

2025

ZOOLOGY — HONOURS

Paper : CC-14

(Evolutionary Biology)

Full Marks : 50

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer **question no. 1** and **any four** questions from the rest.

1. Answer **any five** questions :

2×5

- (a) What is ring species?
- (b) What is disruptive selection?
- (c) What is reducing atmosphere?
- (d) What is micro-evolution?
- (e) What is 'Cline'?
- (f) What is 'index fossil'?
- (g) Define convergent evolution with example.
- (h) What is 'Cambrian explosion'?
- (i) What is allopatric speciation?

2. (a) Compare and contrast between directional and stabilizing selection with suitable examples.

(b) Write notes on different types of barriers that restrict gene flow. Give examples. $(2\frac{1}{2}+2\frac{1}{2})+5$

3. (a) State the trend in changes of skull structures in hominid evolution.

(b) What is biological species concept? Comment on its limitation.

5+(2+3)

4. (a) What do you mean by the term 'Pseudofossil'?

(b) Describe any one method for determining the age of fossil.

(c) Mention the limitations of Darwin's theory of natural selection.

2+5+3

5. (a) State the conditions on which concept of Hardy-Weinberg equilibrium stands.

(b) Mathematically prove that gene frequency and genotype frequency do not change from generation to generation in H-W equilibrium.

(c) Amongst 300 college students tested for their MN blood group, following result was obtained : MM-108, MN-144 and NN-48. Is the population in equilibrium? Justify.

2+4+4

Please Turn Over

(2188)

6. Distinguish between :

2½×4

- (a) Homologous organ and Analogous organ.
- (b) Anagenesis and Cladogenesis.
- (c) Sympatric and Parapatric speciation.
- (d) Eohippus and Merichippus.

7. Write short notes on the following (*any two*) :

5×2

- (a) Chemical origin of nucleotides
- (b) Punctuated equilibrium
- (c) Trend in horse evolution.

8. (a) Elucidate the role of phylogenetic tree construction in evolution.

(b) What is parsimony? Give suitable example.

(c) Explain how Galapagos finches help us to understand adaptive radiation.

4+(2+1)+3