

Ex/SC/GEOG/PG/DSE/TH/15-1B/2025

MASTER OF SCIENCE EXAMINATION, 2025

(2nd Year, 1st Semester)

GEOGRAPHY

PAPER : SC/GEOG/PG/DSE/TH/15-1B

[Landscape Ecology (GEOG-DSE215T-1B)

Time : Two Hours

Full Marks : 50

*Answer **one** question from each Unit.*

UNIT—I

(Fundamentals of Landscape Ecology)

1. Trace the relationship between grain size and IFOV in landscape studies. What do you mean by hierarchy of landscape units? What is 'modifiable areal unit problem'?
4+3+3=10

2. Elucidate the role of heterogeneity in landscape resilience. How are political ecology and landscape ecology related?
5+5=10

GEOG-1001

[Turn Over]

(2)
UNIT—II

(Patterns and Processes of Landscapes)

3. How does 'edge effect' lead to changes in a landscape? Explain the role of forest fire as an ecological disturbance in landscape development with suitable examples. Explain the Intermediate Disturbance Hypothesis. 2+4+4=10
4. What is the beta diversity if ecosystem A has 10 species, B has 6 species, and 4 species are common to both environments? What are the regulating services of a wetland ecosystem? Comment on the nature of diversity and dominance when forest A has Simpson's Diversity Index value of 0.8 and Forest B has a value of 0.2. 2+4+4=10

UNIT—III

(Landscape Metrics and Models)

5. Write a short note on the role of landscape metrics in quantifying landscape structure and composition. Differentiate between ecosystem goods and services. 6+4=10
6. Differentiate between functional niche and realized niche. What are the major density-independent determinants of population size? Establish the links between the neutral models and island biogeography theory in the context of land use in land cover change. 5+2+3=10

(3)
UNIT—IV

(Applied Landscape Ecology)

7. Critically analyse the utilities of active and passive restoration models. Differentiate between ecological restoration and rehabilitation. Explain the importance of eco-sensitivity zoning with reference of any natural area of India. 4+2+4=10
8. What are the stages of habitat fragmentation? Explain the Core Area Index (CAI) as a metrics of patch geometry. How is habitat loss different from habitat fragmentation? 4+4+2=10

Internal Assessment

10

