Q1. Box Question

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

Ans (i) Transport of oxygen:- Haemoglobin present in the blood takes up the oxygen from the air in the lungs. It carries the oxygen to tissues which are deficient in oxygen.

(ii) Transport of carbon dioxide:- Carbon dioxide is more soluble in water. Therefore, it is mostly transported from body tissues in the dissolved form in our blood plasma to lungs. Here it diffuses from blood to air in the lungs.

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

Ans Within the lungs, the passage divides into smaller and smaller tubes which finally terminate in balloon-like structures which are called alveoli. The alveoli provide a surface where the

exchange of gases can take place. The walls of the alveoli contain an extensive network of blood-vessels which helps in exchange of gases.

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

Ans Aquatic organisms use oxygen dissolved in surrounding water. Since the concentration of oxygen is low in water, the aquatic organisms have much faster rate of breathing. Terrestrial organisms take oxygen from the atmosphere by the respiratory organs.
⇒ Hence, they have much less breathing rate than aquatic organisms.

Exercise

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

Ans (i) The alveoli are thin walled and richly supplied with a network of blood vessels to facilitate the exchange of gases between blood and air in alveoli

(ii) Alveoli have balloon - like structure. Hence, provides maximum surface for exchange of gases.

H.W

1. Why is Trachea provided with cartilaginous rings

Ans The Rings of cartilage are present in the throat. These ensure that the air-passage does not collapse. This enables the lumen of the trachea to stay open during breathing.

H.W 12/5/22

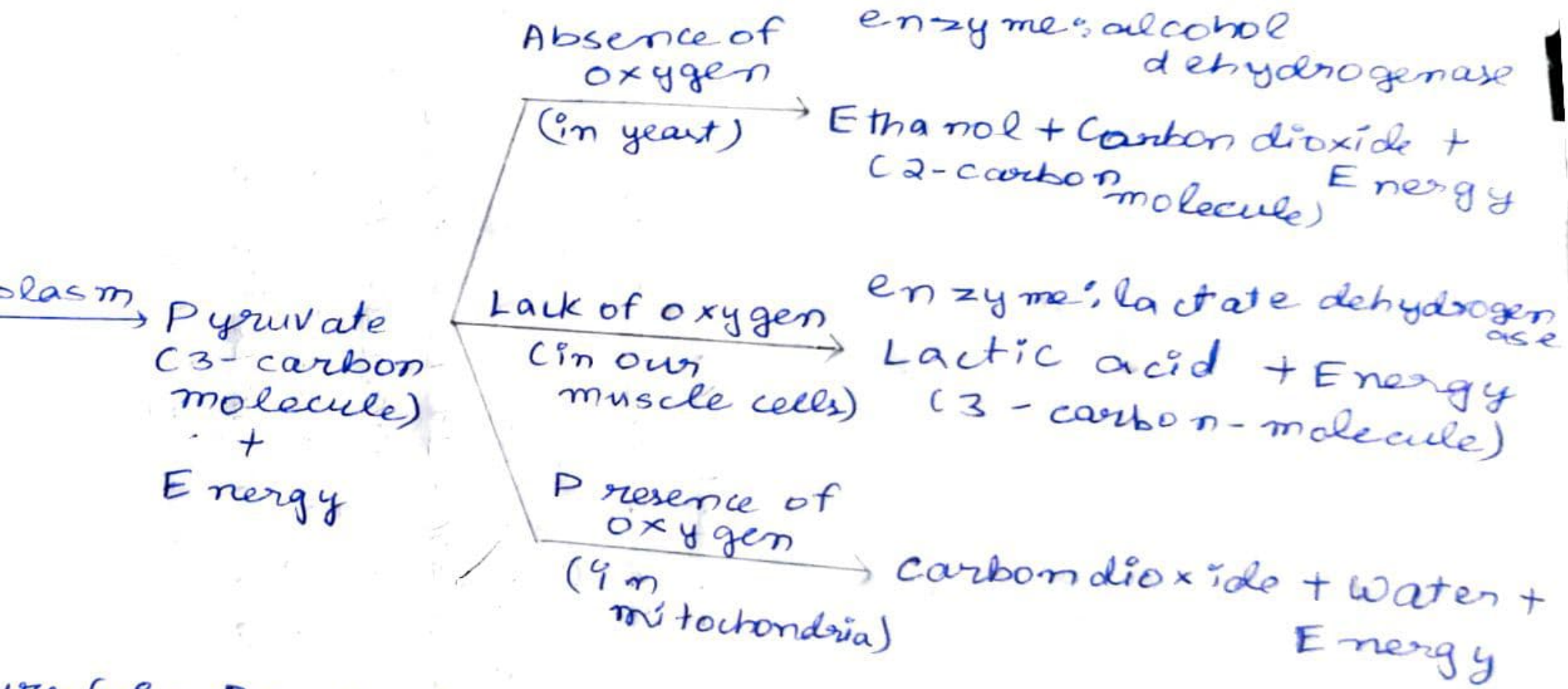
2. What are the different ways in which glucose is oxidised to provide energy in various organisms?

Ans In diverse organisms different ways are followed there this involves two processes. In the first step, the break-down of glucose, a six-carbon molecule, into a three-carbon molecule called pyruvate. Further, the pyruvate is broken down into energy.

1) Aerobic respiration

This respiration takes place in presence of air. This takes place in mitochondria. it breaks up the three-carbon pyruvate molecule to give three molecule of carbon-dioxide

2. Anaerobic respiration :- This respiration takes place in the absence of oxygen further the pyruvate may be converted into ethanol and carbon dioxide.



ure 6.8. Break-down of glucose by various pathways.