H.W

1) How is oxygen and carbon dioxide transported in human beings?

Ans - Hemoglobin transports oxygen molecule to all the body cells for cellular respiration.

→ The haemoglobin pigment present in the blood gets attached to four O_2 molecules that are obtained from breathing.

→ It thus forms oxyhaemoglobin and the blood becomes oxygenated.

→ This oxygenated blood is then distributed to all the body cells by the heart.

→ There giving away O_2 to the body cells, blood takes away CO_2 which is the end product of cellular respiration. Now the blood becomes de-oxygenated.

2) How are the lungs designed in human beings to maximise the area for exchange of gases?

Ans - The exchange of gases takes place between the blood of the capillaries that surround the alveoli and the gases present in the alveoli.

⇒ Thus, alveoli are the site for exchange of gases.

⇒ The lung get filled up with air. During the process of inhalation as ribs are lifted up and diaphragm flattened.

⇒ The air that is sucked inside the lungs fills the numerous alveoli present in the lungs.

⇒ Each lung contains 300 - 350 million alveoli.

⇒ These numerous alveoli increase the

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

Ans - The alveoli are the small balloon-like structures present in the lungs.

→ The walls of the alveoli consist of extensive network of blood-vessels.

→ Each lungs contain 300-350 million alveoli, making it a total of approximately 700 million in both the lungs.

→ The alveolar surface when spread out covers about 80 m^2 area.

→ This large surface area makes the gaseous exchange more efficient.

2) How are the lungs designed in human beings to maximise the area for exchange of gases?

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⇒ Thus, alveoli are the site for exchange of gases.

⇒ Thus The lungs get filled up with air during the process of inhalation as ribs are lifted up and diaphragm is flattened.

⇒ The air that is rushed inside the lungs fills the numerous alveoli present in the lungs.

4) What are the different ways in which glucose is oxidized to provide energy in various organisms?

Ans - i) Aerobic respiration - In this case, pyruvate is break down in water and carbon dioxide along with release of energy.

ii) Anaerobic Respiration - In aerobic respiration break down of pyruvate takes in presence of oxygen to give rise to 3 molecules of carbon dioxide and water.

5) What advantage does an aquatic organisms have with regard to obtaining oxygen for respiration?

Ans - Terrestrial organisms take up oxygen from the atmosphere whereas aquatic animals need to utilize oxygen present in the water.

→ Air contains more O_2 as compared to water.

→ Since the content of O_2 in air is high, the terrestrial animals do not have to breathe faster to get more oxygen.

6) Why is the trachea purified and the cartilaginous rings?

Ans - The function of cartilaginous rings in respiratory system is to stabilize the trachea. and keep it rigid while allowing the trachea to expand and lengthen when the person breathes.