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Homework

10) How is oxygen and carbon dioxide transported in human beings

Oxygen → The respiratory pigment (haemoglobin) present in RBC take up the oxygen from the air to the lungs. They carry the oxygen to tissues which are deficient in oxygen

Carbon Dioxide → CO_2 is more soluble in water. Hence it is easily transported from body tissues in the dissolved form in our blood to lung where it diffuses from blood to air in the lungs and then expelled out through nostrils

How are the lungs designed in human beings to maximise the area of exchange of gases

Lungs contain millions of alveoli which provide a surface for the exchange of gases. An extensive network of blood vessels is present in the wall of alveoli. By lifting our ribs and flattening the diaphragm the chest cavity becomes spacious. Air is sucked into the lungs and alveoli. The oxygen from the breath diffuses into blood and CO_2 from blood brought from the body diffuses into air.

How were the alveoli designed to maximise the exchange of gases

Alveoli provide a surface for exchange of gases. An extensive network of blood vessels is present in the wall of the alveoli. By lifting our ribs and flatten the diaphragm the chest cavity becomes spacious. Air is sucked into lungs and alveoli. The O_2 from the breath diffuses into the blood and CO_2 from the blood brought from the body.

What advantage over an aquatic organism does a terrestrial organism have with regard to obtaining oxygen for respiration

Terrestrial organisms take up oxygen from the atmosphere whereas aquatic organisms obtain O_2 from water. Air contains more O_2 as compared to water. Since the content of O_2 in air is high terrestrial animals do not have to breathe faster to get more oxygen. Therefore unlike aquatic animals terrestrial animals do not need adaptation for gaseous exchange.

Why trachea provided with cartilaginous rings

It will help to move and flex during breathing

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