

Life Processes

Topic 1

- (d)** : Autotrophic nutrition is a kind of nutrition in which the organisms prepare (or synthesise) their own organic food utilising only the inorganic raw materials carbon dioxide, water, chlorophyll and sunlight.
- Fats are digested in the small intestine. The bile secreted by liver, breaks down the large globules of fat into smaller globules. This is called emulsification of fats. The bile also makes the medium alkaline so that the pancreatic enzyme, lipase further digest fats to form fatty acids and glycerol.
- Saliva contains carbohydrate digesting enzyme salivary amylase (ptyalin) and is released in our mouth. It breaks down starch (complex carbohydrate) into simple sugar.
- For autotrophic nutrition to take place, the conditions necessary are-sunlight, chlorophyll, carbon dioxide and water. The by-product of autotrophic nutrition is oxygen which is released through stomata.

Topic 2

- (c)** : During aerobic respiration, pyruvate enters into the mitochondria where it breaks down aerobically. The complete breakdown of pyruvate results in the release of carbon dioxide, water and energy.
- Differences between aerobic and anaerobic respiration are as follows :

S. No.	Aerobic respiration	Anaerobic respiration
(i)	It takes place in presence of oxygen.	It takes place in absence of oxygen.
(ii)	Its end products are carbon dioxide and water.	Its end products are ethanol and carbon dioxide.

(iii)	More energy is released.	Less energy is released.
(iv)	It takes place in cytoplasm and mitochondria.	It takes place only in the cytoplasm.
(v)	Complete oxidation of glucose takes place.	Incomplete oxidation of glucose takes place.

Some organisms that use the anaerobic mode of respiration are - yeast, bacteria, etc.

- The alveoli are present at the terminal of bronchioles. They are balloon-shaped structures with thin membrane which increase the surface area for the exchange of gases and are richly supplied with blood vessels.
- Haemoglobin is a red pigment present in our blood which carries oxygen to all the parts of the body. If there is deficiency of haemoglobin then amount of oxygen reaching our body cells will decrease which may lead to release of less energy in our body, leading to a disease called anaemia. Breathlessness, tiredness, weakness are the symptoms of anaemia.

Also, haemoglobin deficiency will decrease oxygen-carrying capacity of RBCs from the lungs to the body tissues which causes hypoxia in the body tissues. This decreases the energy supply and metabolic rate of the organisms.

Topic 3

- (a)** : The xylem helps in upward movement of water and minerals from the roots to various parts of a shoot.
- The heart of human beings consists of two sides – right and left.

The right side of the heart receives deoxygenated blood and sends it further for purification to lungs. The left side of heart receives oxygenated blood from the lungs which is pumped further and sent to all the parts of

the body through blood vessels. This is called double circulation. The energy demands for human beings is too high and hence the separation of oxygenated and deoxygenated blood is necessary to meet this energy demand.

3. The differences between transport of materials in xylem and phloem are:

S. No.	Transport in xylem	Transport in phloem
(i)	Water and mineral salts are transported.	Food in aqueous form is translocated.
(ii)	The transport is unidirectional, <i>i.e.</i> , from roots to tip.	The transport is bidirectional, <i>i.e.</i> , from source leaves or storage parts to sink.

Topic 4

- (c) : The excretory system of human beings includes a pair of kidneys, a pair of ureters, a urinary bladder and a urethra.
- The difference between alveolus and nephron are as follows :

S. No.	Alveolus	Nephron
(i)	It is the structural and functional unit of lungs.	It is the structural and functional unit of kidneys.
(ii)	It is balloon shaped, thin walled, has a large surface area and is richly supplied with blood vessels.	It is cup shaped, thin walled, has a large surface area and is richly supplied with blood vessels.
(iii)	It removes carbon dioxide from the blood.	It removes nitrogenous wastes from the blood.

