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B.Tech. (Civil) 4th Semester (G-Scheme)

Examination, July-2022

GEOMATICS AND AERIAL SURVEYING

Paper- PCC-CE-208-G

Time allowed : 3 hours

[Maximum marks : 75]

Note : Attempt five questions, selecting one question from each unit and question no. 1 is compulsory.

1. Define the following:-
- (i) What is triangulation figure and name the common figures or systems? 2.5
 - (ii) Define most probable value and weight of an observation. 2.5
 - (iii) Define circumpolar stars, right ascension and celestial sphere. 2.5
 - (iv) Define flying height, exposure station and flight line. 2.5
 - (v) What are the different components of GIS? 2.5
 - (vi) Define relief displacement. 2.5

Unit - I

2. (a) What do you mean by reconnaissance? Explain the different operations under the reconnaissance. 7.5

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- (b) What is triangulation? Describe the classification of triangulation system in detail. 7.5
3. (a) Explain in detail various law of weights. 8
- (b) Find the most probable value of the angle A from the following observation equations: 7
- $A = 30^{\circ}28'40''$ weight 2
- $3A = 91^{\circ}25'55''$ weight 3

Unit - II

4. (a) Describe star at elongation and star at prime vertical. 7.5
- (b) The altitudes of a star at upper and lower transits of a star are $70^{\circ}20'$ and $20^{\circ}40'$, both the transits being on the north side of zenith of the place. Find the declination of the star and the latitude of the place of observation. 7.5
5. (a) Define astronomical triangle and its different parts. 9
- (b) A star having a declination of $56^{\circ}10' N$ has its upper transit in the zenith of the place. Find the altitude of the star at its lower transit. 6

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Unit - III

7. (a) Describe the advantages of aerial photography over mapping. What are its limitations? 8
- (b) A line AB, 2000 m long, lying at an elevation of 500 m measures 8.65 cm on a vertical photograph for which focal length is 20 cm. Determine the scale of the photograph in an area the average elevation of which is about 800 m. 7

Unit - IV

8. (a) Describe briefly the various methods of GPS surveying. Also give the applicability and limitations of each technique. Also describe the three segments of GPS. 8
- (b) Write a note on applications of remote sensing. 7
9. (a) Describe the raster and vector data structures. What are the advantages and disadvantages of these two data structures? 8
- (b) Write a short note on linkage of GIS to remote sensing. 7

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