

2016

M.Sc. Part-I Examination

ZOOLOGY

PAPER—III (Group—A)

Full Marks : 50

Time : 2 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Group—A

Answer any *four* questions taking *two* from each unit.

Unit—I

[Ecology]

1. Differentiate population from community. Mention the factors determining population dynamics. Highlight the significance of Life-Table. 2+7+3 $\frac{1}{2}$

(Turn Over)

2. Define ecosphere and biosphere. Explain how stability of an ecosystem is achieved through feed back mechanism. State how distribution of animals is influenced by temperature.

$$(2+2)+5+3\frac{1}{2}$$

3. Explain different types of ecological competition. Describe Lotka-Volterra model for predation. What are ammensalism and commensalism?

$$5+4\frac{1}{2}+3$$

4. Write short notes on (any three) :

$$4+4+4\frac{1}{2}$$

- Gaia hypothesis ;
- Food web and its different categories ;
- Relationship between Taxon, Community and Ecological guilds ;
- Limiting factors and their significance ;
- Ecotone and Edge Effect.

Unit—II

[Ethology]

5. Compare habituation and conditioning. Characterize instinctive behaviour and explain it with example. Define social behaviour.

$$4+(2+4)+2\frac{1}{2}$$

6. (a) Discuss altruism and reciprocal altruism. What do you mean by escape response?

$$4+1\frac{1}{2}$$

- (b) Explain imprinting with example. What are habitat and habitat selection?

$$3+4$$

7. Describe different types of mating strategies in animals and add a note on characteristics of these strategies. Discuss the mechanism of energy allocation and adjustment of clutch size. Mention different types of sex ratio and state the significance of 1:1 sex ratio.

$$4\frac{1}{2}+4+2+2$$

8. (a) Write short notes on *two* of the followings : 2×4

- (i) Eusociality ;
- (ii) Territoriality ;
- (iii) Intrasexual selection ;
- (iv) Mate choice.

(b) Explain any *one* of the following : $1 \times 4 \frac{1}{2}$

- (i) Optimal foraging theory ;
 - (ii) Hierarchy drives.
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