(6 pages)

Reg. No. : .....

Code No. : 6420 **Sub. Code : ZBOM 32**

M.Sc.(CBCS) DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Botany

BIOCHEMISTRY AND BIOPHYSICS

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Class of carbohydrate which cannot be hydrolyzed further, is known as?

   (a) Disaccharides (b) Polysaccharides

   (c) Proteoglycan (d) Monosaccharide

2. Which of the following biomolecules simply refers to as staff of life?

   (a) Lipids (b) Proteins

   (c) Vitamins (d) Carbohydrates

3. Name the simplest amino acid

   (a) Alanine (b) Tyrosine

   (c) Glycine (d) Asparagine

4. The most common secondary structure of proteins is

   (a) β - pleated sheet

   (b) β -pleated sheet parallel

   (c) β -pleated sheet non-parallel

   (d) α -helix

5. Which of these is not a lipid?

   (a) Fats (b) Oils

   (c) Proteins (d) Waxes

6. Beta-oxidation of fatty acids occurs in

   (a) mitochondria

   (b) peroxisome and mitochondria

   (c) peroxisome

   (d) peroxisome, mitochindria and ER

7. This enzyme was first isolated and purified in the form of crystals

(a) urease (b) pepsin

(c) amylase (d) rbonuclease

8. The nature of an enzyme is

(a) lipid (b) vitamin

(c) carbohydrate (d) protein

9. What is the most common source of bioluminescence in surface waters?

(a) Squid (b) Jellyfish

(c) Crustcians (d) Dinoflagellates

10. Which of the following is a branch of thermodynamics?

(a) Equilibrium thermodynamics

(b) Classical thermodynamics

(c) Chemical thermodynamics

(d) All of the mentioned

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Describe the structure and properties of maltose.

Or

(b) Explain the amino sugar.

12. (a) Illustrate the tertiary structure of protein.

Or

(b) Summarize the functions of amino acids.

13. (a) Summarize the properties of lipids

Or

(b) Summarize the functions of gluconeogenesis.

14. (a) Summarize the properties of enzymes.

Or

(b) Explain the mechanism of enzyme action.

15. (a) Summarize the uses of bioluminescence.

Or

(b) ATP as cell's energy currency – Justify.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Summarize the properties of carbohydrates.

Or

(b) Describe the mutarotation.

17. (a) Describe the secondary structure of protein.

Or

(b) Explain the classification of amino acids.

18. (a) Explain the

(i) Phospholipids and

(ii) Steroids.

Or

(b) Describe the beta oxidation of fatty acid.

19. (a) Explain the enzyme nomenclature and classification.

Or

(b) Explain the

(i) Coenzymes

(ii) Isoenzymes.

20. (a) Describe the properties of light.

Or

(b) Explain any two laws of thermodynamics.

———————