

(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**.

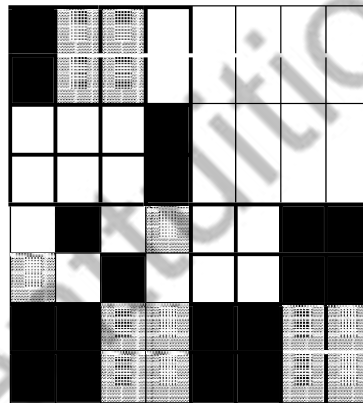
(5) Draw **neat labeled diagrams** wherever **necessary**.

(6) Use of **Non-programmable** calculators is **allowed**

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

15

- What is GIS? Explain any four application areas of GIS.
- What are Geospatial data, Geoinformation, quality and metadata? What are the key components of spatial data? Why do they play important role in assessment of data quality?
- Explain the concept of Spatialtemporal data models. Explain the different concepts of time.
- Define Geographic Objects. Explain four parameters that define it.
- Write a note on Irregular Tessellations.
- Construct a quad tree for the following three valued raster.



15

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

- List the functional components of GIS. Explain any two of them in details.
- What are the different ways of spatial data capture and preparation? Explain.
- Differentiate between Vector data and Raster Data.
- Explain the relational data model using suitable example.
- What is the reason for using DBMS in GIS?
- Write a note on Spatial Data presentation.

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

15

- Write a note on the Geoid and vertical datum.
- Explain 2D geographic coordinate system using suitable example.
- What is secondary data in GIS? Explain any two ways to obtain secondary data in GIS.
- What is satellite based positioning? Explain.
- List the four issues in combining data from multiple sources. Explain any two of them.
- Write a note on GLONASS.

**4. Attempt any three of the following:**

15

- Write a note on neighborhood functions.
- What is Classification of data in GIS? Explain using suitable example.
- Explain vector overlay operations using suitable diagram.

d Perform the raster overlay operation to find  $R4 = R1 \text{ AND } (R2 \text{ OR } R3)$

R1	R2	R3
1 1 0 1	1 0 0 0	1 1 1 1
0 1 0 0	1 1 0 0	0 1 1 1
0 0 1 1	1 1 1 0	0 0 1 1
1 0 1 0	1 1 1 1	0 0 0 1

- e Write a note on GIS and application models.
- f How error propagates in data processing? Explain.

**5. Attempt any three of the following:**

15

- a. What do you mean by “How do I Say What to Whom and is it effective?” in GIS? Explain.
- b. Explain visualization strategies in GIS.
- c. How to map quantitative data? Explain.
- d. What are Bertin’s six categories of visual variables?
- e. How to distinguish between three temporal cartographic techniques? Explain.
- f. Write a note on Map Disseminations.

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