

G-2/246/21

Roll No.....

## M.Sc. II Semester Examination, 2021

### ZOOLOGY

#### Paper IV

(Population Genetics and Evolution)

Time : 3 Hours ]

[Maximum Marks : 80

**Note :** All questions are compulsory. Question Paper comprises of 3 sections. **Section A** is objective type/multiple choice questions with no internal choice. **Section B** is short answer type with internal choice. **Section C** is long answer type with internal choice.

#### SECTION 'A'

(Objective Type/Multiple Choice Questions)

1 × 8 = 8

1. Match the following :

- |                           |                        |
|---------------------------|------------------------|
| (a) Mutation              | — Cluster              |
| (b) Natural Selection     | — Evolution of culture |
| (c) Post Zygote isolation | — Vestigial organ      |
| (d) Gradual speciation    | — Gelatinous fats      |

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- |                   |                            |
|-------------------|----------------------------|
| (e) Ostrich wings | — Tautomerization          |
| (f) Coacervates   | — Microevolutionary events |
| (g) Cro-Magnon    | — Stabilizing selection    |
| (h) Hump          | — Hybrid in fertility      |

#### SECTION 'B'

6 × 4 = 24

(Short Answer Type Questions)

**Note :** Answer the following questions in 250 words.

Unit I

1. Write the difference between natural selection and genetic drift.

Or

What is molecular clock ? Define it in brief.

Unit II

2. Describe the Biological concept of species.

Or

What do you mean by Geographical isolation ? Explain it with an example.

Unit III

3. Define the micro and mega evolution. How mutation and gene flow works for micro evolution ? Explain it with example.

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Or

Write notes on : **(any two)**

- (a) Theory of sexual selection and artificial selection,
- (b) Evolution of modes of nutrition.

Unit IV

4. Draw a phylogenetic tree of camel.

Or

Describe the specialized features of modern elephant with well labelled diagram.

**SECTION 'C'**

**12 × 4 = 48**

**(Long Answer Type Questions)**

**Note :** Answer the following questions in 500 words.

Unit I

1. Explain Hardy-Winberg law.

Or

Describe chromosomal mutation.

Unit II

2. Describe parapatric and sympatric speciation.

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Or

Explain isolation under the following headings :

- (a) Ecological, temporal and behavioural Isolation,
- (b) Muller's view and Dobzhansky view for the reproductive isolation.

Unit III

3. Explain the basic postulates of Darwinism.

Or

How virus, Euglena, Peripatus and Protophytes show the evidences in favour of evolution ?

Unit IV

4. Explain phylogenetic tree under the following headings :

- (a) Rooted and unrooted tree,
- (b) Difurcating and multifurcating tree,
- (c) Concepts of monophyly, Polyphyly and Paraphyly.

Or

Write the characteristics of Australopithecus and Homo erectus.

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