

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 *Tylototriton* 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