

M.Sc. ZOOLOGY  
THIRD SEMESTER  
CELL AND MOLECULAR BIOLOGY-I  
MSZ-303 A

**SET  
A**

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 1hr. 30 mins.

Full Marks: 35

Time: 15 mins.

( Objective )

Marks: 10

Choose the correct answer from the following:

1×10=10

- The  $\text{Na}^+\text{K}^+$  ATPase pump is an example of:
  - P-pump
  - V-pump
  - F-pump
  - ABC transporter
- Glucose transportation in RBC takes place by:
  - Osmosis
  - Active transport
  - Secondary active transport
  - Passive transport
- Which of the following kinds of molecules are allowed to pass through the plasma membrane by simple diffusion?
  - Nonpolar molecules
  - Small polar molecules
  - Ions
  - Drugs
- Which of the following process requires membrane proteins?
  - Pinocytosis
  - Phagocytosis
  - Exocytosis
  - Receptor mediated endocytosis
- What is the function of tight junctions in epithelial cells?
  - Separation of fluids
  - Biocatalyst to enzymes
  - Protection
  - Support and structure
- Mitochondrial genome for animals averages for about .....base pairs in length.
  - 16000
  - 2000
  - 17000
  - 10000
- Promoter is a.....
  - Gene
  - Site on DNA
  - Site on RNA
  - Toxin
- The full range of mRNA molecules expressed by an organism is called:
  - Genome
  - Proteome
  - Transcriptome
  - Genes
- International Human Genome project was initiated by:
  - National Institute of Health (NIH)
  - Celera Genomics
  - US Department of Energy
  - All of the above

10. In the process of lipid peroxidation, free radicals mostly damages following type of lipids:
- a. Phospholipids
  - b. Ceramide
  - c. Sphingomyeline
  - d. Cholesterol

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**( Descriptive )**

Time : 1 hr. 15 mins.

Marks : 25

[ Answer question no.1 & any two (2) from the rest ]

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|--|----------|
| 1. Discuss any two types of cell to cell interactions with diagram.  | 5        |
| 2. Explain with proper diagrams about the different types of membrane proteins. What are the different classes of lipids found in the plasma membrane? | 5+5=10   |
| 3. Discuss the different types of active transport taking place in plasma membrane. What are the factors of membrane fluidity?                         | 8+2=10   |
| 4. Define proteome. How do they differ from that of transcriptome? How do they could be identified?  | 2+4+4=10 |
| 5. Define mitochondrial genome. Explain the relationship between mitochondrial genome and nuclear genome.  | 2+8=10   |

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