

2022

ZOOLOGY — HONOURS

Paper : CC-11

(Ecology)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Question no. 1 is compulsory and answer **any four** questions from the rest.

1. Answer **any five** questions :

2×5

- (a) What do you mean by life table?
- (b) Why India is a mega-diversity country?
- (c) What is 'Flagship species'? Give one example.
- (d) What is Allen's rule?
- (e) Name two hotspots of India.
- (f) What is ecological efficiency?
- (g) Why is beaver a keystone species?
- (h) Name one mammal and one bird belonging to schedule IV.

2. Distinguish between the following :

2×5

- (a) Density dependent and Density independent growth regulation
- (b) DFC and GFC (Detritus food chain and Grazing food chain)
- (c) Dispersal and Dispersion
- (d) Nitrification and Denitrification
- (e) Ecotone and Edge effect.

3. Write short notes on :

2½×4

- (a) Lotka-Volterra equation for competition
- (b) Importance of biodiversity
- (c) Competitive coexistence
- (d) Vertical stratification.

Please Turn Over

4. (a) A record of survey in 2018 reveals that a *Tylotriton* sp. population was composed of 800 individuals. 35 new were born and 10 were died during that year. Calculate the population growth rate for that year.
 (b) Why logistic growth model in a population more realistic?
 (c) Draw the population growth curve of prey population when there is no predator. 4+3+3
5. (a) In a laboratory condition two different species of *Paramecium* are grown in the same medium. It was found that one of species dies in the presence of other in the medium.
 (i) Identify the species of *Paramecium* grown in the medium.
 (ii) What could be the probable cause for such finding?
 (b) Describe the Y-shaped model of energy flow.
 (c) What do you mean by fecundity? 4+4+2
6. (a) A bacterial colony becomes double in 2 hours. Find the reproductive rate of the bacteria. [Given : $\log_{10} 2 = 0.3010$]
 (b) Which one is better *ex situ* or *in situ* conservation? Justify your answer.
 (c) List the threats to olive ridley turtle. 3+4+3
7. (a) What are the aims / objectives of Wildlife Protection Act?
 (b) What do you mean by modular population?
 (c) How does temperature act as limiting factor in animals? 5+2+3
8. (a) What are age pyramids? Draw the age pyramids and comment on the basis of the given data :

Age group	Populations		
	I	II	III
Pre-reproductive →	900	900	300
Reproductive →	600	800	800
Post-reproductive →	300	300	400

- (b) Which of the following community is more rich and diverse? Justify your answer.

	Sp A	Sp B	Sp C
Community I	50	50	50
Community II	99	1	0

(1+6)+3