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**Question Paper Code : 31199**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Third Semester

Civil Engineering

CE 2204/CE 37/10111 CE 307 – SURVEYING – I

(Regulation 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — ( $10 \times 2 = 20$  marks)

1. What are scales?
2. Name the instruments/ accessories needed to carry out a chain surveying.
3. Give the reduced bearing values for the whole circle bearings  $150^\circ$  and  $270^\circ$ .
4. State the advantages of plane table surveying.
5. Define sensitivity of a level tube.
6. What are the temporary adjustments of a dumpy level.
7. What is meant by balancing-in in theodolite surveying?
8. State the different field works to be carried out in theodolite traversing.
9. What is reverse curve? State the situations where these are adopted?
10. State the reasons for preferring parabolic shape for the vertical curves formation.

PART B — ( $5 \times 16 = 80$  marks)

11. (a) (i) Explain the method of carrying out reciprocal ranging. (10)  
(ii) A and B are two points on the opposite banks of a river along a chain line CAB which crosses the river at right angles. The surveyor selects a point D which is 50.10 m from A along the bank and sets a perpendicular CD on the line BD. If the distance CA is 60.50 m, determine the distance AB. (6)
- Or
- (b) (i) Brief the methods of dropping a perpendicular from a point to chain line. (10)  
(ii) A chain was tested before starting the survey and was found to be exactly 20 m. At the end of the survey it was tested again and was found to be 20.12 m. Area of the plan of the field, surveyed and drawn to a scale of  $1 \text{ cm} = 6 \text{ m}$  was  $50.4 \text{ cm}^2$ . Find the true area of the field. (6)

12. (a) A closed traverse ABCDE was run and the observed bearings of the lines were obtained as given below. Correct the bearings for local attraction.

Line	CB	BB
AB	72° 45'	252° 00'
BC	349° 00'	167° 15'
CD	298° 30'	118° 30'
DE	229° 00'	48° 00'
EA	135° 30'	319° 00'

Or

- (b) (i) Describe the adjustments to be done in plane table and other accessories to have accurate measurement. (10)
- (ii) Explain the radiation method of plane table surveying with an illustration. (6)
13. (a) Following readings were observed successively with a levelling instrument. The instrument was shifted after 5<sup>th</sup> and 11<sup>th</sup> readings.  
0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 2.575, 3.375, 3.895, 1.745, 0.635 and 1.605.  
Draw up a page of level book and determine the RL of various points, if RL of first point is 134.00 m.

Or

- (b) (i) Explain the effects of curvature and refraction in levelling and their corrections. (10)
- (ii) Discuss the uses of contours. (6)
14. (a) Explain the method of reiteration for horizontal angle measurement.

Or

- (b) The lengths and bearings of lines of closed traverse ABCDE is given below. Determine the length and bearing of line EA.

Line	Length, m	Bearing
AB	194.1	85° 30'
BC	201.2	15° 00'
CD	165.4	285° 30'
DE	172.6	195° 30'

15. (a) Explain the method of setting out a circular curve using two theodolites. What are the advantages and disadvantages of this method.
- Or
- (b) What are the various operations required in mine surveying. Discuss in brief.