

M.Sc. Examination, 2019
Semester-IV
Zoology
Paper – MZOT-402(i)
(Applied and Theoretical Ecology)

Time: 4Hours

Full Marks: 80

Questions are of value as indicated in the margin.

Answer **any eight** questions.

1. What is the backbone of Network analysis? Name the major aspects which are considered in the network analysis. Describe system throughput, diversity of flows, dependency and contribution coefficient. 1+3+6=10
 2. What are development capacity (*C*) and ascendancy (*A*)? On the context of development capacity (*C*) and ascendancy (*A*) describe the robustness and health of ecosystem. 4+6=10
 3. What types of mathematics are used in dynamic modelling with temporal and spatial scale respectively? Describe the first two steps of dynamic modelling. 2+4+4=10
 4. What is the difference between stochastic and deterministic models? Discuss briefly different modelling elements of dynamic model. 2+8=10
 5. Describe briefly the calibration and validation procedures of dynamic modelling. How does dynamic model differ from structural dynamic model? 4+4+2=10
 6. What is Environmental Decision-Making? What are different decision making criteria to avoid environmental hazards? Give an account on Cost-benefit analysis for good decision making approach. 2+3+5=10
 7. Give reasons why 'Ecosystem Health' is not 'Ecosystem Conservation'? How does exergy help defining ecosystem health? Describe any two ecosystem health assessment models. 2+2+6=10
 8. How do you define 'Risk'? Give the references of Qualitative Risk Matrix. Elaborate different steps of Ecological Risk Assessment (ERA). 2+2+6=10
 9. Give a brief account on different types of agricultural farming and their effects on environment. What are LEISA and LEIA? 6+2+2=10
 10. Write **any two** from the following: 5×2=10
 - (a) Emergy
 - (b) Divergent oscillation
 - (c) Per capita growth rate in logistic equation of a population
 - (d) Ozone depletion
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