

INDIAN STATISTICAL INSTITUTE
FOURTH SEMESTER EXAMINATION, 2024/26 SESSION
PAPER - 19: GEOGRAPHICAL INFORMATION SCIENCE (ELECTIVE)
(MASTER IN LIBRARY INFORMATION SCIENCE)
04th May 2026 (10:00-13:00) (3 Hours)

This Question paper consists of one page and is for **60 Marks**. To score maximum marks, attempt the maximum number of questions. Print your answers in the Answer Booklet provided. A Scientific Calculator is allowed.

QUESTION 1. Explain briefly the following:

- i) Mathematical and Geographical Maps [4 marks]
- ii) Moran's Index and its relevance in Geographical Information Science (GISci) [4 marks]

QUESTION 2. Explain the morphometry of networks and area-altitude-based hypsometry. [8 marks]

QUESTION 3. Explain the importance of spatial scales in GISci [8 marks]

QUESTION 4. Explain the quantification of the complexity of spatial phenomena and processes [10 marks]

QUESTION 5. Explain the granulometry-based iterated bisections of Spatial Data and the use of such bisections in spatial data characterization. [10 marks]

QUESTION 6. Digital Elevation Models are a rich source of information for GISci researchers. Explain all the features that can be derived from DEMs. [12 marks]

QUESTION 7. Write about the variable-specific cartogram-based spatiotemporal modeling. [12 marks]

QUESTION 8. Explain the significance of morphological distances in the derivation of spatial relationships, strategic set identification, location significance index, spatial interactions, and ranks for pairs of spatial data. [12 marks]

END OF PAPER