B. Sc. ZOOLOGY
THIRD SEMESTER (SPECIAL REPEAT)
FUNDAMENTALS OF BIOCHEMISTRY
BSZ-303

(Use Separate Answer Scripts for Objective & Descriptive)

Duration : 3 hrs. **Full Marks : 70**

[PART-A: Objective]

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: ***1×20=20***

1. Which of the following enzyme is responsible for committed step of glycolysis
   a. Hexokinase b. Pyruvate kinase
   c. Phosphofructokinase d. Glucokinase

2. Which of the following enzyme of TCA cycle is present in the inner mitochondrial matrix?
   a. Fumerase b. Succinate dehydrogenase
   c. Citrate synthase d. Aconitase

3. Albumin is-
   a. Simple protein b. Derived protein
   c. Conjugated protein d. None of these

4. Which of the following complex receive electron from $FADH_2$ in ETS?
   a. Complex I b. Complex II
   c. Complex III d. Complex IV

5. β - oxidation of fatty acid takes place primarily in -
   a. Cytoplasm b. Mitochondrial outer membrane
   c. Mitochondrial inner membrane d. Mitochondrial matrix

6. How many molecules of acetyl-CoA will be formed from 18 carbon fatty acid?
   a. 7 b. 9
   c. 8 d. 18

7. Waxes are-
   a. Simple lipid b. Derived lipid
   c. Compound lipid d. Simple protein

8. Lipid digested into-
   a. Amino acid b. Fatty acid
   c. Glycerol d. Both b and c

9. ATP synthase use which of the following for synthesis of ATP
   a. Sunlight b. Molecular Oxygen
   c. Proton gradient d. None of the above

10. How many ATP produce in aerobic glycolysis?
    a. 2 b. 8
    c. 4 d. 12

11. Which among these nucleic acids is related to RNA?
    a. Adenine b. Guanine
    c. Uracil d. Cytosine

12. Which among these helps in uncoiling of DNA strands?
    a. Primase b. Helicase
    c. Ligase d. Proximase

13. Which among these diseases is caused when urea output is decreased?
    a. Acidosis b. Polycystic kidney
    c. Anemia d. Uremia

14. Which among them is the enzyme activator for Urea cycle?
    a. N-acetyl glutamate b. Aspartate
    c. Citrulline d. Ornithine

15. Which law of thermodynamics depicts the true disorder in a system?
    a. I Law b. II Law
    c. III Law d. Zeroth

16. What major role does a buffer play in any biochemical reaction?
    a. Stable pH value b. Stable concentration
    c. Stable volume d. None of the above

17. What is the pH of Human blood?
    a. 7.4 b. 8.9
    c. 5.3 d. 6.5

18. Which happens to the plane polarized light when it is passing through the compound of racemic mixture?
    a. Dextrorotatory b. Levorotatory
    c. Nullified optical activity d. Returns to the source

19. What does it imply when ‘G of a reaction is endergonic?
    a. Gain of energy b. Loss of energy
    c. Equal equilibrium d. None of the above

20. Where does the Urea cycle takes place?
    a. Liver b. Kidney
    c. Bile duct d. Pancreas

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PART-B : Descriptive

Time : 2 hrs. 40 min. Marks : 50

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

1. Write the significance of carbohydrates. Classify them according to structure. 5+5=10

2. Describe β - oxidation of fatty acid. 10

3. Describe in detail the different classification of amino acids with characteristics of each. 10

4. Explain Glycolysis. How many ATP produce in glycolysis process? 8+2=10

5. What is Urea cycle? Explain with diagrammatic representation. 3+7=10

6. Mention the various types of isomers with example. 10

7. What is Michaelis-Menten equation? Explain its relationship with enzyme kinetics. 4+6=10

8. Write short notes on 5+5=10
   a. Classification of lipid
   b. Nucleic acid

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