

B.Sc. BIOTECHNOLOGY
First Semester (Repeat)
BIOCHEMISTRY-I
(BBT - 04)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20
Part-B (Descriptive) =50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

Answer any four from Question no. 2 to 8
Question no. 1 is compulsory.

1. What are carbohydrates? What are disaccharides and polysaccharides? Explain briefly starch and glycogen. (2+3+5=10)
2. Explain the process of protein synthesis. (7+3=10)
3. Explain the tertiary structure and secondary structure of a Protein. (5+5=10)
4. What are lipids? Write briefly on triacylglycerols and wax. (2+8=10)
5. What is glycolysis? Write the different steps of glycolysis. (2+8=10)
6. Explain the chemistry of nucleic acid. Explain Watson and Crick model of DNA. (5+5=10)
7. What is oxidative phosphorylation? Describe citric acid cycle. (3+7=10)
8. What is photosynthesis? Explain briefly. (3+7=10)

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Duration: 20 minutes

Marks – 20

(PART A - Objective Type)

I. Choose the correct answer:

1×20=20

1. Protein secondary structure is
 - a. Beta-helix
 - b. Domain
 - c. Greek key
 - d. Amino acids

2. Which among the following is an aromatic amino acid?
 - a. Aspartate
 - b. Lysine
 - c. Glutamine
 - d. Tyrosine

3. Alpha helix is a
 - a. Primary structure
 - b. Tertiary structure
 - c. Secondary structure
 - d. Quarternary structure

4. Lactose is a
 - a. monosaccharide
 - b. disaccharide
 - c. polysaccharide
 - d. none of these

5. The light reactions of photosynthesis take place in
 - a. thylakoid membrane
 - b. granum
 - c. stroma
 - d. thylakoid lamellae

6. Transport of fatty acids from cytosol to mitochondria is carried out by
 - a. Citrate
 - b. Carbide
 - c. Carnitine
 - d. Citrulline

7. The end product of glycolysis is
- a. Palmitate
 - b. Pyruvate
 - c. Glutamate
 - d. Ascorbate
8. Zwitterions contain
- a. Positive charge
 - b. Neutral charge
 - c. Both Positive and Neutral charge
 - d. Both positive and negative charge
9. Which RNA is responsible for transport of amino acids?
- a. mRNA
 - b. snRNA
 - c. tRNA
 - d. rRNA
10. Which is the simplest of all the amino acids?
- a. Lysine
 - b. Asparagine
 - c. Alanine
 - d. Glycine
11. The linkage present in maltose is
- a. ($\alpha 1 \rightarrow 4$)
 - b. ($\alpha 1 \rightarrow 6$)
 - c. ($\beta 1 \rightarrow 4$)
 - d. ($\beta 1 \rightarrow 6$)
12. The bond between sugar and base in nucleotide is
- a. phosphodiester bond
 - b. N-glycosidic bond
 - c. O-glycosidic bond
 - d. phosphoester bond
13. A purine base is
- a. cytosine
 - b. uracil
 - c. guanine
 - d. thymine
14. The site of glycolysis is
- a. mitochondria
 - b. cytosol
 - c. chloroplast
 - d. none of these
15. Which one of the following is a non reducing sugar?
- a. glucose
 - b. fructose
 - c. sucrose
 - d. galactose

16. The number of NADPH produced in citric acid cycle is

- a. 2 b. 3 c. 4 d. 6

17. ATP is synthesized by

- a. DNA b. RNA
c. ATPase d. None of these

18. The bond by which the DNA strands in a double helix are joined together is

- a. glycosidic bond b. phosphoester bond
c. phosphodiester bond d. H- bond

19. Gluconeogenesis takes place in

- a. mitochondria b. cytosol
c. golgibodies d. endoplasmic reticulum

20. Photosynthesis takes place in

- a. mitochondria b. chloroplast
c. nucleus d. ribosome
