

#### D. Very Short Answer Questions.

1. (a) **Trachea:** Insects (b) **Gills:** Fish  
(c) **Skin:** Earthworm (d) **Lungs:** Frog
2. Lenticels 3. Anaerobic respiration 4. Spiracles
5. Carbon dioxide 6. Root hair, woody stem
7. The breathing rate of a person becomes slowest when he is sleeping.
8. We get relief from cramps after a hot water bath or a massage.

#### E. Short Answer Type-I Questions.

1. During the inhalation, the ribs are pushed upward and outward.
2. The taking in of air, rich in oxygen, in to the body is called inhalation. The giving out of air, rich in carbon dioxide, outside the body is called exhalation.
3. The fish breathes by taking in water through its mouth and sending it over the gills. Gills are well supplied with blood vessels. The blood vessels of the gills extract dissolved oxygen from this water and send it to all parts of the body.
4. Respiration is the process of taking in oxygen, using it for the release of energy by breakdown of food, and removing the waste products, carbon dioxide and water.
5. When we inhale air, the unwanted particles present in the air get trapped in the hair of nasal cavity. However, sometimes these particles may get pass the hair in the nasal cavity. Then they irritate the lining of the nasal cavity, as a result of which we sneeze. Sneezing expels these unwanted particles from the inhaled air and a dust-free, clean air enters our body.
6. This is because, during the race, athlete needs extra energy. He breathe fast and take deep breaths so that more oxygen is inhaled and supplied to cells. It speeds up breakdown of food and more energy is released.

#### F. Short Answer Type-II Questions.

1. Differences between breathing and cellular respiration

S. No.	Parameters	Breathing	Cellular Respiration
1.	Process	It is a physical process in which exchange of gases (oxygen and carbon dioxide) takes place. No chemical reaction takes place.	It is a biochemical process in which the breakdown of food takes place.

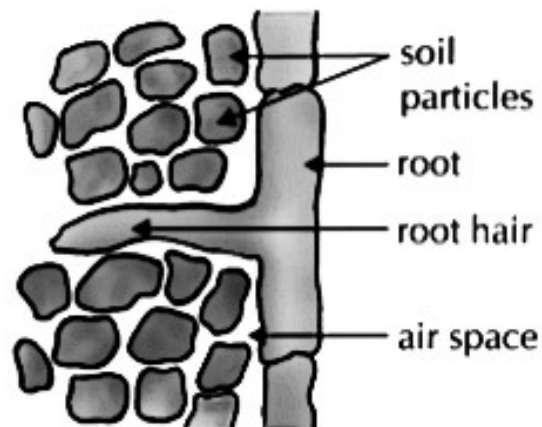
2.	Energy	Energy is not released.	Energy is released.
3.	Occurrence	It occurs outside the cells.	It occurs inside the cells.
4.	Enzymes	Enzymes are not involved.	Enzymes are involved at certain stages of respiration.

2. Differences between aerobic and anaerobic respiration

S.No.	Parameters	Aerobic respiration	Anaerobic respiration
1.	Presence of oxygen	It takes place in the presence of oxygen.	It takes place in the absence of oxygen.
2.	Breakdown of food	Complete breakdown of food (glucose) takes place.	Incomplete breakdown of food (glucose) takes place.
3.	End products	The end products are carbon dioxide and water.	The end products are carbon dioxide and alcohol.
4.	Amount of energy released	A large amount of energy is released.	A very small amount of energy is released.

3. When we exhale or breathe out air from our mouth on a clean mirror, the clean mirror becomes cloudy. We also find some water drops on the mirror. These water vapour condenses on the mirror surface to form tiny droplets of water. This shows, the air we breathe out contains water vapour.

