PG/IS/RSG-103/19

M.Sc. 1st Semester Examination, 2019

REMOTE SENSING AND GIS

PAPER – RSG-103.1 & 103.2

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

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

Illustrate the answers wherever necessary

RSG – 103.1

GROUP – A

Answer any **two** questions : 2×2

1. How does 'CCD' works in a digital camera ?

2. What are different types of orientation of aerial camera ?

3. Define isocentre of a oblique photograph.

4. What are the distortion we found in aerial photograph.

GROUP – B

Answer any **two** questions : 4×2

5. Explain the factors responsible for amount of relief displacement in single vertical photograph.

6. Write down the basic principle of 3D vision in anaglyph mode.

7. What are the advantages of an orthophotograph over standard photography ?

8. How does human stereoscopy helps in depth perception ?

GROUP – C

Answer any **one** question : 8×1

9. Assume that the radial distance r_a to a point A is

63.84 mm and for point B is 62.65 mm. Flying height is 1300 m above datum. Point A is 152 m above datum and point B is 168 m below datum. Find out the radial distance and direction. One must lay off from point 'a' and 'b' to plot them in proper location.

10. How can we derive the scale of an aerial photograph ? A square shaped play ground is measured 36 sqcm on toposheet and 98 sqcm on photograph. If the scale of the toposheet is 1 : 50,000 then what will be the scale of the photograph. What will be the area of a tank on photograph measured 800 sqm on ground.

RSG – 103.2

(*Surveying and Navigational Satellite System*)

GROUP – A

Answer any **two** questions : 2×2

11. What are advantages of Total Station over Theodolite ?

12. In triangulation surveys geometric conditions fulfilled by triangles, quadrilaterals or polygons must satisfy certain criteria. What is the

    (*i*) Sum of interior angle of a polygon with 'n' number of sides;

    (*ii*) Sum of all angles between consecutive vertexes measured at a station inside a polygon.

13. What are satellite ephemeris and ephemeris errors ?

14. During GPS field surveys we often encounter errors in positioning. Name factors that may be responsible for such errors.

GROUP – B

Answer any **two** questions : 4 × 2

15. How a bathymetric map differs from topographic maps ? Discuss sources of errors in a bathymetric map.

16. Describe functionalities and advantages of GPS Aided Geo Augmented Navigation (GAGAN).

17. Distinguish between traversing, triangulation.

18. Explain the process of height measurement by theodolite.

GROUP – C

Answer any **one** question : 8×1

19. What are Back and Fore bearings ? Following angles were observed in running a closed traverse ABC in a clockwise direction; where, $\angle A = 40^\circ$, $\angle B = 78^\circ$ and $\angle C = 62^\circ$. Calculate the bearings of sides BC and CA, if bearing of AB is $50^\circ 45'$. $3 + 5$

20. Write a note on advantages of IRNSS over GPS in Indian territories. Explain with illustration, their satellite orbital configurations and frequencies used in both systems. $3 + 5$