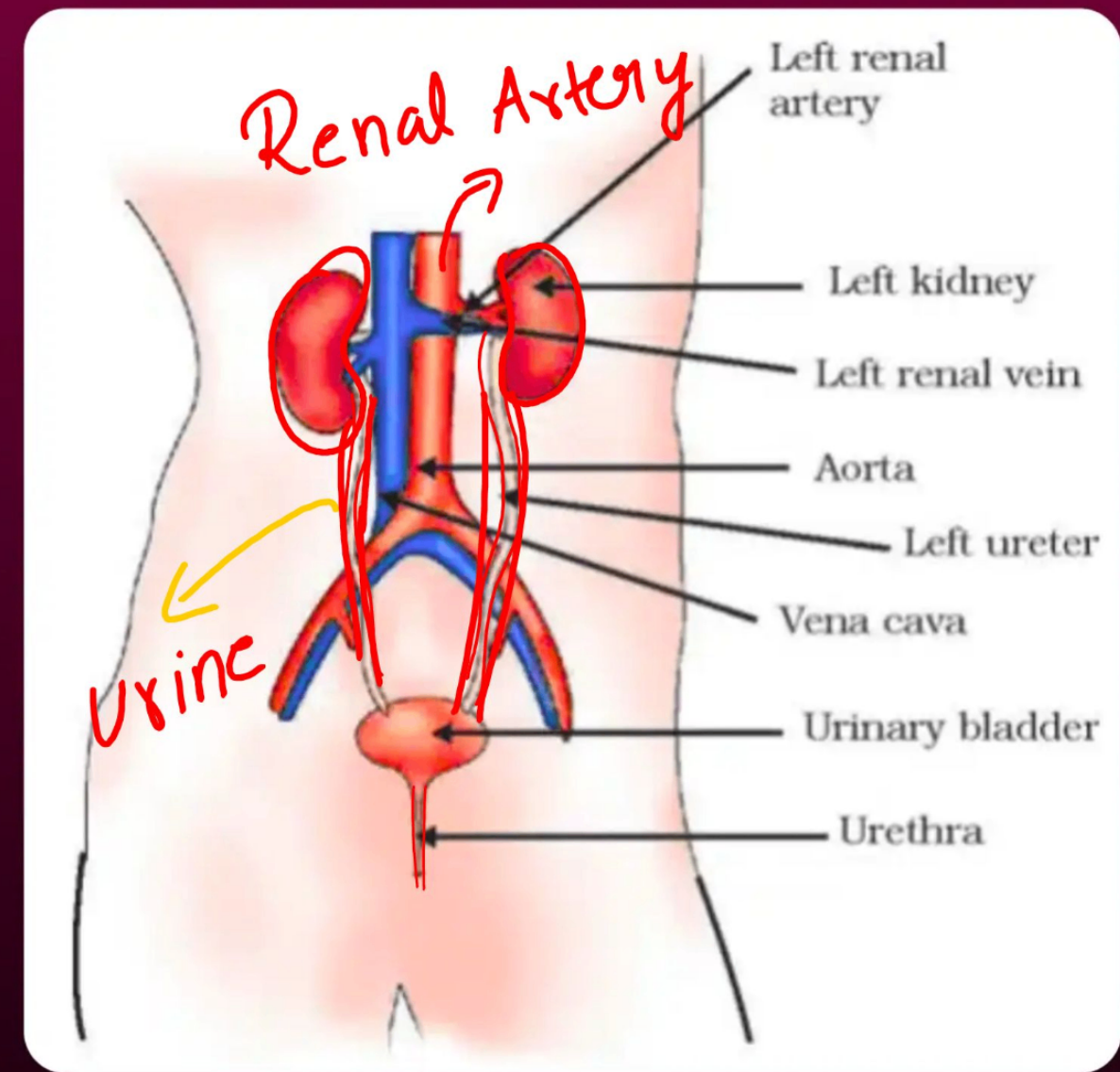
EXCRETION

IN HUMAN BEINGS

Removal of harmful metabolic wastes (mainly Urea & Uric acid) from the body is called excretion ✓

