

**B.E. /B.TECH (FULL TIME) DEGREE END SEMESTER ARREAR EXAMINATIONS APR-MAY 2013
REGULATION 2008**

**GEOINFORMATICS ENGINEERING BRANCH - FIFTH SEMESTER
GI 9305 GEOGRAPHICAL INFORMATION SYSTEM-I**

Time : 3 Hr.

Max. Marks:100

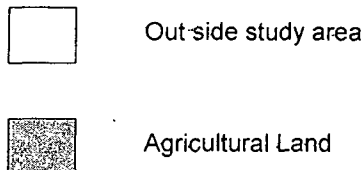
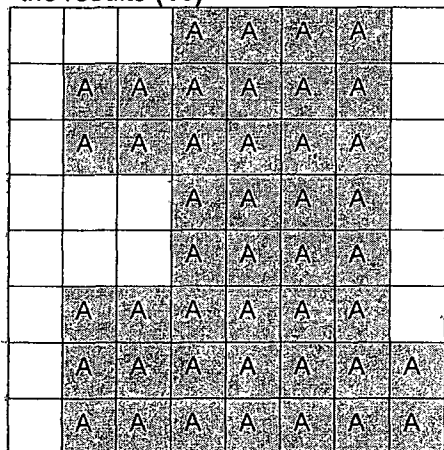
Instructions: Answer **ALL** Questions
Illustrate with sketches wherever necessary

PART A (10 x 2 = 20 Marks)

1. With a neat sketch explain the reference datum used for Planimetric and Altimetric Co-ordinates in a Map
2. List any two popular Commercial Off the Shelf(COTS) and Open Source GIS software
3. Give an example for Nominal, Ordinal, Interval and Ratio level Non-Spatial data
4. What is surface data and give an example
5. Explain why irregular tessellation is preferred over regular tessellation for representing complex topography consisting of plains and mountains with steep slopes
6. What is Euler Equation and where is it used.
7. With a neat sketch explain snapping to a vertex and snapping to an edge
8. With an example explain the utility of ODBC in GIS
9. Differentiate with an example discrete and continuous surface
10. List any two advantages of Airborne Laser Scanning over Photogrammetry in generating Digital Elevation Models

PART B (5 x 16 = 80 Marks)

11. i. With neat sketches explain the role of various factors such as, Type of Map, Shape and extent of area to be mapped, property to be preserved, in deciding the type of Map Projection (8)
ii. If GIS is to be implemented in an organization, which proposes to use data distributed across the country at several locations, discuss in detail the various components of GIS which are to be analysed for successful implementation (8)
12. a. i. With neat sketches explain Point, Line, Polygon thematic maps (8)
ii. Discuss in detail the Relational Database Management System used in GIS with an emphasis on the role of E- R diagram in designing such databases(8)
(OR)
12. b. i. What is meant by Normalisation of a Spatial database (4)
ii. Discuss in detail with neat sketches the Hierarchical and Network database structures (12)
13. a. For the raster grid shown below, calculate the amount of Compression that could be achieved by Run Length Coding, Chain Length Coding, Block Coding and QuadTree Coding and comment on the results (16)



(OR)

13. b. i. With a neat sketch explain the arc-node data structure and tabulate the required details that are stored in Node, Arc and Polygon Attribute table **(10)**
ii. Discuss the rules used for checking Topological Consistency of a spatial database **(6)**

14. a. i. With a neat sketch explain the coordinate transformation used for transforming the digitizer coordinates to realworld map coordinates **(12)**
ii. With a neat sketch explain the advantages of on screen digitizing over digitizer board **(4)**

(OR)

14. b. i. Discuss in detail the utility of Import/Export functionality in GIS **(6)**
ii. Write briefly about any two popular Raster and Vector File formats used in GIS **(6)**
iii. Explain in detail, how is GPS Survey data integrated with GIS **(4)**
15. a. Discuss the merits and demerits of generating Digital Elevation Model using Ground Survey, Photogrammetry, Stereo Satellite Data and Airborne Laser Scanning in terms of Speed, Cost, Accuracy, Ground Coverage and Accessibility of terrain **(16)**

(OR)

15. b. With neat sketches explain in detail, the procedure of deriving Slope, Aspect, Watershed Boundary and Drainage Network from Digital Elevation Model **(16)**