2018

M.Sc.

2nd Semester Examination

REMOTE SENSING AND GIS

PAPER—RSG-203

Subject Code—34

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. (a) How do you create a raster data model ?

(b) Explain the mixed pixel issue of raster data model ?

(c) Discuss "data compression".

(d) Why is data compression important for storing raster geospatial data ? 2+3+3+2

2. (a) Explain regular tessellation and delannay triangulation with suitable illustration. 5+5

3. (a) Write notes on web GIS and mobile GIS. 3+3

(b) What are use of union and intersection, describe with diagrams. 2+2

4. (a) What is overlay analysis ? 2

(b) Using the formula of Linear and weighted overlay, calculate the final result of the given problem.

(N.B. Input data are to be normalized before overlay). 4+4

PPT (mm)

2000	1200	400
1800	1600	1000
1600	800	1000

Temp (°C)

40	36	16
32	30	24
26	18	20

Soil depth (m)

10	6	4
4	5	2
6	5	4

Slope (°)

4	4	10
6	12	14
6	14	14

Weights for PPT ⇒ 0.3 ; Temp ⇒ 0.3

Soil depth ⇒ 0.2 ; Slope ⇒ 0.2

Group–B

(*Geodesy*)

[Marks : 20]

Answer any *two* questions. 2×10

1. What do you mean by geodetic datum ? Distinguish between horizontal datum and Vertical datum. How geodetic latitude is different from geocentric latitude ? Why survey of India has shifted its spatial data base from Everest 1830 ellipsoid with polyconic projection system to WGS 84 ellipsoid with UTM projection system ?

2+2+2+4

2. How Geographic/Spherical coordinate system is used to locate a place on earth ? Define great circle. What are the proportion of a spherical triangle and how it is different from a plane triangle. What is spherical excess ?

3+2+3+2

3. Write short notes on Everest spheroid and WGS-84. mentioning their geometric constants and parameters. Write down the mathametical relations between the components of Ellipsoidal (φ, λ, h) and cartesian (X, Y, Z) Co-ordinate systems—used for Co-ordinate transformation. 2½+2½+5

4. Write short notes : 2½×4

(a) Three types of Latitudes used in Geodesy.

(b) Difference b/w ellipsoidal height and orthometric height.

(c) Plane coordinate system.

(d) Radius of curvature of meridian on an ellipsoid.

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