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3 (Sem-1/CBCS) ZOO HC 2

2021

(Held in 2022)

ZOOLOGY

(Honours)

Paper : ZOO-HC-1026

(Principles of Ecology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct answer : 1×7=7

(a) _____ is a series of changes that occur in a community over time after disturbances.

- (i) Community succession
- (ii) Ecological succession
- (iii) Population succession
- (iv) Tertiary succession

Contd.

(b) As per the competitive exclusion principle, no two species can occupy the same

- (i) range
- (ii) territory
- (iii) niche
- (iv) habitat

(c) Resource partitioning is best described by which of the following statements ?

- (i) Slight variation in niche allows closely related species to co-exist.
- (ii) Two species can co-evolve and occupy the same niche.
- (iii) Species diversity is maintained by switching between prey species.
- (iv) All of the above

(d) An animal with bright colouration is most likely a

- (i) predator
- (ii) poisonous
- (iii) competitor
- (iv) prey

(e) _____ is when two or more species live in close association.

- (i) Predation
- (ii) Competition
- (iii) Symbiosis
- (iv) All of the above

(f) Science that deals with the relationships between living organisms with their physical environment and with each other is called

- (i) biology
- (ii) environmental science
- (iii) ecology
- (iv) All of the above

(g) The term 'ecosystem' was proposed by

- (i) A. G. Tansley
- (ii) E. P. Odum
- (iii) Karl Mobius
- (iv) G. F. Gause

2. Write short notes on the following : (any four) $2 \times 4 = 8$

- (a) Ecological succession
- (b) Food web
- (c) Ecotone
- (d) Carrying capacity
- (e) Shelford's law of tolerance
- (f) Ecological pyramid

3. Answer the following : (any three) $5 \times 3 = 15$

- (a) Lotka-Volterra equation
- (b) r-and K-selection
- (c) Types of food chains
- (d) Human modified ecosystem
- (e) Wildlife conservation : *Ex-situ*

4. Elaborate on the laws of limiting factors with appropriate examples. 10

Or

Distinguish between unitary and modular populations. Elaborate with *one* example each on life tables and fecundity tables.

$$5+(2\frac{1}{2}+2\frac{1}{2})=10$$

5. Discuss the concept of population regulation with special reference to density-dependent factors. 10

Or

What do you understand by vertical stratification? Explain with examples the concepts of species richness, dominance, diversity and abundance. $2+(2+2+2+2)=10$

6. Write short notes on: 5+5=10

(a) Nitrogen cycle

(b) Ecological pyramids

Or

Discuss the theories pertaining to climax community. Add a note on exponential growth of a population. 6+4=10