

Total Pages—6

SH ZOO-02(MODEL CBCS)

2019

(1st Semester)

Time : 3 hours

Full Marks : 60

Answer **all** the Parts as per directed

The figures in the right-hand margin indicate marks

*Candidates are required to answer in their own words
as far as practicable*

(PRINCIPLES OF ECOLOGY)

PART-I

1. Fill in the blanks with appropriate answer : 1 × 8

(a) Stationary water systems are called _____
ecosystems.

(b) A _____ level refers to the 'organism's
position in the food chain.

(c) Energy and nutrients pass from organism to
organism through _____.

(Turn Over)

(2)

- (d) Secondary production refers to production by _____.
- (e) Measure of the change in population per individual per unit time is referred to as _____.
- (f) Density dependent mortality factors are those that are _____ in effect.
- (g) Empty niches are exploited by _____ selected species.
- (h) Ecological succession ends with a stage called _____.

PART-II

2. Answer any *eight* questions within *one* to *two* sentences :

$1\frac{1}{2} \times 8$

- (i) What does a J-shaped growth phase reveal ?
- (ii) What is carrying capacity ?
- (iii) What does Type-I survivorship curve say about the characteristics of the organism ?

- (iv) What are 'r' and 'k' selection ?
- (v) What is Allen's rule in Ecology ?
- (vi) Explain Gause's principle.
- (vii) Differentiate *in situ* and *ex situ* conservation.
- (viii) What is ecological niche ?
- (ix) What is the basic difference between commensalism and mutualism ?
- (x) Define ecotone and edge effect.

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PART-III

3. Answer any *eight* of the following within 75 words : 2 × 8

Differentiate between

- (i) Autoecology and synecology.
- (ii) Detritus and grazing food chains.
- (iii) Linear and Y-shaped food chains.

(4)

- (iv) Density-dependent and density independent population regulation.
- (v) Upright pyramid and inverted pyramid.
- (vi) Gross primary productivity and net primary productivity.
- (vii) Keystone species and flagship species.
- (viii) Lotic and lentic ecosystems.
- (ix) Logistic growth and geometric growth.
- (x) Parasite and predator.

PART-IV

Answer the following within 500 words : 6 × 4

4. (a) What is a biogeochemical cycle ? Describe the cycle of nitrogen. Why is it called a perfect cycle.

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Or

- (b) Discuss light as an ecofactor.

(5)

5. (a) Define survivorship curve. Describe the three general types of survivorship curves with examples. How is the survivorship curve used?

Or

- (b) What is population interaction? Describe positive interaction among organisms in a population.

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6. (a) What is ecological succession? Describe the process of ecological succession with example.

Or

- (b) State principal community characteristics. Add a note on significance of pioneer, seral and climax communities.

7. (a) What are the measures of central tendency. A boy scores the following marks in 4 core papers : 65, 72, 58, 77. What are his median and mean scored.

(6)

Or

(b) What is Chi-square (χ^2) test ? suppose in a cross between two plants yields a population of 880 plants of which 639 produce green seeds while 241 produce yellow seeds. Based on Mendel's laws your hypothesis is that green seed colour is dominant over yellow and parent plants are both heterozygous. Prove whether your hypothesis is correct or wrong.

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