2016

M.Sc. 1st Semester Examination

REMOTE SENSING & GIS

PAPER—RSG-103

Full Marks : 40

Time : 2 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Group-A

(Photogrammetry)

[Marks : 20]

Answer any *two* questions.

1. Define 'central perspective projection' 'X-tilt', 'Y-tilt', 'crab', conjugate principal point and 'isocentre'. A monument 185.5 ft tall, casts shadow onto level ground that is

measured 0.286 inch on the photograph. The scale of the photograph is 1 : 6000. Calculate the height of a tower casting 0.173 inch shadow on the same photograph. 5+5

2. How height can be determined image parallase ? What are the aspects influencing parallase ? The parallase difference between top and bottom of a true is 1.37 mm and the airbase is 92.3 mm. What is the height of the tree, if the flying height above the detum plane is 4000 m. 5+2+3

3. Depict the relationship between ground coverage of an aerial photograph with the flying height and focal length of the camera. How length of the airbase can be measured from a stereo pair ? What is stereoscopic vision ? 4+3+3

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

(a) Nature of relief displacement in single vertical aerial photograph.

(b) Difference between onthophotography and standard photography.

(c) Derivation of the scale of an aerial photograph.

(d) Stereo Analysis in 'Anaglyph Mode'.

Group-B

(Surveying & Glibal positioning system)

[Marks : 20]

Answer any *two* questions.

1. (i) Write down the principle of triangulation survey.

(ii) What criteria used for selection of the layout of triangle ?

(iii) What is the difference between traversing & triangulation ?

(iv) Write down on of the disadvantages of using the chain of single triangles ? 3+3+2+2

2. (i) Describe GPS (NAVSTAR) Orbital Constellation.

(ii) Explain geometrical dilution of precision or GDOP.

(iii) Write a brief description on navigation message ; GPS broadcast frequency, psueudorandom code.

3+3+4

3. (i) What is differential GPS or DGPS ? Explain with neat sketches.

(ii) Explain in brief different factors that are responsible for GPS signal errors. 5+5

4. Write short notes on : 2×5

(i) Steps involved in determining height using theodolite.

(ii) Absolute and relative accuracies.

(iii) Almanac.

(iv) GPS Aided Geo Augmented Navigation (GAGAN).

(v) Main components of Mobile Mapping Systems.

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