Q. How is oxygen and carbon dioxide transported in human beings?

Ans- In humans the respiratory pigment haemoglobin (present in RBC) having high affinity for oxygen, take up oxygen from the air in the lungs and carry it to the tissues which are deficient in oxygen. CO_2 is more soluble in water than oxygen so it is transported in the dissolved form in our blood.

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

Ans- In lungs, the air passage divides into smaller and smaller tubes called bronchi which form bronchioles. The bronchioles then turn into balloon-like structures called alveoli. These alveoli provide maximum surface for exchange of gases. Alveoli have very thin walls and contain an extensive network of blood vessels to facilitate exchange of gases.

Q. How are alveoli designed to maximize the exchange of gases?

Ans- Alveoli are thin walled balloon like

structure. Its walls contain extensive network of blood vessels. Alveoli provide maximum surface for exchange of gases.

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

Ans- The rate of breathing in ~~aquatic~~ aquatic organisms is much faster than terrestrial organisms because the amount of dissolved O_2 in water is low as compared to the amount of O_2 in air.

Q) Why is the trachea provided with cartilaginous rings?

Ans- The trachea is provided with cartilaginous rings to prevent the collapsing of the trachea when less air is present in it.

Q4 What are the different ways in which glucose is oxidised to provide energy in various organisms?

Ans- First step of breakdown of glucose takes place in the cytoplasm of cells of all organisms. This process yields a three carbon molecule compound called pyruvate. Further break down of pyruvate takes place in different ways in different organisms.