

# EXERCISE

- 1) The kidneys in human beings are a part of the system for -  
(c) excretion.
- 2) The xylem in plants are responsible for - (b) transport of food.
- 3) The autotrophic mode of nutrition requires - (d) all of the above.
- 4) The breakdown of pyruvate to give  $\text{CO}_2$ ,  $\text{H}_2\text{O}$  and energy takes place in - (b) mitochondria.
- 5) How are fats digested in our bodies? where does

Ans - The digestion of fats takes place in small intestine. Fats are present in the intestine in the form of large globules. The fat digesting enzymes are not able to act upon large globules efficiently.

→ Bile juice from the liver accomplish this in addition to acting on fats. Bile salts emulsify the large globules of fats and break them down into smaller globules. The walls of the ~~present~~ <sup>small</sup> intestine contain glands which secrete intestinal juice. The enzymes present in it finally convert the fats into fatty acids and glycerol.

Digestion of fat in small intestine.

Fats + Bile juice from Liver → Emulsified fats  
(Bile salt)

Emulsified Fats + Pancreatic juice (lipase) ⇒ Broken down fats

Broken down fats + Intestinal Juice → Fatty acids + Glycerol

⑥ what is the role of saliva in the digestion of food?

Ans - Saliva secreted by the salivary glands. The saliva contains an enzyme called Salivary Amylase that breaks down starch, which is a complex molecule to give sugar.

Starch + Salivary Amylase  
(Complex molecules)  $\Rightarrow$  Sugars

(Simple molecules)

(ii) The food moistened by saliva, easily breaks down in smaller parts on chewing and is further mixed thoroughly by action of muscular tongue. This all helps in digestion of starch efficiently.

⑦ what are the necessary conditions for autotrophic nutrition and what are its by-products?

Q7(a) The necessary conditions for autotrophic nutrition:

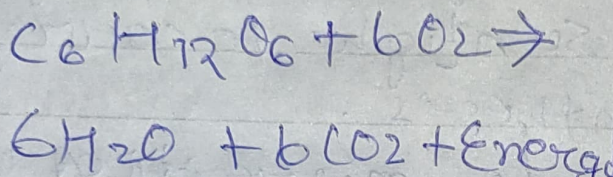
- (i) The presence of chlorophyll
- (ii) Presence of sunlight to carry out the photosynthesis.
- (iii) The adequate ~~nutrients~~ water supply to different parts of plant

(b) Byproducts of autotrophic nutrition = The byproducts of autotrophic nutrition are starch, water and oxygen.

Q8 What are the differences between aerobic and anaerobic respiration? Name some organisms that use the anaerobic <sup>mode of</sup> respiration.

<u>Ans - Aerobic Respiration</u>	<u>Anaerobic Respiration</u>
(i) in presence of $O_2$	(i) in absence or <del>reduced</del> <sup>reduced</sup> of $O_2$
(ii) complete oxidation of glucose.	(ii) Complete oxidation of glucose doesn't take place.

(ii) In aerobic respiration, end products are  $\text{CO}_2$  water and energy.



(v) In anaerobic respiration, a large amount of energy is produced.

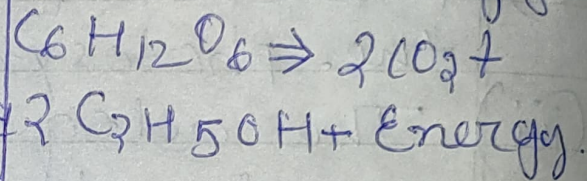
(38 ATP molecules per glucose molecule)

(ii) Organisms that use the anaerobic mode of respiration are yeast, bacteria and parasites like tapeworm (Taenia), Ascaris.

(9) How are the alveoli designed to maximise the exchange of gases?

Ans - The alveoli have balloon-like structures, that provides an enlarged surface for the exchange of gases. The walls of the

(iii) In aerobic respiration, end products are Ethyl alcohol,  $\text{CO}_2$  and little energy.



(iv) In aerobic respiration, small amount of energy is produced (2 molecules of ATP per glucose molecule)

alveoli are very thin and contain an extensive network of blood-vessels to further facilitate exchange of gases between blood and air filled in alveoli.

(10) what would be the consequences of a deficiency of haemoglobin in our bodies?

Ans - The average haemoglobin content of blood, irrespective of sex is 14.5 per 100 ml. The haemoglobin which has a very high affinity for oxygen, is responsible for absorption of oxygen from the inhaled air inside the lungs.

In case of deficiency of haemoglobin in our blood, its oxygen capacity will decrease and it then this

would affect the process of respiration adversely. This will lead to breathlessness and person may exhibit symptoms of anaemia.