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B.E./B.Tech(Full Time) DEGREE END SEMESTER EXAMINATIONS, April /May 2014

**GEO INFORMATICS**

**SECOND SEMESTER – (REGULATION 2012)**

**GI 8202 Plane Surveying**

Time: 3 hrs

Max Marks: 100

**Answer ALL Questions**

**Part – A (10 x 2 = 20 Marks)**

1. What is Well Conditioned triangle? What is its significance?
2. If the length of 250m is measured on a slope of 1 in 4, find the horizontal length.
3. The true bearing of a tower as observed from a station A is  $350^{\circ}30'$ , and the magnetic bearing of the tower is  $2^{\circ}30'$ . The back bearing of the line AB when measured with a prismatic compass was found to be  $330^{\circ}30'$ . What is the true bearing of the line?
4. What are different types of errors in plane table surveying? How would you minimize them?
5. How would you measure a horizontal angle?
6. The constant for an instrument is 850, the value of  $C = 0.5$  m, and intercept  $s = 3$  m. Calculate the distance from the instrument to the staff when the micrometer reading are 4.628 and 4.626 and the line of sight is inclined at  $+ 10^{\circ}36'$ . The staff was held vertical
7. What is Reverse Curve? Where it will be located?
8. What is Clothoid?
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. Differentiate Mine Surveying and Surface Surveying

**Part – B (5 x 16 = 80 Marks)**

11. What is Obstacle in Chain Surveying? How will you overcome it? (16 Marks)
12. (a) A closed compass traverse ABCDE was conducted round a lake and the following bearings were obtained. Determine which of the stations are suffering from local attraction and give the values of the corrected bearings.

Line	FB	BB
AB	74°20'	256°0'
BC	107°20'	286°20'
CD	224°50'	44°50'
DE	306°40'	126°0'

(16 marks)

(OR)

12. (b) What is resection in plane table surveying? Describe any Three Point problem of resection. (16 marks)

13 (a) How will you find the distance and elevation of an object by Trigonometrical Leveling. (16 Marks)

(OR)

(b) (i) Explain how you would determine the constants of a tacheometer. (8 marks)

(ii) An observation with a percentage theodolite gave staff readings of 1.052 and 2.502 for angles of elevation of 5% and 6% respectively. On sighting the graduation corresponding to the height of the instrument axis above the ground, the vertical angle was 5.25%. Compute the horizontal distance and the elevation of the staff station if the instrument station has an elevation of 942.552 meters.

(8 marks)

14 (a) (i) Write about (i) Transition Curve (ii) Vertical Curve (8 marks)

(ii) Discuss about Route Surveying (8 marks)

(OR)

(b) Two tangents intersect at chainage 59+60, the deflection angle being 50°30'. Calculate the necessary data for setting out a curve of 15 chains radius to connect the two tangents if it is intended to set out the curve by offset from chords. Take peg interval equals to 100 links, length of the chain being equal to 20 metres (16 Marks)

15 (a) (i) What is meant by sounding? Discuss about the Velocity measurement? (8 Marks)

(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)

**(OR)**

(b) (i) Write about purposes of Mine Surveying (8 Marks)

(ii) Explain Weisbach Triangle method for transferring surface point to mine (8 Marks)