

2½ Hours)

[Total Marks: 75]

- N. B.: (1) **All** questions are **compulsory**.  
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.  
(3) Answers to the **same question** must be **written together**.  
(4) Numbers to the **right** indicate **marks**.  
(5) Draw **neat labeled diagrams** wherever **necessary**.  
(6) Use of **Non-programmable** calculators is **allowed**.

1. Attempt **any three** of the following: 15

- a. Define GIS. How data capture and preparation is done in GIS?
- b. What are maps? How it is used in GIS?
- c. What are the different data types used in GIS.
- d. What is Irregular Tessellation with reference to quadtree?
- e. Defining geographic phenomena and Explain geographic field.
- f. How TIN is used in representation of objects?

2. Attempt **any three** of the following: 15

- a. Write about methods to capture spatial data.
- b. Why Database management systems is needed? What are its alternatives?
- c. What is the way for spatial data storage and maintenance done in GIS?
- d. Elaborate the raster encoding in detail.
- e. What are the basic hardware and software requirements needed to work with any GIS software?
- f. Explain Timestamp based protocol.

3. Attempt **any three** of the following: 15

- a. Describe Triangulation network with the help of diagram.
- b. What is Map projection? Explain the types of map projection with the help of diagrams in brief.
- c. Write short note on Geoid and Ellipsoid.
- d. Explain the digitizing and details of vectorization process with suitable diagram.
- e. Write a note on Absolute positioning in Satellite based positioning.
- f. Explain the 2D and 3D Geographic coordinate system.

4. Attempt any three of the following: 15
- a. What is Interpolation? Explain in detail.
  - b. Write a short note on Overlay Functions.
  - c. Explain raster based surface Analysis.
  - d. Explain thiesen polygon generation in detail.
  - e. Explain automatic classification in GIS.
  - f. Explain error propagation in spatial data processing.

5. Attempt any three of the following: 15
- a. Distinguish between quantitative and qualitative data.
  - b. Explain the map cosmetics with example.
  - c. Explain visualization strategies with detail.
  - d. What is cartography? Give bertins six visual variables with diagram.
  - e. Describe how to map terrain evaluation.
  - f. Explain map dissemination.
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