2017

M.Sc.

1st Semester Examination

REMOTE SENSING AND GIS

PAPER—RSG–103

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

(Photogrammetry)

[Marks : 20]

Answer any *two* questions. 2×10

1. Classify aerial photographs based on orientation of the common axis. Define 'exposure station', 'optical axis',

'photobase' and 'isocentre'. How shape size and association help delineation of different Linear features of airphoto. Depict the opposing role of shadow in image interpretation.

2+4+3+1

2. Illustrate the relief displacement (d) of a tower in a vertical photograph and show how it is related with object height, flying height and radial distance from the principle point (r).

Solve the numerical problem :

A tower has been photographed two times over the same principle point with flying height difference of 100 m. In first photograph (P_1) d = 2.13 mm and r = 63.43 mm and in 2nd photograph (P_2) d = 1.987 mm. considering both of the photograph are of same scale, find out the height of the tower. 5+5

3. Define photogrammetry.

What is 'human stereoscopy'? How scale of an aerial photograph is related with flying height (h) out focal length (f) of the camera. Prove that s = f/h. What are the advantages of orthophoter. 1+3+4+2

4. Write down the geometric aspects of the task, flight planning. Develop a flight plan for a circular island with

a radius of 7 km. The focal Length of the camera is 152.4 mm, desired photo scale is 1 : 15000, and nominal end lap and side lap are 60% and 30% respectively and average terrain height is 30 m above sea level. 2+8

Group–B

(Surveying and Global Positioning System)

[Marks : 20]

Answer any *two* questions. 2×10

1. Explain the method of hydrographic survey for preparation of bathymetric chart of nearshore area with special emphasis on SONAR LIDAR survey. 10

2. What do you mean by conventonal field survey techniques. What are the utilitier of conventional instruments in cadartral and topographical map preparation. 4+6

3. (a) What are components of user segment of GPS ?

(b) Describe Orbital Constellation of IRNSS ?

(c) Describe in detail—factors that affect GPS signal errors. 2+3+5

4. Write short notes on : 5×2

(a) Steps involved in determining height using theodolite.

(b) Almanac.

(c) Absolute and Relative positioning.

(d) Dilution of Precision (DOP)

(e) Differential GPS.

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