FOCUS ACADEMY

Kg to 12
English&Gujarati Medium

BRANCH 1- 19-B MUSLIM SOC, B/H FIRDOS MASJID DANILIMDA AHMEDABAD	BRANCH2-OPP MEMON HALL, JUHAPURA AHMEDABAD

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Class 10 SCIENCE Chapter 6

IMPORTANT QUESTIONS FOR SECTION –D [4 MARKS EACH]

Q. What are the different ways in which glucose is oxidised to provide energy in various organisms?

Answer:

First step of breakdown of glucose (6 carbon molecules) takes place in the cytoplasm of cells of all organisms. This process yields a three carbon molecule compound called pyruvate.

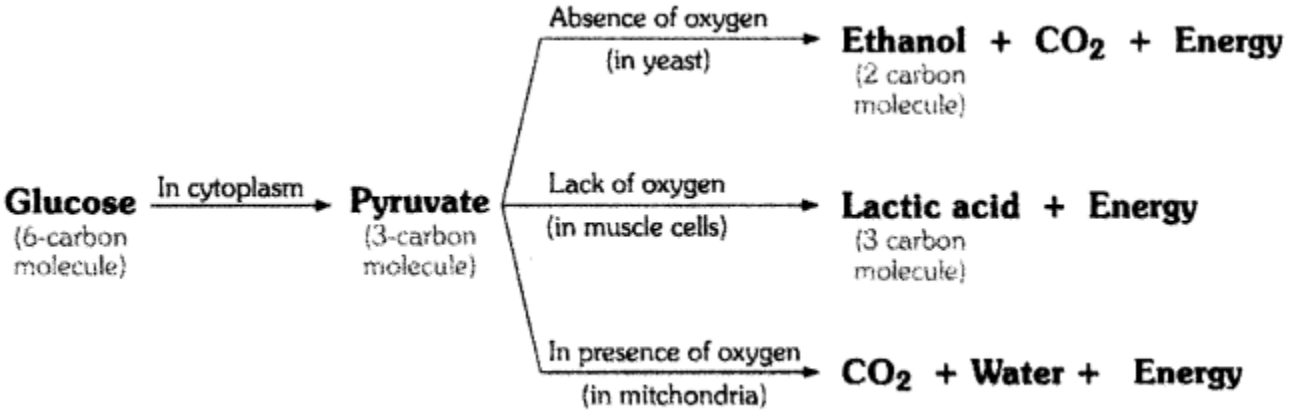
Further break down of pyruvate takes place in different ways in different organisms.

(i) Anaerobic respiration : The anaerobic respiration in plants (like yeast) produces ethanol and carbon dioxide as end products.

(ii) Aerobic respiration : In aerobic respiration break down of pyruvate takes place in presence of oxygen to give rise three molecules of carbon dioxide and water. The release of energy in aerobic respiration is much more than in anaerobic respiration.

(iii) Lack of oxygen : Sometimes, when there is lack of oxygen especially during physical exercise, in our muscles, pyruvate is converted into lactic acid (3 carbon molecule compound). Formation of lactic acid in muscles

causes cramp.



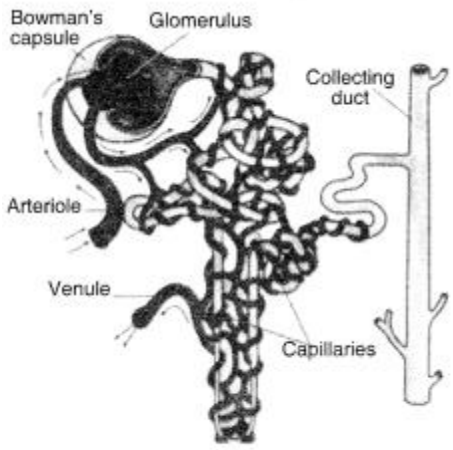
Break down of glucose by various pathways

Q. Describe the structure and functions of nephrons.

Answer:

Structure of nephron : Each nephron is composed of two parts. First one is a cup-shaped bag at its upper end which is called Bowman's capsule.

