

B.SC. MICROBIOLOGY
SEMESTER- 1ST
BIOCHEMISTRY
BMB-102

Duration: 3 Hrs.

Marks: 70

Part : A (Objective) = 20

Part : B (Descriptive) = 50

[PART-B : Descriptive]

Duration: 2 Hrs. 40 Mins.

Marks: 50

[Answer question no. One (1) & any four (4) from the rest]

1. Draw the structure of a dipeptide. Draw the structure of any amino acids as Zwitter ion, Cationic form and Anionic form. What is the difference between essential and nonessential amino acids? 2+3+5=10
2. What is photosynthesis? What is the light and dark reactions in photosynthesis? Why is photosynthesis essential for plants? 2+6+2=10
3. What are lipids? What are their functions? Explain the different types of phospholipids? 2+3+5=10
4. Who discovered the term Citric acid cycle? Explain the step wise enzyme catabolized reaction of Kerb's cycle. 2+8=10
5. Describe Embden-Meyerhof Pathway. How fate of pyruvate varies depending upon aerobic and anaerobic organism explain with figure. 6+2+2=10
6. What are steroids and eicosanoids ? What are saturated and unsaturated fatty acids? 5+5=10
7. What do you understand by Protein Denaturation? Explain the α - helical structure of protein? 5+5=10
8. Write short notes on **(Any two)** 5 +5=10
 - a. Henderson- Hasselbach Equation
 - b. Sequence of Electron carriers in mitochondria
 - c. Bronsted-Lowry concept of Acid and Bases with examples

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[PART-A : Objective]

Choose the correct answer from the following :

1X20=20

1. Tertiary structure of protein is maintain by
 - a. peptide bond
 - b. hydrogen bond
 - c. di-sulphide bond
 - d. all of the above
2. The most common secondary structure is
 - a. α - helix
 - b. β - pleated sheets
 - c. β - pleated sheets parallel
 - d. β - pleated sheets non-parallel
3. Which one of the following cofactor is not involved in the pyruvate dehydrogenase complex?
 - a. Pyridoxal phosphate
 - b. Thiamine pyrophosphate
 - c. Lipoic acid
 - d. Co enzyme A
4. A tripeptide has
 - a. 2 amino acids and 1 peptide bonds
 - b. 2 amino acids and 2 peptide bonds
 - c. 3 amino acids and 2 peptide bonds
 - d. 3 amino acids and 3 peptide bonds
5. Proteins that are used only outside the cell are synthesized
 - a. In the mitochondria
 - b. On the rough endoplasmic reticulum
 - c. On the smooth endoplasmic reticulum
 - d. On free ribosomes
6. Absorbance of 280nm exhibited by protein is due to
 - a. Aliphatic amino acids
 - b. All amino acids
 - c. Non-polar amino acids
 - d. Aromatic amino acids
7. In an eukaryotic cell, glycolysis takes place
 - a. Within the nucleus
 - b. On the rough endoplasmic reticulum
 - c. In the cytoplasm but outside the organelle
 - d. Within the mitochondria
8. Glycolysis is regulated by all the enzyme except
 - a. hexokinase
 - b. phosphofructokinase
 - c. phosphofructokinase
 - d. Pyruvate kinase
9. The naturally occurring form of amino acid in proteins
 - a. L- amino acids only
 - b. D- amino acids only
 - c. Both L and D amino acids
 - d. None
10. The addition of phosphate group to a compound is called
 - a. phosphorylysis
 - b. phosphorylation
 - c. phosphogenesis
 - d. photophosphorylation
11. What is the common name of tetradecanoic acid
 - a. Lauric
 - b. Myristic
 - c. Octadecanoic
 - d. Dodecanoic
12. The simplest phosphoglyceride is
 - a. Phospholipids
 - b. Glycolipids
 - c. Phosphatidic acid
 - d. Ceramide
13. Which of the following compound is not a constituent of ETC
 - a. Carnitine
 - b. cytochrome
 - c. Nicotinamide adenine dinucleotide
 - d. Ubiquinone
14. Which is the structural backbone of all sphingolipids
 - a. Sphingomyelin
 - b. Ceramide
 - c. Cerebroside
 - d. Globoside

15. How many fused rings are found in the steroid nucleus
- 2
 - 4
 - 6
 - 1
16. In aerobic respiration Kerb's cycle is replaced by
- photorespiration
 - Hexose monophosphate shunt
 - Floating respiration
 - Enter-Doudoroff Pathway
17. In Photosynthesis energy from CO₂ and H₂O is used to synthesize
- Sucrose
 - Fructose
 - Glucose
 - Chlorophyll
18. Which pigment is responsible for yellow pigmentation
- Chlorophyll
 - Carotenoids
 - Xanthophyll
 - Proplastids
19. The dark reactions of photosynthesis occur within the
- Chloroplast
 - Leaved
 - Root tips
 - stroma
20. When a molecule of pyruvic acid is subjected to anaerobic oxidation there is
- Loss of 3 molecules of ATP
 - Loss of 6 molecules of ATP
 - Gain of 2 molecules of ATP
 - Gain of 4 molecules of ATP

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UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA



[PART (A) : OBJECTIVE]

Duration : 20 Minutes

Serial no. of the
main Answer sheet

Course :

Semester : Roll No :

Enrollment No : Course code :

Course Title :

Session : 2017-18 Date :

Instructions / Guidelines

- The paper contains twenty (20) / ten (10) questions.
- Students shall tick (✓) the correct answer.
- No marks shall be given for overwrite / erasing.
- Students have to submit the Objective Part (Part-A) to the invigilator just after completion of the allotted time from the starting of examination.

| Full Marks | Marks Obtained |
|------------|----------------|
| 20 | |

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Scrutinizer's Signature

.....
Examiner's Signature

.....
Invigilator's Signature