

Roll No.

Total Pages : 2

MDE/M-24

4692

POPULATION GENETICS & EVOLUTION

Paper–M–Z–203

Time Allowed : 3 Hours]

[Maximum Marks : 80

Note : Attempt **five** questions in all, selecting **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. Give short answer to the following questions : $8 \times 2 = 16$

- (a) Meiotic drive.
- (b) Peripatric species.
- (c) Rooted phylogenetic tree.
- (d) Heterosis.
- (e) Molecules of slow evolutionary rate.
- (f) Frame shift mutations.
- (g) Gene frequency.
- (h) Inbreeding depression.

UNIT-I

2. Give a detailed account on different postulates of Neo-Darwinism with suitable examples. 16

3. Write notes on the following :

- (a) Natural Selection and types. 8
- (b) Genetic drift. 8

UNIT-II

- 4. Discuss in detail about various models explaining changes in genetic structure of Populations. 16
- 5. Write notes on the followings :
 - (a) Ecological significance of Molecular variations. 8
 - (b) Molecular analysis of Quantitative traits. 8

UNIT-III

- 6. Write a detail note on Molecular evolution and assessment of Molecular variations. 16
- 7. Explain in detail about different modes of speciation and their role in evolution. 16

UNIT-IV

- 8. Discuss in detail about various terms and methods of Construction of Phylogenetic trees. 16
- 9. Write a note on concept of Metapopulation with suitable examples and their role in ecology. 16