The Bowman's capsule contains a bundle of blood capillaries which is called glomerulus. One end of the glomerulus is attached to the renal artery which brings the impure blood containing the urea waste into it. These impurities are filtered. The other part of the nephron is coiled. In this part, the substances like sugar (glucose), amino acid, ions and excess water which are required by the body, are reabsorbed. The substance remained in the nephron is mainly urine containing dissolved urea in water which is expelled from the body through urethra from time to time.



Structure of Nephron

Functions of nephron : Filtration of blood takes place in Bowman's capsule from the capillaries of glomerulus. The filtrate passes into the tubular part of the nephron. This filtrate contains glucose, amino acids, urea, uric acid, salts

and water.
Reabsorption : As the filtrate flows along the tubule, useful substances such as glucose, amino acids, salts and water are selectively reabsorbed into the blood by capillaries surrounding the nephron tubule.
Urine : The filtrate which remained after reabsorption is called urine. Urine contains dissolved nitrogenous waste like urea and uric acid, excess salts and water. Urine is collected from nephrons to carry it to the ureter from where it passes into urinary bladder.

Q. What are the differences between aerobic and anaerobic respiration ?
Name some organisms that use the anaerobic mode of respiration.
Answer:

Aerobic respiration	Anaerobic respiration
1. It takes place in the presence of oxygen.	1. It takes place in the absence of oxygen.
2. Complete breakdown of food occurs in aerobic respiration.	2. Partial breakdown of food occurs in anaerobic respiration.
3. The end products in aerobic respiration are carbon dioxide and water.	3. The end products in anaerobic respiration may be ethanol and carbon dioxide (as in yeast plants) or lactic acid (as in animal muscles).

4. Aerobic respiration produces a considerable amount of energy.	4. Much less energy is produced in anaerobic respiration.

Some organisms which use anaerobic respiration are yeast, bacteria etc.

Q. What are the differences between the transport of materials in xylem and phloem ?

Answer:

Xylem	Phloem
1. Xylem conducts water and dissolved minerals from roots to leaves and other parts.	1. Phloem conducts prepared food material from leaves to other parts of plant in dissolved form.
2. In xylem, the transport of material takes place through vessels and tracheids which are dead tissues.	2. In phloem, transport of material takes place through sieve tubes with the help of companion cells, which are living cells.
3. In xylem upward movement of water and dissolved minerals is mainly achieved by transpiration pull.	3. In translocation, material is transferred into phloem tissue using energy from ATP. This increases the

It is caused due to suction created by evaporation of water molecules from the cells of a leaf.	osmotic pressure that moves the material in the phloem to tissues which have less pressure

Q.Compare the functioning of alveoli in the lungs and nephrons in the kidneys with respect to their structure and functioning.

Answer:

Alveoli	Nephron
1. Alveoli are functional unit of lungs.	1. Nephrons are functional unit of kidney.
2. A mature lung has about 30 crore alveoli.	2. A kidney has about 10 lakh nephrons.
3. Alveoli provide a wide surface for gaseous exchange.	3. The surface area of a nephron is not much more.
4. The exchange of O_2 and CO_2 takes place through the network of	4. The Bowman's capsule in nephron regulates the concentration of water

capillaries in alveoli.	and salts.

Q.(a) Draw a diagram to show the human alimentary canal and label on it the following : Gall bladder, Stomach. Name the longest part of the alimentary canal
(b) Why is it necessary to separate oxygenated and deoxygenated blood in mammals and birds ?

