

2020
ZOOLOGY
[HONOURS]
Paper : IV
[NEW SYLLABUS]

Full Marks : 75

Time : 4 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*

1. Answer any **five** of the following: 1×5=5
- a) Name two biodiversity hotspots in India.
 - b) Define ecological niche.
 - c) What is a GMO? Give an example.
 - d) Write down the full form of CITES. What is TRAFFIC?
 - e) What is meant by biotransformation?
 - f) What is meant by biodiversity hotspot?
 - g) Which gases are referred to as greenhouse gases?
 - h) What is meant by stratification?
 - i) Define ecological efficiency.

[Turn over]

2. Answer any **six** of the following: 2×6=12
- a) What is biopiracy?
 - b) What is meant by ecological footprint?
 - c) Explain the difference between in-situ and ex-situ conservation with one example in each case.
 - d) What is pedology? What are horizons?
 - e) Define and differentiate between production and assimilation.
 - f) Differentiate between National Park and Sanctuary.
 - g) Differentiate between fecundity and fertility.
 - h) Differentiate between ecotone and edge. What is meant by edge effect?
 - i) Differentiate between production and productivity.
3. Answer any **three** of the following: 6×3=18
- a) Write briefly on conservation initiatives for the Tiger and the Olive Ridley Turtle in India. 3+3
 - b) What are survivorship curves? Differentiate among life-histories of homeotherms and poikilotherms on the basis of their survivorship curves. Add appropriate diagram. 1+2+2+1

- c) What is meant by the “Ozone Layer”? Explain its importance in our daily lives. Add a note on the reasons for its depletion. 1+2+3
- d) i) Differentiate between r-selected and k-selected life history types with examples.
- ii) Define efficiency. In briefly, write on efficiency within a trophic level and efficiency between trophic levels. 2+1+3
- e) What is sustainable exploitation? Differentiate between in-situ and ex-situ conservation with examples. Write briefly about CITES and TRAFFIC. 1+1+(2+2)
- f) What are the differences among effluent, sewage and sludge? Explain the process of municipal wastewater treatment with a schematic diagram. 3+(2+1)
4. Answer any **four** questions: 10×4=40
- a) i) Briefly describe the provisions of the Indian Wildlife Protection Act-1972, with regard to setting up of designated areas for protection and conservation of biodiversity. 5
- ii) What are Ramsar Sites? Name two designated Ramsar sites in India, mentioning the states they are situated in. 1+2
- iii) Differentiate among National Parks, Sanctuaries and Biosphere Reserves. 2
- b) Define eutrophication. What is a limiting nutrient? Give example. Explain the effects of sudden increase of limiting nutrient load in an aquatic ecosystem with appropriate diagram/flowchart. 1+1+1+6+1
- c) Write short notes on (any **two**): 5+5
- i) Growth forms and their classification
- ii) Diversity and diversity indices
- iii) GIS and Remote Sensing
- iv) Biosafety of GMOs
- d) i) What are xenobiotics? Differentiate between Phase I and Phase II biotransformation reactions. 1+4
- ii) Write a short note on the application of reduce-reuse-recycle principle in management of solid waste. 5

- e) i) What is meant by population density? How does population density differ from population size?
ii) What are the factors that regulate population density? Explain each in brief.
iii) What is the difference between species abundance and species richness?
(1+1)+(1+3+3)+1
- f) i) Define succession. Differentiate between primary and secondary succession. What is ecesis?
ii) What are the characteristics of ecological succession?
iii) Describe the change of soil structure and ecosystem structure as communities progress from early to late successional stages.
(1+1+1)+3+(2+2)
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