

(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: 10
a. Discuss the importance of header file in raster model? Explain with suitable example.
b. Explain Quad Tree with example.
c. Explain cell-by-cell encoding raster data structure.
d. List different components of GIS. Explain in short.
2. Attempt **any three** of the following: 10
a. Explain Affine Transformation.
b. Explain various new data creation methods.
c. What is the importance of control points in affine transformation.
d. Write a short note on root mean square.
3. Attempt **any three** of the following: 10
a. Explain the join and relate operations of tables in relational database.
b. Write a short note on Map Production.
c. Write a short note on normalization.
d. Explain the Visual Hierarchy with example.
4. Attempt **any three** of the following: 10
a. Write a short note on attribute data query.
b. Write a short note on feature selection by graphic data query.
c. Describe brushing as a technique for data exploration.
d. Explain with suitable example the query by cell value type of raster data query.
5. Attempt **any three** of the following: 10
a. Explain spatial autocorrelation with example.
b. Explain the following map manipulation operations with example.
i. Dissolve ii. Append
c. Explain the reclassification local operation of raster.
d. What are the applications of overlay?
6. Attempt **any three** of the following: 10
a. Write a short note on spatial interpolation.
b. Explain the Inverse Distance Weighted Interpolation local method.
c. Explain the Thin-Plate Splines local method.
d. What is Kriging? Explain.

[TURN OVER]

7. Attempt *any three* of the following:
- a. List and explain GIS operations related to data analysis.
 - b. Write a short note on metadata.
 - c. Explain file and hierarchical database with suitable example.
 - d. Explain feature selection by spatial relationship data query with suitable example.
 - e. Explain the raster data generalization operation with suitable example.
 - f. List global methods and explain any one.