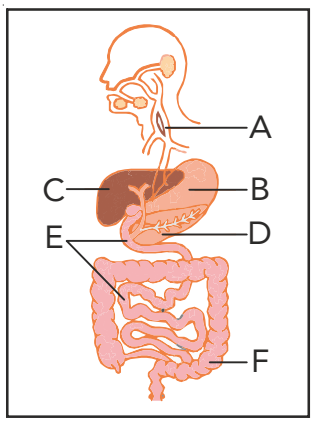
01 **The diagram below shows the human digestive system. It consists of the alimentary canal and organs attached to the alimentary canal.**



(a) **Identify the organs labelled A to F.**

(b) **Which of the organs labelled are accessory organs ?**

(c) **State the two main functions of organ E.**

(d) **Briefly describe how food is moved along the alimentary canal.**

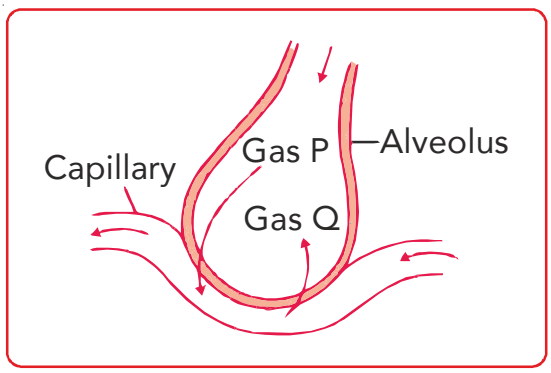
(a) A – Oesophagus; B – Stomach; C – Liver;
D – Pancreas; E – Small intestine;
F – Large intestine.

(b) Liver (C) and pancreas (D)

(c) Completion of the digestion process. Absorption of digested food molecules into the bloodstream.

(d) The walls of the alimentary canal are made of muscles. Muscles in front of the food relax while those behind the food contract, squeezing the food along the canal.

02 **The given figure shows the exchange of gases between an alveolus and a capillary.**



(i) **Based on the figure state gas P and Q.**

(ii) **Which blood is oxygenated and deoxygenated blood ?**

(iii) **State the process which causes the exchange of gases on the surface of an alveolus.**

(iv) **Why must the wall of an alveolus be moist ?**

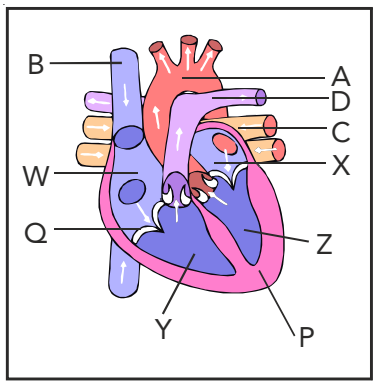
(i) Gas P - Oxygen and Gas Q - Carbon dioxide.

(ii) Blood X is deoxygenated, blood Y is oxygenated.

(iii) Diffusion.

(iv) Moist air sacs allows gases to wall of dissolve before diffusing.

03 **The given diagram show a cross-section of the human heart.**



(a) **Which letter represents the blood vessels that carries blood from the heart to:**

(i) **the lungs ?**

(ii) **the rest of the body ?**

(b) **State the differences in the composition of the blood in W and X.**

(c) **What are the names for the parts of the heart labelled W, X, Y and Z ?**

(d) **What is the function of the structure labelled Q ?**

(e) **Explain why structure P needs to be a thick muscle.**

(a) (i) D (ii) A

(b) W – Blood is deoxygenated and rich in carbon dioxide.

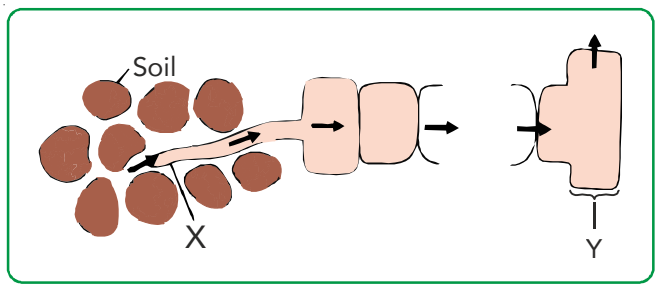
X – Blood is oxygenated and poor in carbon dioxide.

(c) W: Right atrium; X – Left atrium; Y – Right ventricle; Z – Left ventricle

(d) To prevent blood from flowing back in the opposite direction (backflow)

(e) It needs to be strong enough to pump blood all around the body.

04 **The Diagram show part of the root system of a plant. The roots absorb water and mineral salts.**



(a) **Name the parts labelled X and Y.**

(b) **Explain how water gets into X.**

(c) **Explain how water moves from cell to cell, starting from X and on to Y.**

(d) **State the process by which dissolved mineral salts are absorbed when their concentration in the soil is:**

(i) **higher than inside the roots.**

(ii) **lower than inside the roots.**

(a) X: Root hair cell; Y: Xylem (vessel)

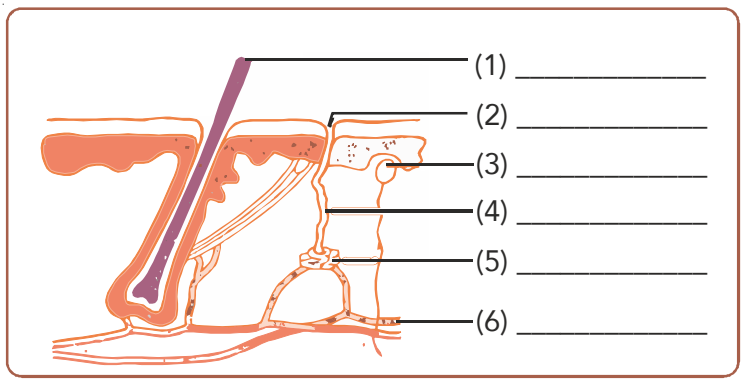
(b) Water moves from the soil into the root cells by osmosis because the water concentration in the soil is higher than that in the cell solution of the root hair cells.

(c) When water enters a root hair cell, it dilutes the solution in this cell and so the water concentration increases. Thus, the water moves by osmosis from one cell to another cell where the water concentration is lower.

(d) (i) Diffusion

(ii) Active transport

05 **The given figure shows a cross section of the human skin.**



(a) Label the structures of the skin in the given figure.

(b) State the waste products found in sweat.

(c) How is sweat formed ?

(d) Give two reasons why sweating is important to humans.

(e) State the waste products excreted by the following organs.

(a) 1. Hair 2. Sweat pore
3. Nerve ending 4. Sweat duct
5. Sweat gland 6. Blood capillary

(b) Water, urea and mineral salts.

(c) Water and dissolved substances from the blood capillaries diffuse into the sweat glands

(d) (i) To expel toxic substances like urea and other substances like water and mineral salts.

(ii) To cool the body

(e) (i) Lungs : Water and carbon dioxide

(ii) Skin : Water, urea and mineral salts

(iii) Kidneys : Water, urea and mineral salts