

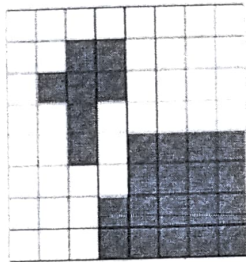
Note:

1. All Questions are compulsory.
2. Each question carries equal marks.

**Q1. Attempt any Two of the following.**

[12]

- a) Define GIS. Explain the components used in GIS.
- b) Explain following terms:
  1. Spatial databases
  2. GIS and databases
- c) Note down applications of GIS.
- d) What is a Quad tree? Solve the following using Quad tree:



**Q2. Attempt any Two of the following.**

[12]

- a) Compare and contrast between Tessellation and vector representations.
- b) Explain the following terms related to Integrated analysis of spatial and attribute data:
  1. Overlay functions
  2. Connectivity functions
- c) Describe the three golden rules of data integrity.
- d) How can we maintain and analyze spatial data?

**Q3. Attempt any Two of the following.**

[12]

- a) What is the geoid and the vertical datum? Explain.
- b) Write a short note on the Coordinate system.
- c) Explain following:
  1. Rasterization
  2. Vectorization
  3. Data checks and repairs
- d) What is Network positioning? Explain.

**Q4. Attempt any Two of the following.**

**[12]**

- a) What is Neighborhood Operations? Explain Applications in GIS with examples.
- b) Perform Following overlay operation:
1.  $E = A + (B/2) - 1$
  2.  $E = (A + B) * 2$

Where,

5	5	5	6	6
4	4	5	6	6
4	5	6	6	6
4	4	4	5	6
4	4	6	6	6

A

10	10	10	12	12
10	12	12	12	12
10	10	10	12	12
10	10	12	12	12
10	12	12	12	12

B

- c) What is an attribute data query? Explain.
- d) Explain the following:
1. Run length encoding
  2. Cell by cell encoding

**Q5. Attempt any Two of the following.**

**[12]**

- a) How to map quantitative data? Explain.
- b) What is data classification? Explain methods used to do data classification.
- c) Write a short note on Map production.
- d) What are visual variables? Name common visual variables for data display.

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