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MZO-005

MASTER OF SCIENCE (ZOOLOGY)

(MSCZOO)

Term-End Examination

June, 2026

MZO-005 : GENOMICS AND PROTEOMICS

Time : 2 Hours

Maximum Marks : 50

Note : (i) Attempt any **five** questions.

(ii) All questions carry equal marks.

1. (a) What are orthologs and paralog ?

Explain with examples. 5

(b) Discuss the steps to be followed in

proteome-mining strategy. 5

2. (a) Write a note on multiple sequence alignment. 5
- (b) Explain the repeat elements SINES and LINES along with their applications. 5
3. (a) Write a note on horizontal gene transfer, with special emphasis on different horizontal gene transfer mechanisms. 5
- (b) How hybridization based approach is useful for transcriptome analysis ? 5
4. (a) Explain clone-by-clone sequencing, and whole genome shotgun sequencing methods. 5
- (b) Explain the method of gene expression quantification using qRT – pCR. 5

5. (a) How will you separate proteins using SDS-PAGE ? 5
- (b) Write a note on expressed sequence tags and their applications. 5
6. (a) Discuss the principle of first dimension iso electric focusing. 5
- (b) Discuss the different steps involved in genomic data analysis. 5
7. (a) Discuss Dideoxy sequencing method of DNA sequencing using illustrations. 5
- (b) What is RNA interference (RNAi). How is RNAi used for post-transcriptional gene silencing. 5

8. Write short account on the following :

$$4 \times 2\frac{1}{2} = 10$$

- (a) Dideoxy sequencing method
- (b) RNA interference (RNAi)
- (c) Time of flight (TOF) mass analyzer
- (d) Detection procedure of protein chip

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