

[ SZ - S 499 B ]

M.Sc. DEGREE EXAMINATION

**Zoology**

Fourth Semester

**BIOTECHNOLOGY AND APPLIED BIOLOGY**

(Effective from the admitted batch of 2022 - 2023)

Time : 3 hours

Max. Marks : 70

*Answer ONE question from each unit.  
All questions carry equal marks.*

**UNIT - I**

1. (a) What are restriction endonucleases? Explain their role in isolation of gene fragments.  
(b) Wrote notes on gene library construction.

(OR)

2. (a) What are cloning vectors? Discuss their significance.  
(b) Explain chromosomal walking and chromosomal jumping.

**UNIT - II**

3. (a) Describe the basic PCR and its modifications.  
(b) Explain Massively Parallel Signature Sequencing (CPSS) technique in detail.

(OR)

(P.T.O.)



## [ SZ - S 499 B ]

4. (a) What is genomics? Explain its applications in health and agriculture.
- (b) Write notes on Single Molecule Real Time (SMRT) sequencing.

### UNIT - III

5. (a) Explain the principles and structure of live stock breeding.
- (b) Describe the methods of preservation of endangered species.

(OR)

6. (a) Discuss the potential applications of transgenic animals.
- (b) Write notes on molecular farming.

### UNIT - IV

7. (a) Describe the solid state and liquid state fermentation process.
- (b) Explain the microbial growth kinetics during fermentation process.

(OR)

8. (a) Discuss the microbial preparation of probiotics.
- (b) Give an account on microbial production of vitamin A and riboflavin.



[ SZ - S 499 B ]

UNIT - V

9. (a) What are Genetically Engineered Microbes (GEM)? Explain their role in treating oil spills and heavy metal pollution.
- (b) Write an essay on bioleaching.

(OR)

10. (a) Discuss the role of biosensors go detect environmental pollutants.
- (b) Write notes on the importance of sea weed fertilizers.

\* \* \*