The excretory system of human beings include-

- **Kidneys**- Nitrogenous waste such as urea and uric acid are filtered from blood through kidneys ✓ *Filter*
- **A pair of ureters**- Connects the kidneys with the urinary bladder ✓
- **Urinary bladder**- Urine is stored in urinary bladder until it is passed out (muscular, under nervous control) ✓
- **Urethra**- Transports urine out of the body ✓



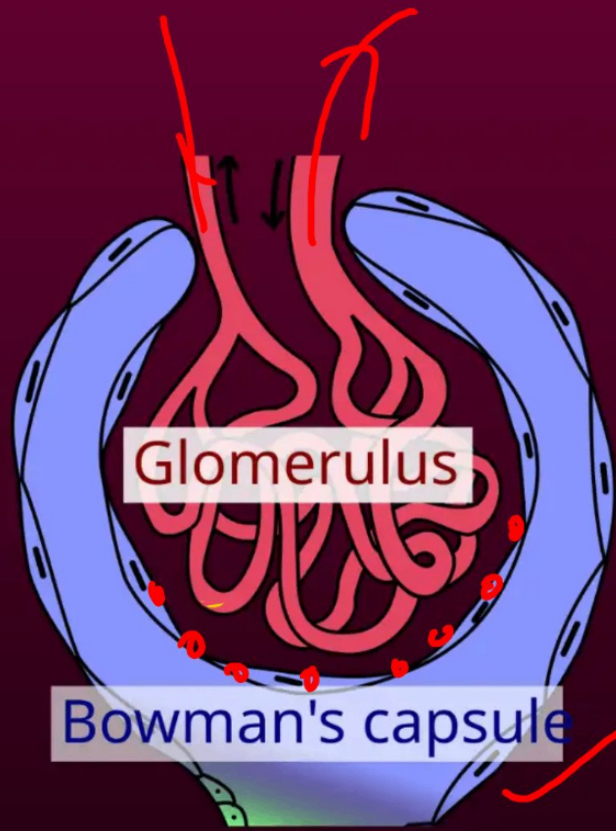
Human excretory system

23. State the function of each of the following in the human excretory system:

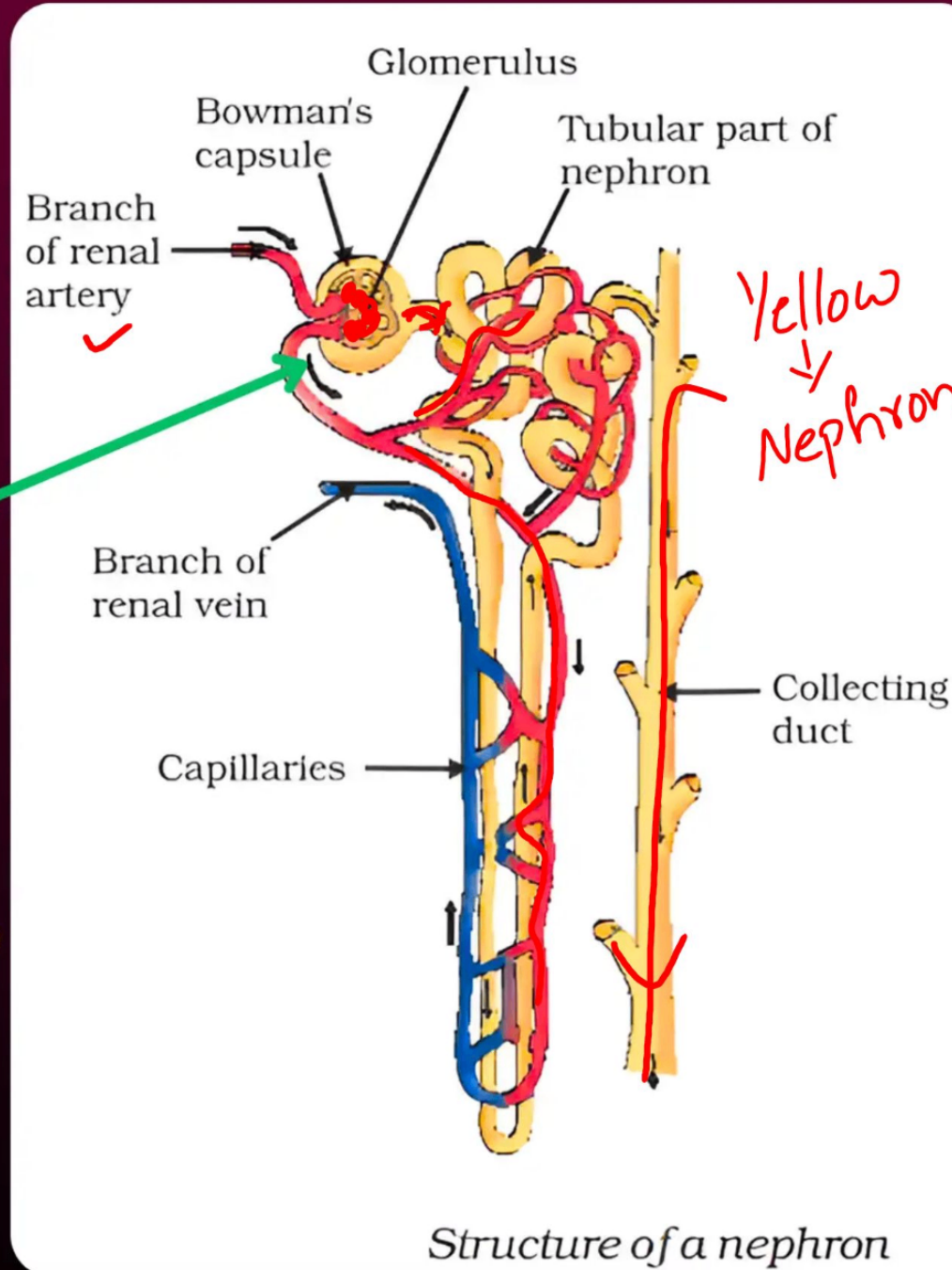
(a) Kidney (b) Ureter (c) Urinary bladder

