

GANPAT UNIVERSITY
B.TECH. SEM VI CIVIL ENGINEERING
REGULAR EXAMINATION MAY/JUNE - 2013
2CI 602 – ADVANCE SURVEYING

Time: 3 Hours

Total Marks: 70

- Instructions: - (1) Answer to the two sections must be written in separate answer books.
 (2) Figures to the right indicate full marks.
 (3) Assume suitable data if required.

Section - I

- Q-1 (A) Derive the expressions for horizontal and vertical distances in the fixed hair method when the staff is held normal to the line of sight and the measured angle is that of elevation. (06)
- (B) A tacheometer fitted with an anallatic lens and having a multiplying constant of 100 was set up at R which is an intermediate point on a traverse leg AS. The following readings were taken with the staff held vertically. (06)

Staff station	Bearing	Vertical angle	Intercept	Axial hair reading
A	40°35'	- 4°24'	2.21	1.99
B	22°35'	- 5°12'	2.02	1.90

Calculate the length AB and the level difference between A and B.

OR

- Q-1 (A) Differentiate (i) Fixed hair method and Movable hair method (ii) Plane Surveying and Geodetic surveying. (06)
- (B) A tacheometer is placed at a station A and readings on a staff held vertical upon a B.M. of R.L. = 100.00 m and at a station B are 0.640, 2.200, 3.760 and 0.010, 2.120, 4.230m, respectively. The angle of depression of the telescope in the first case is 6°19' and in the second case is 07°42'. Find the horizontal distance from A to B and the R.L. of station B, if the instrument has constants 100 and 0.5. (06)

- Q-2 (A) What is meant by triangulation? How will you select base line and triangulation stations? (06)
- (B) Explain Reduction to centre in geodetic triangulation. (05)

OR

- Q-2 (A) Explain briefly the different aspects of fieldwork in triangulation. (06)
(B) What is meant by the strength of figure? How would you determine it? (05)

- Q-3 (A) What are the uses of EDM? Describe various instruments used for EDM. (06)
(B) Enlist the rules should be applied for the distribution of errors of the field measurements. (06)

The following are the three angles observed at a station closing the horizon, along with their probable errors of measurements.

Determine their corrected values.

$$\angle A = 85^\circ 13' 10'' \pm 2'', \angle B = 130^\circ 49' 30'' \pm 3'', \angle C = 143^\circ 57' 10'' \pm 4''$$

Section - II

- Q-4 (A) Differentiate between most probable error and residual error. (06)
(B) State and explain the types of stereoscope. (06)

OR

- Q-4 (A) State and prove the principle of least squares. (06)
(B) What is function of aerial camera? Describe schematically its essential parts. (06)

- Q-5 (A) Define: (i)Azimuth (ii)Nadir (iii)Zenith (iv)Latitude (v) Longitude (06)
(B) Define Remote Sensing. Give the applications of Remote Sensing. (05)

OR

- Q-5 (A) Define True value, direct observation, conditioned quantity, Isocentre, Principal point (06)
(B) What is Total Station? State its field applications. (05)

- Q-6 (A) Write short note on Geospatial analysis. (06)
(B) What are the objectives of GIS? Discuss the key component of it. (06)

End of Paper