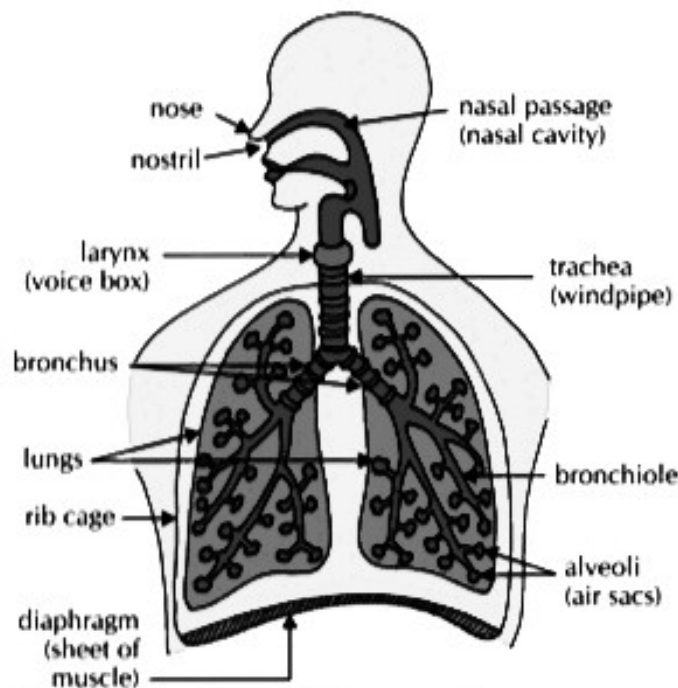
4. The root hairs, present on the roots of a plant, are in contact with the air present in the soil particles. So, oxygen from air in soil particles diffuses into root hair and reaches all the cells of the root where it is utilised in respiration. Carbon dioxide produced during respiration, goes out through the root hair by the process of diffusion.



Roots absorb air from the soil.

## G. Long Answer Questions.

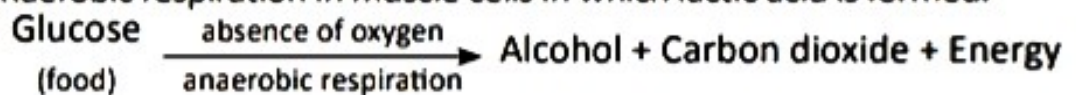
1.



The human respiratory system

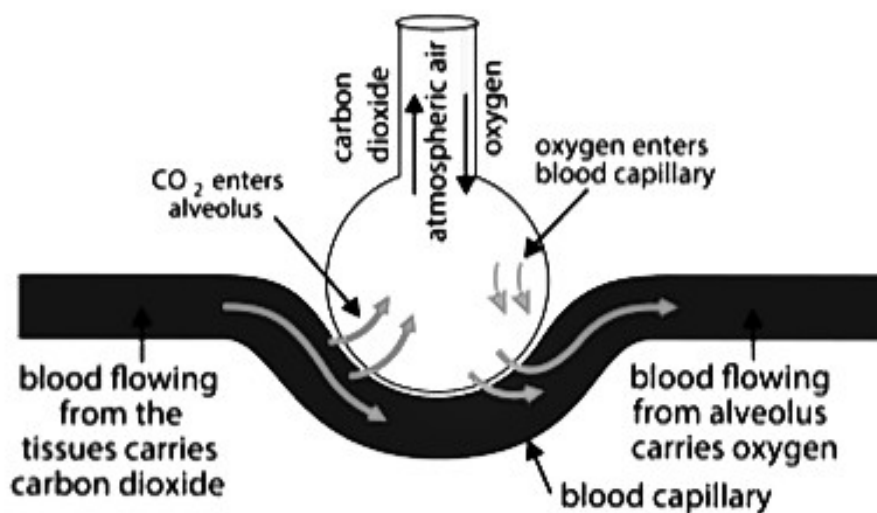
The exchange of gases takes place in the alveolus of lungs.

2. (a) Shikha feels pain due to muscle cramp which happened because of anaerobic respiration in muscle cells in which lactic acid is formed.



(b) Kind and helping nature.

3.



Exchange of gases in the alveolus