Answer:

(a)

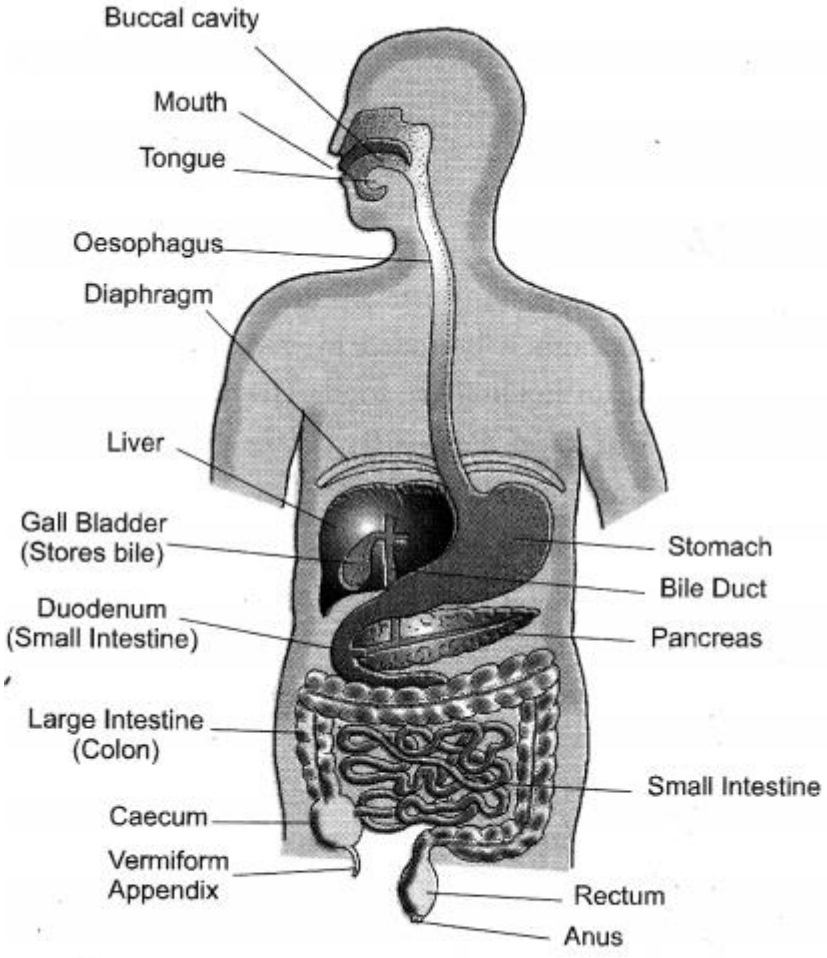


Fig. 1.13. *Human Alimentary Canal.*

Longest Part. Small intestine (about 6 metres).
(b) Separation of Oxygenated and Deoxygenated Bloods in Birds and Mammals.
Energy needs of birds and mammals are higher due to thermoregulation of body and increased activity. They require regular and quicker supply of oxygenated blood for all body parts. This is possible only when there is complete separation of oxygenated blood and quicker oxygenation of deoxygenated blood.

Q. Explain the process of nutrition in Amoeba.

Answer:

Amoeba ingests food particles with the help of its pseudopodia. The ingested food particle or phagosome fuses with lysosome to form food vacuole. The digested food passes out of the vacuole into cytoplasm. The undigested matter is thrown out. Fig. 1.11 B and E, if possible.

