

[SZ - S 367 B]

M.Sc. DEGREE EXAMINATION

Zoology

Third Semester

POPULATION GENETICS AND EVOLUTION

(Effective from the admitted batch of 2022-2023)

Time : 3 hours

Max. Marks : 70

Answer ALL questions.

All questions carry equal marks.

~~UNIT - I~~

1. ~~(a)~~ Give an account of the Lamarckism and neo Lamarckism.
- ~~(b)~~ Define variation and explain the concepts of variation.

(OR)

2. (a) Write notes on the origin of unicellular organisms.
- (b) Explain the concept of oparin and Haldane. Add a brief note on the experiment of Miller (1953).

~~UNIT - II~~

3. ~~(a)~~ Write an account of the gene pool, gene frequencies and the genotype frequencies.
- ~~(b)~~ Discuss about the gene duplication and divergence.

(OR)

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4. (a) Give an account of the evolution processes causing speciation.
- (b) Write an account of the evolution of proteins and nucleotide sequences.

~~UNIT - III~~

5. (a) Write notes on the optimum phenotypes and selection pressure.
- (b) Explain about the genetic variability and the genetic homeostasis.

(OR)

- ~~6. (a)~~ Give a detailed account of the phenotypic variations.
- ~~(b)~~ Write an account of the models explaining the genetic structure of populations.

~~UNIT - IV~~

7. (a) Give an account of the analysis of quantitative traits.
- (b) Write notes on quantitative traits and the natural selection.

(OR)

- ~~8. (a)~~ Discuss about the environmental interactions of the gene type.

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~~(b)~~ Write notes on the inbreeding and heterosis.

~~UNIT - V~~

9. ~~(a)~~ Describe the immunological techniques used in molecular genetics.

~~(b)~~ Write an account of the nucleotide substitutions.

(OR)

10. (a) What are phylogenetic trees? Explain in detail and state their importance.

(b) Explain the changes induced in genetic material by radiations.

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