2015

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. How do you model the real world using data model concept of GIS ? Show it schematically. 10

2. (a) Explain the concept of geospatial data representation using the quadtree data model.

   (b) What are the advantages and disadvantages of the quadtree data model? 5+5

3. (a) What is topology?

   (b) Using a simple diagram, explain the three types of topological relationships in geographic data representation. 3+7

4. Write short notes (any *two*) : 5×2

   (a) Data quality and Errors in GIS.

   (b) Web GIS.

   (c) Mobile GIS.

   (d) TIN.

   (e) Run Length Encoding.

Group–B

(*Fundamentals of GPS*)

[Marks : 20]

Answer any *two* questions. 2×10

1. What do you mean by Co-ordinate? What are two basic co-ordinate reference systems used to locate a point on two dimensional plane and what are their conversion parameters? Briefly discuss the process and use of affine transformation in GIS? 1+6+3

2. Describe the shape of the earth with the help of ellipsoid-geoid model. Differentiate between geocentric geodetic and astronomical latitude. What is Geoid undulation ?
5+4+1

3. Write down notes on Everest spheroid and WGS-84, mentioning their geometric constants and parameters. Write down the mathematical relation between the components of Ellipsoidal (ϕ, λ, η) and Cartesian (X. Y, Z) co-ordinate system used for co-ordinate transformation.
2.5+2.5+3

4. Write short note on any *four* of the followings : 2.5×4

(i) Properties of a Great Circle.

(ii) What is Vertical datum ?

(iii) Radius of curvature of a meridian on an ellipsoid.

(iv) Applications of Geodery.