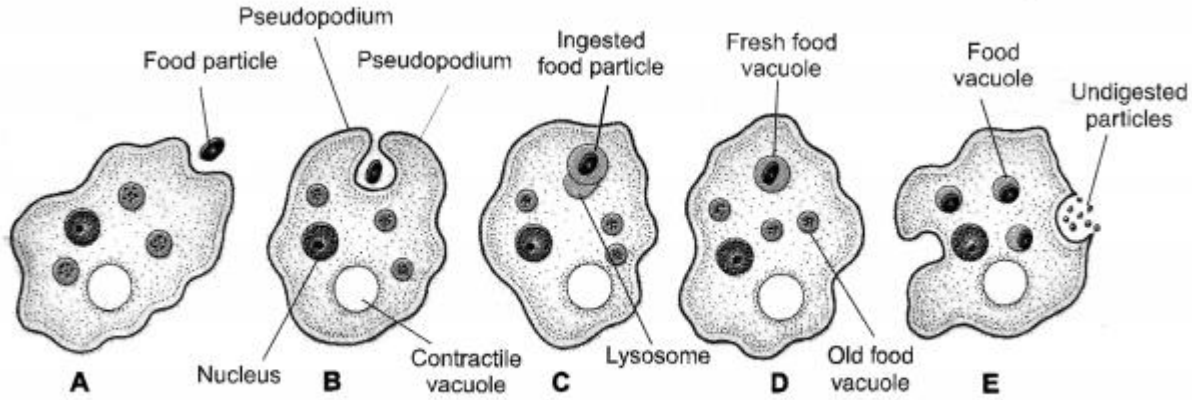


Fig. 1.11. *Holozoic nutrition in Amoeba.*

Q. What are stomata ? Draw labelled diagram of stomata. Write any two functions of stomata.

Answer:

(a) Stomata. They are pores regualted by two chloroplast containing guard cells that occur in the epidermis of leaves and young stems for exchange of gases and transpiration.

(b) Diagram.

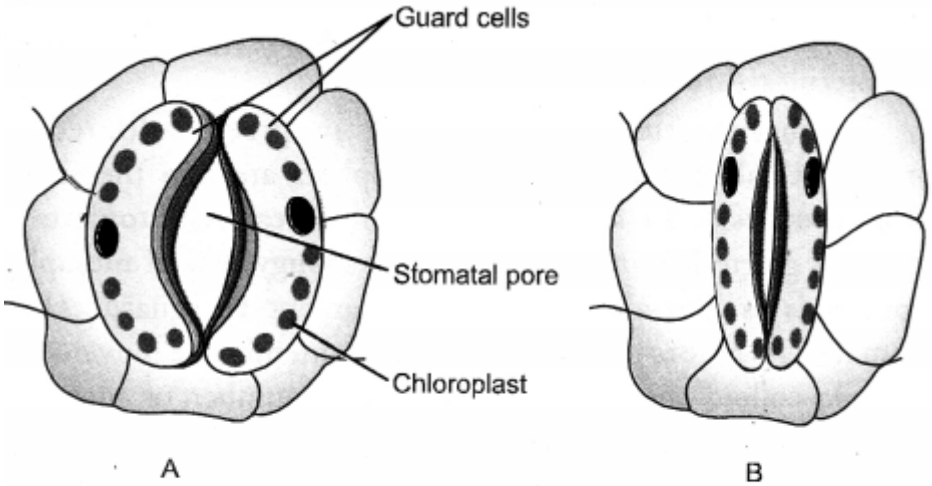


Fig. 1.4. *Stomata. A, open as during day time when guard cells swell up due to endosmosis B, closed as during night when guard cells shrink due to exosmosis.*

(c) Functions of Stomata,

1. **Exchange of gases,**

2. Transpiration.

Q. Draw a diagram of human respiratory system and label on it.

Answer:

