

TUT/16

(Time: 2 $\frac{1}{2}$ hours)

[Marks: 75]

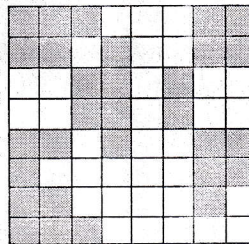
Please check whether you have got the right question paper.

- 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** calculator is **allowed**.

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

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- a. Write a short note on TIN model.
- b. Explain spatial reference information of raster data.
- c. Draw a Quad Tree for the following



Also, code the spatial index of the shaded feature.

- d. What are different types map projections based on preserved property?

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

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- a. Explain with example the Neutral format data exchange.
- b. Explain different types of field data.
- c. Explain Affine transformation.
- d. List the common resampling methods and explain them.

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

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- a. Explain the join and relate operations of tables in relational database.
- b. List the types of attribute data based on measurement scale. Explain.
- c. List different types of database design. Explain any two.
- d. Define the following terms
 - i. Chart map
 - ii. Primary key
 - iii. Numeric data
 - iv. Feature attribute table
 - v. Interval data

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

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- a. Describe brushing as a technique for data exploration.
- b. Explain feature selection by spatial relationship data query with suitable example.

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- c. Explain with suitable example spatial data query. ■
- d. What is the output of the following for a statement (NOT(slope = 1)) AND (NOT(Aspect=2))

Aspect

4	1	4	1	2	3	1	2
4	1	3	2	3	2	2	4
3	2	4	4	4	3	4	3
3	3	1	2	1	2	1	3
2	4	2	3	2	1	2	2
1	2	3	1	3	4	3	3
3	3	1	3	4	3	4	4
4	4	2	2	4	4	2	1

Slope

1	1	1	3	4	2	3	3
3	2	1	3	4	4	1	4
3	2	2	1	2	3	2	3
4	3	3	2	3	4	4	4
3	4	4	3	4	2	3	2
2	2	1	2	4	1	2	4
2	1	3	3	4	4	1	1
1	3	3	2	2	3	4	1

5. Attempt any two of the following:

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- a. What is the physical distance measure operation? ■
- b. Write the purpose of the following map manipulation operations with example.
 - i. Erase ii. Update iii. Select iv. Eliminate v. Clip
- c. What are the applications of overlay?
- d. Explain spatial autocorrelation with example.

6. Attempt any two of the following:

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- a. Explain the Thin-Plate Splines local method.
- b. Explain the use of binning process used in kriging?
- c. Explain the Inverse Distance Weighted Interpolation local method.
- d. Explain the Thiessen Polygons local method.

7. Attempt any three of the following:

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- a. List different types of raster data. Explain any one.
- b. Write the four types of transformation methods. Also show their effects on a rectangular object. ■
- c. Write a short note on Map Production.
- d. What are the different types of graphs used for data exploration?
- e. Explain the neighborhood operations with suitable example.
- f. Explain trend surface model with suitable example.