

9. (a) Describe the component subsystems of GIS. Also explain the functionalities of GIS. 7.5
- (b) What do you understand by GPS and GIS ? Explain their objectives. 7.5

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(4)

Roll No.

3083

B. Tech. 4th Semester (Civil)
Examination – July, 2021
GEOMATICS AND AERIAL SURVEYING

Paper : PCC-CE-208-G

[Maximum Marks : 75]

Time : Three hours]

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

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

$$2.5 \times 6 = 15$$

1. Define the following :

- (i) Triangulation system and its classification.
- (ii) Define law of weights of survey adjustments.
- (iii) Define zenith distance, latitude and longitude.
- (iv) What are the different types of photograph ?
- (v) Define remote sensing and name its types.
- (vi) Define crab and drift.

UNIT – I

2. (a) Write down the various considerations on which the selection of a triangulation station is based upon. 7.5

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(b) What precautions are observed while selecting the site for measurement of base line ?
7.5

3. (a) What are the different types of errors observed in measurements of quantities. Explain in brief. 7.5
(b) Find the most probable values of the angles A and B from the following observations at a station O :
7.5

A = $9^{\circ}48'36''$.6	weight 2 (1)
B = $54^{\circ}37'48''$.3	weight 3 (2)
A + B = $104^{\circ}26'28''$.5	weight 4 (3)

UNIT - II

4. (a) Explain the Napier's rule of circular parts to solve a right angled spherical triangle with diagram. 9
(b) Find the zenith distance and altitude at the lower culmination for a star having declination = $85^{\circ}20'$ if the latitude of the place of observation = $46^{\circ}50'$. 6
5. (a) Describe star at culmination and star at horizon. 8
(b) Determine the azimuth and altitude of a star from the following data :
7

- (i) Declination of star = $20^{\circ}30'N$
(ii) Hour angle of star = $42^{\circ}6'$
(iii) Latitude of the observer = $50^{\circ}N$

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UNIT - III

6. (a) Describe the advantages of aerial photography over mapping. What are its limitations ? 8
(b) The scale of a photograph is 1 cm = 100 m and the size of the photograph is 23 cm $\times$ 23 cm. Determine the number of photographs required to cover an area of 150 sq. km. If the longitudinal overlap is 60% and the size overlap is 30%. 7

7. (a) What do you understand by flight planning for aerial photography ? Also discuss different types of overlap. 7.5
(b) A Vertical photograph was taken at an altitude of 1200 meters above mean sea level. Determine the scale of the photograph for terrain lying at elevations of 80 meters and 300 meters if the focal length of the camera is 15 cm. 7.5

UNIT - IV

8. (a) What are the three segments of GPS ? Describe them briefly. 7.5
(b) What is remote sensing ? Describe briefly the development of remote sensing in India and its utility. 7.5

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