

M. SC. (ZOOLOGY) (MSCZOO)

Term-End Examination

December, 2024

MZO–005 : GENOMICS AND PROTEOMICS

Time : 2 Hours

Maximum Marks : 50

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Differentiate between short interspersed nuclear elements and long interspersed nuclear elements. 5
- (b) Discuss the different mechanisms of gene duplication with diagrams. 5
2. Describe the hybridization based approach to transcriptome analysis along with its advantages and limitations. 10

3. (a) Explain the steps of whole genome shotgun sequencing with illustrations. 5
(b) Enumerate the different tools for the prediction of secondary structure of proteins. 5
4. (a) Outline the basic principle of quantitative RT-PCR (qRT-PCR) with schematic diagram. 5
(b) Write a brief note on c-DNA-AFLP with a neat diagram. 5
5. Discuss the technique of western blotting for detecting any specific protein in a sample. Comment on the blotting efficiency of this technique. 10
6. (a) Discuss the different methods for post-electrophoretic protein detection and visualization. 6
(b) Elucidate the process of preparation of microarray. 4

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7. Write short account on the following :

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

- (a) Human Genome Project
- (b) Yeast artificial chromosome
- (c) Dicer
- (d) Isotope coded affinity tag

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