(CBSE 2024, 2022, 2020, 2018)

- **Nephron** : the structural and functional unit of kidney. Each kidney has millions of nephrons



Glomerulus- Cluster of blood vessels
Bowman's Capsule- Cup shaped structure in each Nephron, that surrounds glomerulus and collects the filtrate



✓ **GLOMERULAR FILTRATION**-

Nitrogenous wastes, glucose, water, amino acid, excessive salts from the blood are filtered and initial filtrate enters into Bowman Capsule of the nephron.

✓ **SELECTIVE REABSORPTION**-Useful substances like glucose, amino acids, salts and a major amount of water from the filtrate are reabsorbed back by capillaries surrounding the nephron

TUBULAR SECRETION -Urea, extra water and salts are secreted into the tubule which open up into the collecting duct & then into the ureter.

Amount of water reabsorbed depends on ✓

1. Amount of excess water in body ✓
2. Amount of dissolved waste to be excreted ✓
Salts



24. How is urine produced in the human body? Explain the basic process of urine formation.

(CBSE 2024, 2022, 2020, 2018)

GLOMERULAR FILTRATION-Nitrogenous wastes, glucose, water, amino acid, excessive salts from the blood are filtered and initial filtrate enters into Bowman Capsule of the nephron.

SELECTIVE REABSORPTION-Useful substances like glucose, amino acids, salts and a major amount of water from the filtrate are reabsorbed back by capillaries surrounding the nephron

TUBULAR SECRETION -Urea, extra water and salts are secreted into the tubule which open up into the collecting duct & then into the ureter.

