

**2016**

**M.Sc.**

**2nd Semester Examination**

**REMOTE SENSING AND GIS**

**PAPER—RSG-203**

*Full Marks : 40*

*Time : 2 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

*Use Separate answer book for each Group.*

**Group-A**

**(GIS Data Analysis)**

[Marks : 20]

Answer any two questions : 2×10

1. Discuss very briefly about level of data abstraction and data models in GIS. 4+6

*(Turn Over)*

2. What is "data compression"? Explain the concept of geospatial data representation using the quadtree data model. 3+7
3. (a) Discuss briefly about "buffering" in geographic information analysis.
- (b) Why TIN may be unsuitable for modelling the continuous variation of physical attributes other than elevation measured at point location? 5+5
4. Write short notes (any two) : 5×2
- (a) Errors and uncertainty in GIS data.
- (b) Web GIS.
- (c) Mobile GIS.
- (d) Neighbourhood analysis.

**Group-B****(Fundamentals of GPS)**

[Marks : 20]

Answer any *two* questions.

2×10

1. Define 'Geodesy' and mention its major application. Make a comparative analysis between three major co-ordinate systems used in geodesy. What is geoid undulation (N) of a point? 3+6+1
  
2. Write short notes (any *four*) :  $2\frac{1}{2} \times 4$ 
  - (a) WGS 84.
  - (b) Everest spheroid.
  - (c) Cartesian co-ordinate system.
  - (d) Gravitational field.
  - (e) Satellite Geodesy.
  - (f) Datum Conversion.
  
3. How Geographic/Spherical co-ordinate system is used to locate a place on the Earth? What is a spherical triangle? Prove that the area of a spherical triangle is the product

of square of the radius of that sphere and spherical excess of that triangle. 3+2+5

4. Briefly how geodetic and vertical datums are used to provide positional control and support in surveying and mapping projects in India. Write down the mathematical relation between the components of Ellipsoidal ( $\phi, \lambda, h$ ) and cartesian (X, Y, Z) coordinate transformation.

5+5

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