

SCIENCE : Life Processes

94. What are enzymes?

Ans: Enzymes are the biological catalysts that increase the reaction rate without being used up.

95. Mention the name of one digestive enzyme with its function.

Ans: Salivary amylase catalyses the breakdown of starch into sugar in the mouth and small intestine.

96. Name the site where complete digestion of food takes place in the alimentary canal.

Ans: Small intestine is that part of the alimentary canal where complete digestion of food takes place.

97: What is hypertension? What causes it, and how can it cause damage to the body?

Ans: High blood pressure is also called hypertension. It occurs due to the constriction of very small arteries, resulting in blood flow resistance. Hypertension could cause an artery to rupture and cause internal bleeding.

98. Explain the cause of cramps after excessive physical exercise.

Ans: During excessive physical exercise, aerobic respiration produces energy in our muscles. Anaerobic respiration provides muscles with some extra energy required under excessive physical activity. Glucose is broken down into lactic acid due to anaerobic respiration. The accumulation of lactic acid causes muscle cramps.

99. Explain the process of digestion.

Ans: Digestion occurs in the mouth, stomach and small intestine. The process can be explained as follows:

The digestion begins in the mouth. The saliva contains salivary amylase, which breaks down starch into sugar.

Stomach stores and mix the food with gastric juices. The gastric juice contains hydrochloric acid, mucus and pepsin. Hydrochloric acid dissolves food and creates an acidic medium for the action of pepsin. The pepsin digests protein, and the mucus protects the inner lining of the stomach from the action of hydrochloric acid.

In the small intestine, there occurs complete digestion of carbohydrates, proteins and fats. The small intestine wall contains glands which produce intestinal juice. This juice helps in the digestion of the food further. The small intestine obtains digestive juices from the liver and pancreas, which helps mix food.

The bile juice produced by the liver causes the emulsification of fats. The pancreas produces pancreatic juice for the digestion of proteins and emulsified fats.

The digested food is absorbed through intestinal walls.

100. Explain the breakdown of glucose in a cell in the presence and absence of oxygen.

Ans: Glucose can be broken down in three different ways.

In the absence of oxygen, like in Yeast, pyruvate is converted to ethanol, carbon dioxide and energy. This is called fermentation.

In the case of insufficient oxygen, like in muscle cells, pyruvate converts to produce lactic acid and energy.

In the presence of oxygen, pyruvate is converted into carbon dioxide, water and energy in mitochondria.

Ethanol is a two-carbon molecule, and lactic acid is a three-carbon molecule.

The first step, glucose breakdown in both the presence and absence of oxygen, is the same. More energy is released in the presence of oxygen.

In the absence of oxygen, anaerobic respiration occurs in the muscle cells. The building of lactic acid in muscle cells causes painful muscle contraction, called cramps.

101. What are the three types of blood vessels? Mention one important feature of each.

Ans: The human circulatory system has three types of blood vessels. These are arteries, veins and capillaries.

Arteries carry oxygenated blood from the heart to different parts of the body. They are thick-walled.

Veins carry deoxygenated blood from various organs to the heart. Veins are thin-walled.

Capillaries are responsible for exchanging material between the blood and the surrounding cells. They are thin-walled and narrow tubes which connect arteries to veins.

102. Multiple choice questions.

1) In a closed circulatory system, blood is completely enclosed within

- a) Vessels
- b) Heart
- c) Skeleton
- d) Sinuses

Ans: (b) Heart

2) Normal blood pressure (systolic/diastolic) is.....

- a) 120/80 mm of Hg
- b) 160/80 mm of Hg
- c) 120/60 mm of Hg
- d) 180/80 mm of Hg

Ans: (a) 120/80 mm of Hg

3) An instrument which measures blood pressure is called.....

- a) Barometer
- b) Sphygmomanometer
- c) Photometer
- d) Manometer

Ans (b) Sphygmomanometer

(Contd.....)