(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. Explain the universe transverse Mercator (UTM) grid system. Give suitable example.
b. List various operations of GIS Explain any two.
c. List different types of raster data. Explain any one.
d. Write a short note on State plane coordinate system with suitable example.

2. Attempt *any three* of the following: **10**

a. List and explain various resampling methods.
b. Write the four types of transformation methods. Show their effects on a rectangular object.
c. Explain the map-to-map and image-to-map transformation.
d. Write a short note on digitizing.

3. Attempt *any three* of the following: **10**

a. Explain Pie Chart and Isaithmetic map
b. Explain different types of attribute table.
c. List different types of database design. Explain any two.
d. What is data classification?

4. Attempt *any three* of the following: **10**

a. Explain trend surface model with suitable example.
b. Explain different types of graphs.
c. List different types of operation that can be carried out on attribute data. Explain with suitable example.
d. Explain descriptive statistics.

5. Attempt *any three* of the following: **10**

a. Explain the Thiessen Polygons local method.
b. Write the purpose of the following map manipulation operations with example.
i. Erase ii. Update iii. Select iv. Eliminate v. Clip
c. Explain the raster data generalization operation with suitable example..
d. What do you mean by pattern analysis? Explain Nearest Neighbour analysis.

6. Attempt *any three* of the following: **10**

a. Explain the Density Estimation local method.
b. What is kriging? Explain universal kriging.
c. List and explain the elements of spatial interpolation.
d. Explain the Inverse Distance Weighted Interpolation local method.

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

a. Explain the following terms of object based data model and give suitable example.
   i. Aggregation ii. Association
b. Explain the bilinear interpolation resampling method with suitable example.
c. Define the following terms:
   i. Chart map ii. Primary key iii. Numeric data iv. Feature attribute table
   v. Interval data
d. Write a short note on dynamic graphics.
e. Explain spatial autocorrelation with example.
f. Explain the Thiessen Polygons local method.
