

2015

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. Highlight the differences between ecology and ecosystem. Explain the cybernatic nature of ecosystem. Add a note on resistance and resilience stability.

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

(Turn Over)

2. Mention the differences between organismic concept and individualistic concept of biotic community. What is the main criteria for the nomenclature of biotic community? What are ecotone and edge effect?

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

3. Define Life-Table. Mention its ecological significance. What are the differences between α , β and γ diversity. Briefly highlight on different attributes determining population dynamics.

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

4. Write short notes on (any three) :

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

- (a) Ecological niche and its types ;
 (b) Someplarity and Iteroparity ;
 (c) r and k selection strategies ;
 (d) Laws of tolerance ;
 (e) Ecological guilds and Ecological equivalent.

Unit—II

(Ethology)

5. What do you mean by ethology? Explain proximal and ultimate causes of animal behaviour. 'Instincts are complex behaviour patterns' — Discuss. State appetitive and consumatory phases of innate behaviour.

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

6. (a) What is egocentrism? How would you calculate optimal foraging in relation to predator behaviour?

2+4

- (b) Distinguish between Classical Conditioning and Operant Conditioning. State the characteristics of eusociality.

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

7. (a) State the types of mating. Discuss Hamilton's rule and coefficient of relationship.

3+4

- (b) Compare aggression and agonistic behaviour. Explain Fisherian runaway selection.

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

8. (a) Write short notes on any *two* of the following :

2×4

- (i) Domestic bliss strategy ;
- (ii) Sexual dimorphism ;
- (iii) Types of stimulus ;
- (iv) Parthenogenesis.

(b) Explain any *one* of the following :

1×4½

- (i) Intra- and intersexual selection ;
- (ii) x-strategy and δ-strategy.