25. Write one specific function of each of the following organs in relation to excretion in human beings:

- (i) Renal Artery**
- (ii) Urethra**
- (iii) Glomerulus**
- (iv) Tubular part of nephron"**

(CBSE 2025 2022, 2020)

i) Renal Artery - Brings oxygenated blood with waste to kidneys for filtration ✓

ii) Urethra - Helps in urine removal from body ✓

iii) Glomerulus - Nitrogenous wastes, glucose, water, amino acid, excessive salts from the blood are filtered with help of it. ✓

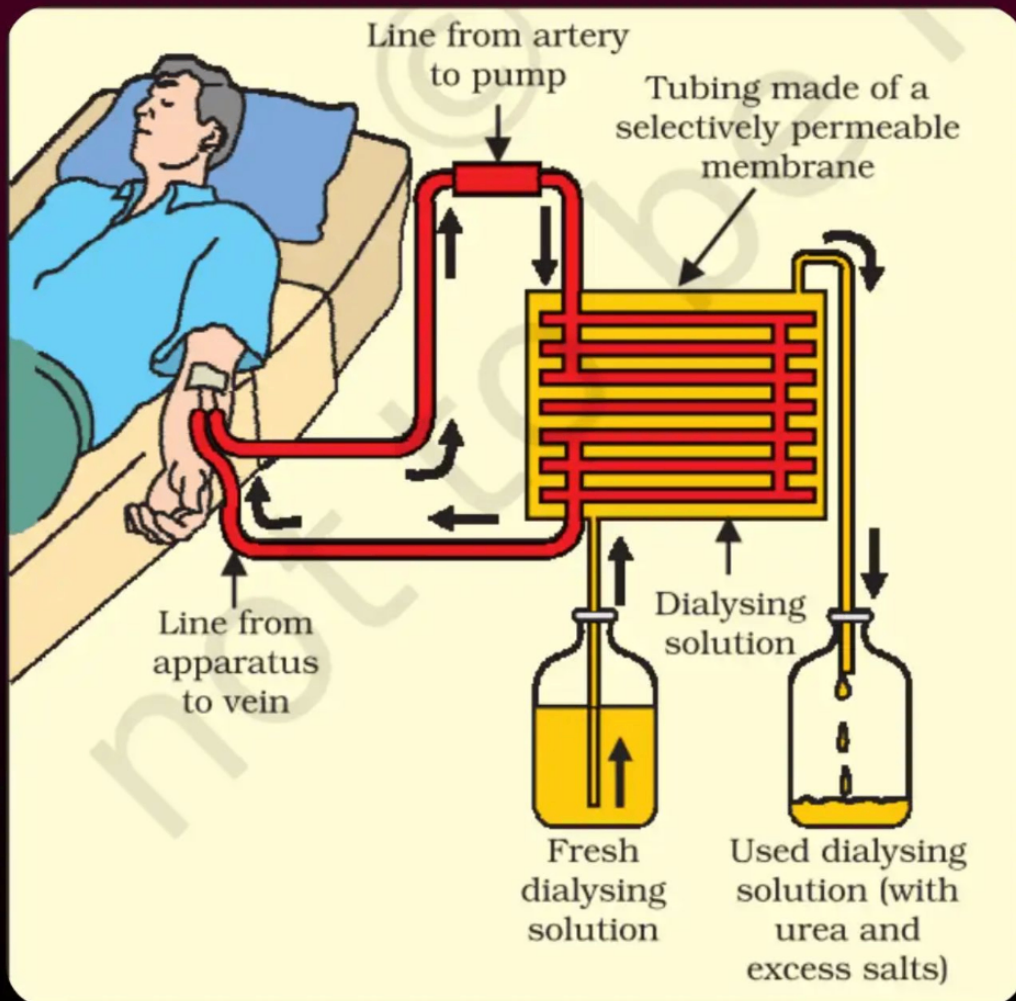
iv) Tubular Part of Nephron - helps in selective reabsorption of glucose, amino acids, salts and a major amount of water back to capillaries

+T.S.



ARTIFICIAL KIDNEY (HEMODIALYSIS)

- In case of kidney failure, an artificial kidney can be used
- An artificial kidney removes nitrogenous waste products from the blood through dialysis.
- Artificial kidney --> No reabsorption involved



- Dialysing fluid --> same osmotic pressure as blood (without nitrogenous wastes)
- Used dialysing solution --> rich in urea and excess salts

Excretion in Plants

- Oxygen and carbon dioxide --> by diffusion through stomata ✓
- Excess water --> removed by transpiration. ✓ *excretion*
- Shedding of old leaves ✓
- Plants also secrete some waste substances into the soil around them. ✓

