

B.Sc. Honours 1st Semester Examination, 2019

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

Candidates should answer in their own words and adhere to the word limit as practicable.

All symbols are of usual significance.

GROUP-A

1. Answer any *eight* questions from the following:

$$2 \times 8 = 16$$

- What are ecotype and ecads?
- What is Homeostasis?
- What do you mean by Umbrella species?
- What do you mean by Biological Nitrogen fixation?
- What are keystone species? Give examples.
- What are hotspots? How many of them are present in India? Name them.
- What is pioneer species? Give example.
- Mention two density dependent factors of population growth.
- What do you mean by eurythermal animal? Give example.
- What is fecundity and fertility?
- What is Autogenic and Allogenic succession?
- Write the difference between Food chain and Food web.

GROUP-B

2. Answer any *three* questions from the following:

$$3 \times 3 = 9$$

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| (a) What is closed community? How it differs from open community? | 1+2 |
| (b) (i) What is zero isocline? | 1+2 |
| (ii) What is Lotka-Volterra Competition model? | |
| (c) What are the criteria for establishment of Biosphere reserve? Describe the structural components for Biosphere reserve. | 1½ + 1½ |
| (d) What are age pyramids? Describe different types of it. | 1+2 |
| (e) What are the eight red list categories declared by IUCN? Name them with one example each. | 3 |

- (f) Draw the survivorship curves for frogs and human populations. $1\frac{1}{2} + 1\frac{1}{2}$
(g) State the law of minimum and law of tolerance. $1\frac{1}{2} + 1\frac{1}{2}$

GROUP-C

3. Answer any **three** questions from the following: $5 \times 3 = 15$
- (a) What are the different Pyramids that exist in the tropic level? What is an inverted Pyramid? Give example. What is the significance of these Pyramids in ecological tropic levels? $2+2+1$
- (b) Describe the Nitrogen Cycle in brief with proper diagram. $2\frac{1}{2} + 2\frac{1}{2}$
- (c) Differentiate between ecological niche and habitat. What are the four stages of ecological succession? Cite examples. $2+2+1$
- (d) What are multidimensional or Hypervolume niche? Explain with suitable examples. Explain the concept of resource partitioning and character displacement. $2+3$
- (e) Mention the measures taken by the Sundarban Tiger-Reserve Authorities in the Sundarban Reserve Forest. 5

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