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1. Chemical compounds involved in the process of metabolism is known as _____

- a) Metabolites
- b) Radicals
- c) Catabolites
- d) Intermediates

View Answer

Answer: a

Explanation: Metabolites are the chemical compounds which take part in the process of metabolism. Metabolism involves discrete pathways which proceed in a stepwise manner and transform substrate to end product.

2. The catabolic pathway is exergonic in nature.

- a) True
- b) False

View Answer

Answer: a

Explanation: Catabolic pathway is the type of a metabolic pathway in which oxidative breakdown of larger complex molecules generates a huge amount of energy. Releasing energy is exergonic process while consuming energy is an endergonic process which can be seen in an anabolic pathway.

3. Which of the following has a spiral metabolic pathway?

- a) Glycolysis
- b) Citric acid cycle
- c) Glyoxylate cycle
- d) Fatty acid biosynthesis

View Answer

Answer: d

Explanation: Metabolism involves the generation of energy and synthesis of biological molecules. It can follow several paths like a spiral pathway for fatty acid synthesis, the linear pathway for glycolysis, and cyclic pathway for the citric acid cycle.

4. Name the type of the pathway which is involved in the synthesis of compounds?

- a) Anabolic pathways
- b) Catabolic pathways
- c) Amphibolic pathway
- d) Anapleurotic pathway

View Answer

Answer: a

Explanation: Anabolic pathway involves the synthesis of compounds, and it is endergonic in nature. This pathway works just opposite to catabolic pathway where molecules are broken down. Amphibolic is a combination of both anabolic and catabolic pathway.

5. Which of the following cycle shows amphibolic pathway?

- a) Glyoxylate
- b) Citric acid cycle
- c) Glycolysis
- d) Lipid metabolism

View Answer

Answer: b

Explanation: Amphibolic pathway combines both anabolic and catabolic pathway, it acts as a link or 'crossroad' between the two pathways. The amphibolic pathway can be seen in the citric acid cycle.

6. Mark the INCORRECT statement about metabolic pathway.

- a) They show the irreversible pathway
- b) Each one of them has first committed step
- c) They follow the only oxidative process
- d) They are regulated

View Answer

Answer: c

Explanation: Each one of them has first committed step is incorrect as the metabolic pathway can follow both oxidation and reduction. Metabolic pathways are irreversible, regulated and have first committed step in each pathway.

7. Regulation of metabolic pathway is done by following ways except one, mark the one?

- a) Substrate concentration
- b) Allosteric regulation of enzymes
- c) Availability of oxygen
- d) Extracellular signals i.e. hormones or growth factors

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Answer: c

Explanation: Metabolic pathways depend on the substrate concentration as well as extracellular signals. Coenzymes or certain metabolic intermediate also regulate the metabolism while not all the metabolic pathways depend on the oxygen. Oxygen is required only for aerobic reactions.

8. Which of the following is not an enzyme-catalyzed reaction in metabolism?

- a) Isomerization and elimination
- b) Internal rearrangement
- c) Maillard reaction
- d) Free radical reaction

View Answer

Answer: c

Explanation: Metabolic reactions fall into five categories: group transfer, making or breaking carbon bonds, internal rearrangement, free radical reactions, and isomerizations while the Maillard reaction is a non-enzymatic reaction in which amino group-containing compounds react with sugar molecules.

9. Name the inhibition where end products of biosynthesis pathway inhibit the activity of the first enzyme?

- a) Feedback inhibition
- b) Feedback repression
- c) Allosteric inhibition
- d) Competitive inhibition

View Answer

Answer: a

Explanation: Feedback inhibition is also known as end-product inhibition, the unique feature in this is the inhibition of the first enzyme in a biosynthetic pathway by the end product which in turn control its production.

10. In which of the following phenomenon the end product act as co-repressor and repress the synthesis of metabolic enzymes?

- a) Allosteric regulation
- b) Feedback repression
- c) Feedback inhibition
- d) Regulation by phosphorylation

View Answer

Answer: b

Explanation: Feedback repression is different from feedback inhibition, here the end product of the pathway acts as a co-repressor and represses the synthesis of an enzyme which is required at the earlier stage of the pathway.