

30 MAY 2022

[This question paper contains 4 printed pages.]

Your Roll No.....



Sr. No. of Question Paper : 1364

A

Unique Paper Code : 32231602

Name of the Paper : Evolutionary Biology

Name of the Course : B.Sc. (H) Zoology (LOCF)

Semester : VI

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **Five** Questions in all including Question No. 1 which is compulsory.

1. (a) Define the following :

- (i) Stromatolites
- (ii) Inbreeding coefficient
- (iii) Sister taxon
- (iv) Ring species
- (v) Gene flow
- (vi) Molecular clock

(1×6=6)

P.T.O.

(b) Differentiate between the following :

- (i) Parapatric and Peripatric modes of speciation
 - (ii) Rooted and Unrooted trees
 - (iii) Background and mass extinction
 - (iv) Stabilizing and disruptive selection
- (2×4=8)

(c) Mention the contributions of following :

- (i) Raymond Dart
 - (ii) Alaxander Oparin
 - (iii) Theodosius Grygorovych Dobzhansky
 - (iv) Barbara McClintock
 - (v) Henry Bernard Davis Kettlewell
- (1×5=5)

(d) Justify the following statements :

- (i) Horse evolution didn't proceed in a straight line.
- (ii) Drift changes the gene frequency but inbreeding does not

(iii) Over-reproduction is the driving force of evolution.

(iv) Prokaryotic cells have given rise to aerobic eukaryotic cell (2×4=8)

2. (a) What are the 'isolating barriers' for species? With suitable examples, elaborate the barriers that operate before the formation of zygote. (8)

(b) Outline the merits and demerits of RNA-world hypothesis. (4)

3. (a) Describe various sources of genetic variations at individual and population level? (8)

(b) Explain how migration causes changes in allele frequency among populations. (4)

4. (a) Discuss the paleontological evidences of evolution with suitable examples. Also, briefly comment upon different types of fossils. (8)

(b) Justify the statement, 'Incompleteness of fossil records does not disprove the theory of evolution.' (4)

5. (a) Discuss the different types of natural selection with suitable examples. (6)
- (b) What do you understand by 'Hardy-Weinberg equilibrium'? Comment upon its assumptions and applications. (6)
6. What are the unique hominin characteristics in contrast to primates? Trace the primate phylogeny from *Dryopithecus* leading to *Homo sapiens*. (12)
7. Write short notes on any three of the following :
- (a) K-T extinction
- (b) Modern synthetic theory
- (c) Biological species concept
- (d) Geological time scale (3×4=12)