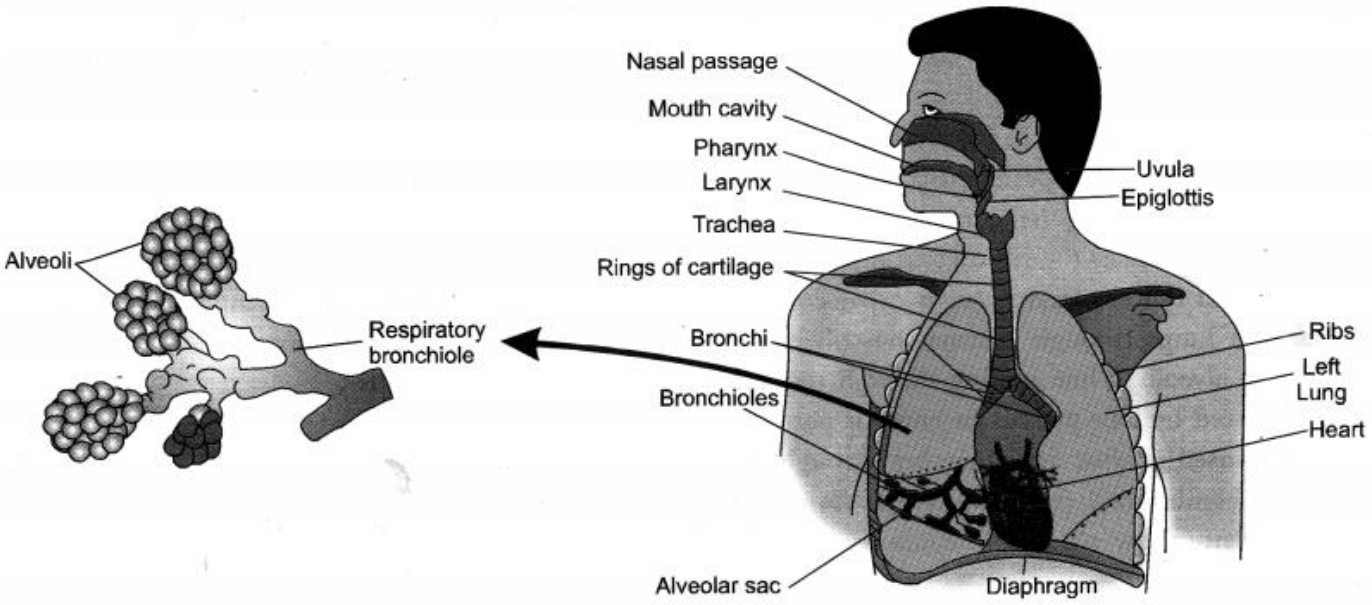


Fig. 1.24 Human respiratory system.

Q. Draw a diagram of human excretory system and label kidneys/left kidney, ureters/urinary bladder on it.

Answer:

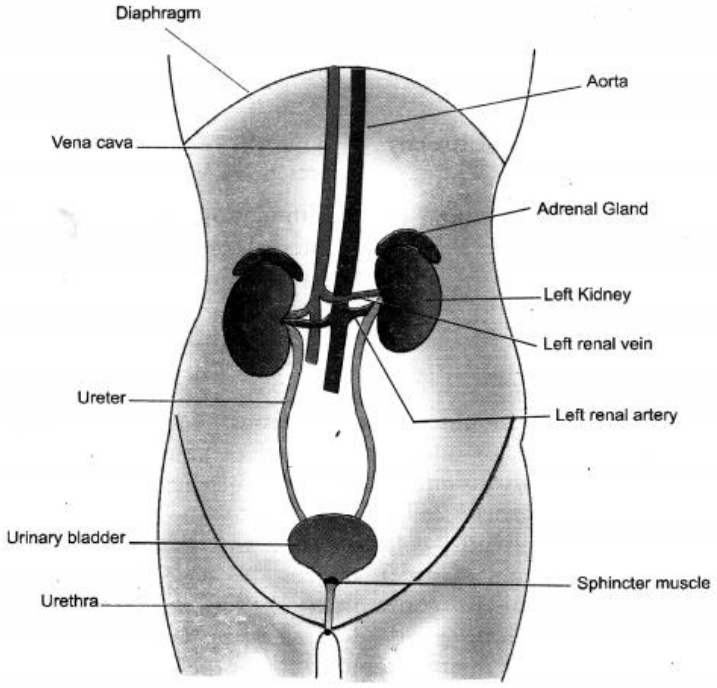


Fig. 1.48. Excretory or renal system in humans.

