

Msc Botany

Semester I Internal I

Question bank paper IV: Plant Bio chemistry

I.MULTIPLE CHOICE QUESTIONS

1. The First Law of Thermodynamics states that

- a) Energy can be created
- b) Energy can be destroyed
- c) Energy cannot be created or destroyed
- d) Entropy of the universe always increases

Answer: c

2. Which law deals with entropy

- a) First law
- b) Second law
- c) Third law
- d) Zeroth law

Answer: b

3. The energy required to start a chemical reaction is called

- a) Kinetic energy
- b) Potential energy
- c) Activation energy
- d) Entropy

Answer: c

4. Enzymes are chemically

- a) Carbohydrates
- b) Proteins
- c) Lipids

d) Vitamins

Answer: b

5. The non-protein part of an enzyme is known as

a) Apoenzyme

b) Cofactor

c) Substrate

d) Prosthetic group

Answer: b

6. Isomers of enzymes that catalyze the same reaction are called

a) Holoenzymes

b) Isoenzymes

c) Coenzymes

d) Endoenzymes

Answer: b

7. Allosteric enzymes have

a) Only active site

b) Regulatory site in addition to active site

c) Only regulatory sites

d) No active site

Answer: b

8. The induced-fit model of enzyme action was proposed by

a) Fischer

b) Koshland

c) Watson

d) Michaelis

Answer: b

9. In a holoenzyme, the protein part is called

- a) Apoenzyme
- b) Cofactor
- c) Activator
- d) Prosthetic group

Answer: a

10. Enzyme kinetics were explained by

- a) Fischer-Lock-Key Model
- b) Michaelis-Menten theory
- c) Darwin's theory
- d) Lamarck theory

Answer: b

11. Glucose is a type of

- a) Disaccharide
- b) Pentose
- c) Hexose
- d) Polysaccharide

Answer: c

12. Cellulose is a ____

- a) Monosaccharide
- b) Disaccharide
- c) Polysaccharide
- d) Glycoprotein

Answer: c

13. Which disaccharide consists of glucose + fructose

- a) Maltose
- b) Sucrose
- c) Lactose

d) Cellobiose

Answer: b

14. Simple lipids are also known as

a) Steroids

b) Terpenoids

c) Fats and oils

d) Phospholipids

Answer: c

15. Cholesterol belongs to

a) Glycolipids

b) Phospholipids

c) Steroids

d) Terpenoids

Answer: c

16. The main component of biological membrane is

a) Triglyceride

b) Phospholipid

c) Terpenoid

d) Steroid

Answer: b

17. Which lipid is a precursor of hormones

a) Steroids

b) Simple lipids

c) Compound lipids

d) Terpenoids

Answer: a

18. Terpenoids are synthesized from

- a) Acetyl-CoA
- b) Pyruvate
- c) Lactic acid
- d) Glucose

Answer: a

19. Glycolysis occurs in the

- a) Mitochondria
- b) Cytoplasm
- c) Nucleus
- d) Golgi body

Answer: b

20. Gluconeogenesis is the process of

- a) Breakdown of glucose
- b) Formation of glucose from non-carbohydrate sources
- c) Storage of glucose
- d) Conversion of glucose into glycogen

Answer: b

II. FILL IN THE BLANKS

1. The First law of thermodynamics states that energy can neither be created nor ____.

→ destroyed

2. The Second law of thermodynamics states that all spontaneous processes tend toward ____.

→ increase in entropy

3. The catalytic proteins that speed up biochemical reactions are called ____.

→ enzymes

4. The non-protein part of an enzyme required for its activity is called ____.

→ cofactor

5. The protein part of an enzyme without its cofactor is called ____.

→ apoenzyme

6. Enzymes that catalyze the same reaction but differ in molecular form are called ____.

→ isozymes

7. The secondary site on an enzyme where regulatory molecules bind is called ____ site.

→ allosteric

8. The model of enzyme-substrate binding that suggests a perfect fit is called the ____ model.

→ lock and key

9. The model that suggests enzyme changes shape to bind substrate is the ____ model.

→ induced fit

10. The minimum energy required for a reaction to proceed is called ____ energy.

→ activation

11. Carbohydrates containing a single sugar unit are called ____.

→ monosaccharides

12. Sugars formed by the linking of two monosaccharides are called ____.

→ oligosaccharides / disaccharides (either acceptable)

13. Starch and cellulose are examples of ____.

→ polysaccharides

14. The simplest type of lipids that yield fatty acids and alcohol on hydrolysis are called ____ lipids.

→ simple

15. Phospholipids are an example of ____ lipids.

→ compound

16. Lipids that are not hydrolyzable and play hormone-like functions are called ____ lipids.

→ derived

17. Fatty acid breakdown occurs through the ____-oxidation pathway.

→ β (beta)

18. The breakdown of fatty acids into two-carbon fragments produces ____-CoA.

→ acetyl-CoA

19. The pathway that allows fatty acids to be converted to carbohydrates in plants is the _____ cycle.

→ glyoxylate

20. Plant secondary metabolites consisting of isoprene units are called

→ terpenoids / terpenes (either acceptable)

III. DESCRIPTIVE QUESTIONS

1. Explain first law of thermodynamics

(Or)

Write enzyme classification and nomenclature

2. Describe about monosaccharides

(Or)

Write the classification of compound lipids