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B.E./B.Tech(Full Time) DEGREE END SEMESTER EXAMINATIONS, April /May 2011

**GEO INFORMATICS**  
**FOURTH SEMESTER – (REGULATION 2008)**  
**GI 9251 – SURVEYING- II**

29

Time: 3 hrs

Max Marks: 100

**Answer ALL Questions**

**Part – A (10 x 2 = 20 Marks)**

1. What is the advantage of Anallactic Lens?
2. Define Compass Rule
3. List different types of signals used in triangulation and its significance
4. What is meant of satellite station and reduction to centre?
5. How would you measure a horizontal angle by repetition? What are its advantages?
6. Brief about Electronic positioning system.
7. Define Soundings
8. How would you determine the omitted measurements when the affected sides are not adjacent?
9. A Current meter has the rating curve represented by equation  $V = 2N$ , where V is the velocity in m/sec and N is the number of revolutions per second. Determine the velocity at a point in the river if the number of revolutions per minute as counted by the head phone is 100.
10. What is relief? How it is represented in a topographical map.

**Part – B (5 x 16 = 80 Marks)**

11. (i) Explain about modern survey equipments (8 Marks)  
(ii) Differentiate DTM and DEM, and write its uses (8 marks)
  12. (a) What is Gale's Table? Discuss the procedure for recording the various entries in the table. (16 marks)
- (OR)
- (b) (i) Derive the expression for Tangential Tacheometric method (8 marks)  
(ii) A tacheometer set up at an intermediate point on a traverse course PQ and the following observations are made on a vertically held staff.

Staff Station	Vertical Angle	Staff intercept	Axial hair reading
P	+9 ° 30'	2.250	2.105
Q	+6 ° 00'	2.055	1.875

The instrument is fitted with an anallactic lens and the multiplying constant is 100. Compute the length PQ and the reduced level of Q. RL of P = 350.50m  
(8 marks)

13. (a)(i) Explain about Reciprocal Leveling and precise leveling (12 marks)

(ii) Two points A and B are on the opposite banks of a wide river. The following observations were taken in reciprocal leveling.

Instrument at	Staff reading at	
	A	B
A	2.000	3.720
B	0.810	2.420

If RL of A is 200.000, determine RL of B. (4 marks)

(OR)

(b) What is meant by a satellite station and reduction to center? Derive expression for reducing the angles measured at the satellite stations to centre (16 marks)

14. (a) Explain about the methods of locating Soundings. How the Soundings can be plotted using three point problem (16 marks)

(OR)

(b) Explain about Discharge measurement (16 marks)

15. (a) A Closed traverse was conducted round an obstacle and the following observations were made. Work out the missing quantities:

Side	Length in m	Azimuth
AB	-	33°45'
BC	300	86 ° 23'
CD	-	169 ° 23'
DE	450	243 ° 54'
EA	268	317 ° 30'

(16 marks)

(OR)

(b) i) Two triangulation stations A and B are 60 kilometres apart and have elevations

240 m and 280 m respectively. Find the minimum height of signal required at B so that the line of sight may not pass near the ground than 2 meters. The intervening ground may be assumed to have a uniform elevation of 200 meters.

(8 marks)

ii) Two cross sections AB and CD each perpendicular to the base line AC of 250 m length are established for measuring the velocity of flowing water in a river. When the float was on the section AB, the angle AEB measured from a point E on the base line, 100 m from A, was  $50^{\circ}30'40''$ , and the angle CED was  $45^{\circ}35'20''$ . If the time taken by the float to travel the distance BD was 90 seconds, calculate the velocity of water

(8 marks)