

2021

ZOOLOGY — HONOURS

Third Paper

(Unit - I)

[Systematics, Evolutionary Biology and Animal Behaviour]

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 one** question from **Group-A**, **two** questions from **Group-B** and **one** question from **Group-C**.

1. Answer **any five** questions : 2×5
- (a) What is hot dilute soup?
 - (b) What is kin selection?
 - (c) What is the evolutionary significance of genetic drift?
 - (d) What were the gases present in earth's primitive atmosphere?
 - (e) Distinguish between subspecies and sibling species.
 - (f) Define eusociality with example.
 - (g) Define coacervate.
 - (h) Define FAP with example.

Group - A

(Systematics)

2. Define species. What are the limitations in application of Biological Species Concept? Why is the concept called 'Biological'? Discuss the sources of variation in a population. 2+4+4
3. Write notes on (**any four**) : 2½×4
- (a) Role of premating isolations in evolution
 - (b) Neotype and Syntype
 - (c) Principle of DNA barcoding
 - (d) Parapetric and Peripetric speciation
 - (e) Phenetics and Cladistics
 - (f) Alpha and Gamma taxonomy.

Please Turn Over

Group - B
(Evolution and Adaptation)

4. (a) Describe two features each of Miohippus, Merychippus and Equus.
(b) What is orthogenesis in Horse evolution?
(c) Mention the impact of dispersal on animal distribution. (2+2+2)+2+2
5. (a) Explain Hardy–Weinberg Equilibrium. Mention the effects of mutation on Hardy–Weinberg equilibrium.
(b) Describe ‘RNA World’ hypothesis. (2+3)+5
6. Write notes on **any two** of the following : 5×2
(a) Xeric adaptations in camel
(b) Theories on origin of birds
(c) Founder effect and Population bottleneck
(d) Miller and Urey’s experiment.
7. Write notes on **any two** of the following : 5×2
(a) Adaptive radiation in Darwin’s finches
(b) Bathymetric and Discontinuous distribution
(c) Synthetic theory
(d) Physical barriers in evolution.

Group-C
(Animal Behaviour)

8. What are the properties of instinct behaviour? Discuss the information conveyed by waggle dance in bees. What is latent learning and habituation? What is the evolutionary significance of selfishness? 2+3+3+2
9. (a) Write short notes on Hamilton’s Rule.
(b) Define ‘jugdisposition’ and ‘zugunruhe’.
(c) Mention ‘Doppler shift’ phenomenon in echolocation in bat. 5+(1½+1½)+2
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