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**3 (Sem-1/CBCS) ZOO HC 2**

**2020**

**(Held in 2021)**

**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 :  $1 \times 7 = 7$

(a) The random pattern of distribution of the individuals of a population over space is :

(i) Natality

(ii) Density

(iii) Dispersion

(iv) Both (ii) and (iii).

*Contd.*

- (b) Shelford's law of tolerance suggests that organisms with a wide tolerance limit for environmental factors show :
- (i) Narrow distribution with low population
  - (ii) Wide distribution with high population
  - (iii) Narrow distribution with high population
  - (iv) Wide distribution with low population.
- (c) The ability of a population to increase under ideal environmental conditions is :
- (i) Carrying capacity
  - (ii) Absolute natality
  - (iii) Biotic potential
  - (iv) Natality.
- (d) Soil changes due to erosion is an example of :
- (i) Allogenic succession
  - (ii) Autogenic succession
  - (iii) Computational succession
  - (iv) Emigrational succession.
- (e) Which of the following is mainly responsible for wildlife extinction ?
- (i) Pollution
  - (ii) Hunting
  - (iii) Habitat destruction
  - (iv) All of the above.

- (f) Population size is best represented by :
- (i) Density
  - (ii) Mortality
  - (iii) Natality
  - (iv) Community.
- (g) What is an edge effect ?
- (i) Community complexity
  - (ii) Community classification
  - (iii) Community stability
  - (iv) Community diversity at the transition boundary.

2. Write short notes on the following :  
**(any four)** 2×4=8

- (a) Nutrient cycling
- (b) Ecological efficiency
- (c) Ecesis
- (d) Abiotic components of ecosystem
- (e) Biome
- (f) Kaziranga National Park.

3. Answer the following : **(any three)** 5×3=15

- (a) Autecology *vs* Synecology.
- (b) Density-independent factors of population regulation.

- (c) Vertical stratification of a community.
  - (d) Concept of ecotone with *one* example.
  - (e) Life tables and survivorship curves.
4. Discuss the concepts of Gause's competitive exclusion principle with *one* example. 10

**OR**

Highlight the major types of population interactions. Elaborate the Lotka-Volterra equations for competition and predation.

4+6=10

5. Discuss the different types of community characteristics with suitable examples. 10

**OR**

Write short notes on : 5+5=10

- (a) Ecological pyramid
- (b) Human-modified ecosystem.

6. Highlight on the strategies involved for *ex-situ* conservation and management of wildlife. 10

**OR**

Compare and contrast between 'r'- and 'K'-strategies with necessary examples.

5+5=10