Q. Draw a neat diagram of sectional view of human heart and label on it

Answer:

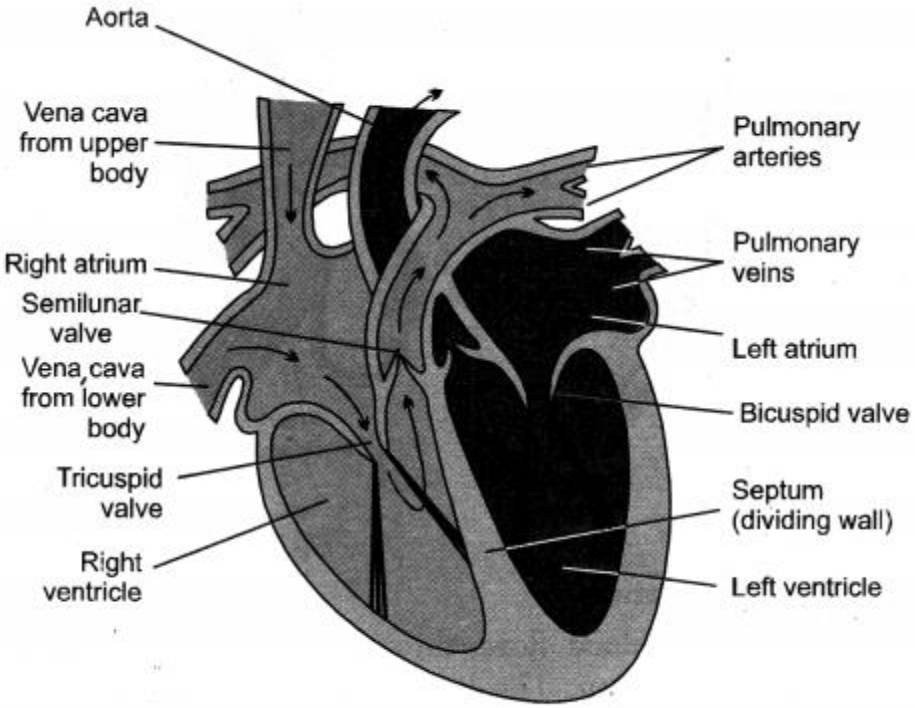


Fig. 1.33. Internal structure of Human Heart.

Q. Describe the structure and function of nephron with the help of diagram only.

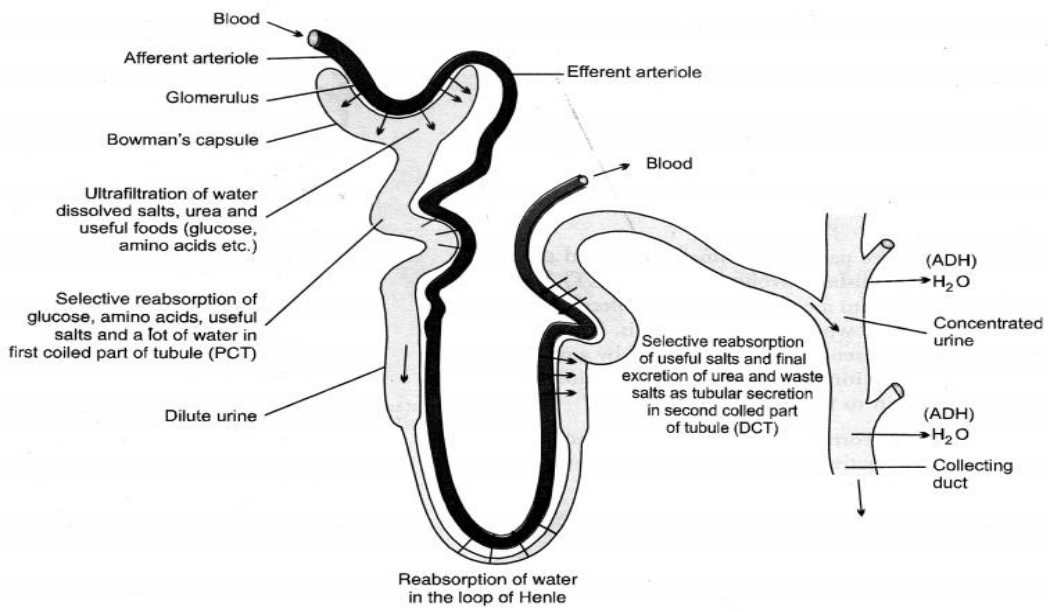


Fig. 1.50. Functioning of different parts of nephron.