

2018
ZOOLOGY—HONOURS
Third Paper
(Unit –I)
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 applicable.

(Systematics, Evolutionary Biology & Animal Behaviour)

Answer **question No.1** and **any 1** question from Group A, **2** questions from
Group B and **1** question from Group C.

1. Answer **five** from the following:

2×5

- (i) Distinguish between lectotype and syntype.
- (ii) Explain the term 'operational taxonomic unit (OUT).
- (iii) Define FAP.
- (iv) What are polytypic species?
- (v) What is Wallace's line?
- (vi) What is group selection?
- (vii) Distinguish between Deme and Cline.
- (viii) What is Zeitgeber?

Group – A
(Systematics)

2. (a) Discuss the significance of typification in taxonomic studies.
(b) Distinguish between alpha and beta taxonomy.
(c) Write a note on biological species concept .
(d) Mention various types of reproductive isolation.

2+3+3+2

Please Turn Over

3. (a) Explain allopatric speciation. How does it differ from parapatric speciation?
 (b) Distinguish between phenetics and cladistics.
 (c) What is DNA barcoding? How is DNA barcoding used in identification of species. (2+2)+2+(2+2)

Group – B

(Evolution and Adaptation)

4. (a) Explain how genetic drift influence Hardy-Weinberg equilibrium.
 (b) Distinguish between continuous and discontinuous variations.
 (c) At a particular locus there are alleles A and a , the mutation rate of $A = 3.5 \times 10^{-4}$ and $a = 6.5 \times 10^{-8}$. Calculate the equilibrium frequency of a where other factor remains constant. 3+3+4
5. (a) What is adaptive radiation? State the reasons for adaptive radiation of metatherian mammals in Australian realm.
 (b) State the reptilian features of *Archaeopteryx*.
 (c) What are coacervates? (2+3)+3+2
6. (a) Provide two scientific names each of mammalian and avian fauna of Oriental, Ethiopian and Palearctic regions.
 (b) Tabulate the periods of 'Palaeozoic Era' in a chronological order with a special note on their faunal appearance. (2+2+2)+4
7. (a) Write a note on the morphological features for arboreal adaptation in sloth and physiological adaptation of camel living in xeric environment.
 (b) Write on the different steps of horse evolution with reference to loss of digits. (3+3)+4

Group – C

(Animal Behaviour)

8. (a) Explain altruism and reciprocal altruism.
 (b) Distinguish between 'classical conditioning' and 'operant conditioning'.
 (c) Write a note on the parental investment in fish. 3+4+3
5. (a) What is the difference between CF and FM tones?
 (b) Explain parent-offspring conflict with suitable illustration.
 (c) Comment on 'Waggle dance'. 3+4+3
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