

[SZ - S 498 B]

M.Sc. DEGREE EXAMINATION

Zoology

Fourth Semester

GENETICS AND MOLECULAR CYTOGENETICS

(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) Explain the fine structure of gene.
(b) Discuss the evolution of gene concept from Mendel to Beadle & Tatum.

(OR)

2. (a) Describe the sex limited and sex influenced characters with examples.
(b) What is extra chromosomal inheritances? Explain mitochondrial gene inheritance.

UNIT - II

3. (a) Give an account on the molecular structure of common DNA.
(b) Describe the DNA methylation patterns.

(OR)

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4. (a) Explain the chromosomal domains and their functional significance.
- (b) Discuss the importance of telomere and its maintenance.

UNIT - III

5. (a) Explain the balancer chromosome technique in Drosophila.
- (b) Write notes on tetrad analysis in Fungi.

(OR)

6. (a) Describe the mechanism of sex determination in Drosophila.
- (b) Write a brief essay on transcription factors and their importance.

UNIT - IV

7. (a) Give an account on genetic analysis in Sacchromyces cerevisiae with biochemical markers.
- (b) Describe the genetic mapping in bacteria.

(OR)

8. (a) Discuss the technique of FISH and its significance.
- (b) Discuss the strategies involved and applications of Human Genome Project (HGO).

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UNIT - V

9. (a) Describe in detail the human karyotype.
(b) Write an account on numerical abnormalities of chromosomes.

(OR)

10. (a) Explain DNA Finger printing and its applications.
(b) What is Spectral Karyotyping (SKY)? Describe the techniques in detail.
