

B.Sc. ZOOLOGY
THIRD SEMESTER [SPECIAL REPEAT]
FUNDAMENTALS OF BIOCHEMISTRY
BSZ-303

SET
A

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

(Objective)

Time: 30 mins.

Marks: 20

Choose the correct answer from the following:

1×20=20

- Solution that have more hydrogen ion than water are called as:
 - Acid
 - Base
 - Buffer
 - Salt
- The number that describe the acidity of a particular molecule is called as:
 - pH
 - Buffer
 - pKa
 - Alkali
- On the basis of titration where a pH indicator shows equivalence, that state is called as:
 - Neutral state
 - Transition state
 - Alkaline state
 - Acidic state
- A mixture of weak acid and conjugate base is called as:
 - Alkaline solution
 - Acidic solution
 - Inorganic buffer
 - pH indicator
- The numbers of substrate molecule converted into product per active site of enzyme in one second is called:
 - Turnover number
 - $\frac{1}{2} V_{max}$
 - K_m
 - V_{max}
- When fat is shaken with water and alkali it forms:
 - Soap
 - Emulsion
 - Foam
 - All of the above
- The distance between one base pair to another in a DNA molecule is:
 - 20 Å
 - 34 Å
 - 3.4 Å
 - 2 Å
- To inhibit an enzyme action uncompetitive enzyme inhibitor binds with:
 - Active site of the enzyme
 - Substrate body
 - Enzyme's body
 - None of the above
- If the product of an enzymatic step can inhibit the earlier step of that enzyme, then the inhibition is called as:
 - Competitive inhibition
 - Uncompetitive inhibition
 - Non competitive inhibition
 - None of the above
- Which one is the vegetable enzyme?
 - Papain
 - Pepsin
 - Ptyalin
 - Erepsin

11. Glycolysis occurs in:
 - a. Cytoplasm
 - b. Nucleus
 - c. Mitochondria
 - d. Ribosome
12. High concentration of Glucose 6 phosphate is inhibitory to:
 - a. Pyruvate kinase
 - b. Hexokinase
 - c. Phosphofructokinase I
 - d. All of the above
13. Number of CO₂ molecules evolved in glycolysis is:
 - a. 1
 - b. 2
 - c. 3
 - d. 0
14. From each molecule of glucose, how many times does the TCA cycle occur?
 - a. 1
 - b. 2
 - c. 3
 - d. 4
15. The product formed in the first substrate level phosphorylation in glycolysis is:
 - a. Pyruvate
 - b. 3-phosphoglycerate
 - c. 1,3-bisphosphoglycerate
 - d. 2-phosphoglycerate
16. Which process transports the acyl CoA to mitochondria?
 - a. Simple diffusion
 - b. Passive transport
 - c. Carnitine transport
 - d. Active transport
17. The free fatty acids are transported by blood association with:
 - a. Albumin
 - b. A fatty acid binding protein
 - c. β -lipoprotein
 - d. None of the above
18. Where are the enzymes for β -oxidation present?
 - a. Nucleus
 - b. Cytosol
 - c. Golgi apparatus
 - d. Mitochondria
19. Which of the following is the first complex (complex I) of ETS?
 - a. Cytochrome aa₃
 - b. Cytochrome bc₁
 - c. NADH dehydrogenase
 - d. ATP synthasese
20. For its activity, pyruvate decarboxylase requires:
 - a. Mg²⁺
 - b. Ca²⁺
 - c. H⁺
 - d. Na⁺

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(Descriptive)

Time : 2 hr. 30 mins.

Marks : 50

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

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|---|----------|
| 1. Classify nucleic acid. Describe the structure of Nucleic acid. Mention its significance. | 4+3+3=10 |
| 2. Explain TCA cycle. How many ATP produced from one TCA cycle? | 8+2=10 |
| 3. What do you mean by pH and pKa, describe briefly. Mention the formulas used to calculate pH and pKa. Describe 5 differences between acid and base. | 4+1+5=10 |
| 4. Explain Electron Transport System (ETS) with suitable diagram. | 10 |
| 5. Describe the nature of enzymes. Write briefly about enzyme inhibition. | 5+5=10 |
| 6. Describe about the different classes of amino acids with diagram. What are essential and non-essential amino acids? Describe with examples. | 5+5=10 |
| 7. Describe glycolysis. What is the significance of glycolysis? | 8+2=10 |
| 8. Where oxidation of fatty acid takes place? What are the four steps of β -oxidation of fatty acid? How many ATP produced from 14-Carbon fatty acid? | 1+7+2=10 |

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