Reg. No. : | | | | | | | | | | | | |

Question Paper Code : P 1139

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Third Semester

Civil Engineering

CE 1204 — SURVEYING — I

(Regulation 2004)

Time : Three hours Maximum : 100 marks

Draw neat sketches wherever necessary.

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the principles of surveying?

2. What is meant by well-conditioned triangle?

3. Differentiate between magnetic declination and dip.

4. What do you understand by the term "Traversing"?

5. What are the types of staves?

6. Define the term "Contouring"?

7. What is meant by Transit?

8. Mention the methods to be used in measuring horizontal angles using theodolite?

9. Mention any two instruments used for mine surveying.

10. What is called "transition curve"? Where is it used?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Two points P and Q were selected on the opposite banks of a river. To determine the length of PQ, a line PA was laid down perpendicular to PQ and was measured to be 150 m. Another line AB, point B on the line QP produced, was erected perpendicular to QA. The measured length of PB was found to be 35 m. Determine the length of PQ. (6)

(ii) What is meant by "Ranging"? Under what field conditions, reciprocal ranging is resorted to? Briefly explain. (6)

(iii) Discuss about enlarging and reducing figures. (4)

Or

(b) (i) What are the obstacles encountered in chaining? Explain. (12)

(ii) What are the types of "traversing"? Explain. (4)

12. (a) (i) Compare prismatic compass and surveyor's compass. (6)

(ii) Find the stations which are affected by local attraction. Determine the corrected bearings of the closed traverse. (10)

Line	FB	BB
AB	74°20'	256°00'
BC	107°20'	286°20'
CD	224°50'	44°50'
DA	306°40'	126°00'

Or

(b) (i) List out the merits and demerits of plane table surveying. (4)

(ii) Explain the three point problem by Bessel's method. (10)

(iii) Define : "Triangle of error". (2)

13. (a) (i) Calculate the R.L. of each point and apply the usual checks, for the following dumpy level consecutive readings. The instrument having been shifted after the fourth and eighth readings. The first reading was taken on the B.M. of 822.720 m

0.885, 1.640, 2.890, 3.010, 0.955, 0.695, 0.585, 0.255, 1.535, 1.000, 2.140. (12)

(ii) List out the permanent adjustments of levelling instrument. (4)

Or

(b) (i) The following perpendicular offsets were measured from a chain line to an irregular boundary. Calculate the area between the chain line and the irregular boundary using (12)

(1) Trapezoidal rule and

(2) Simpson's rule.

Chainage (m) :	0	20	40	60	80	100
Offset (m) :	2.4	1.8	3.6	2.8	3.2	2.0

(ii) Discuss briefly about the characteristics of contour. (4)

14. (a) A traverse ABCD was to be run but due to an obstruction between the stations A and B, it was not possible to measure the length and direction of the line AB. The following data could only be obtained.

Line	Length (m)	R.B.
AB	44.5	N 50°20' E
DC	67.0	S 69°45' E
CB	61.3	S 30°10' E

Determine the length and the direction of BA. Also determine the perpendicular distances of C from AB.

Or

(b) (i) Explain the method of repetition and reiteration methods. (6)

(ii) List out the permanent adjustments of a Theodolite. And explain any two of them. (2 + 8)

15. (a) (i) Explain the different stages of Route Surveys for new highway project. (12)

(ii) Draw the simple curve and mark the components. (4)

Or

(b) (i) Calculate the necessary data for setting out a circular curve of 300 m radius between the roads, by perpendicular off set method. The deflection angle (Δ) of two straight roads is 50°. (8)

(ii) Explain the double Theodolite method of setting out of simple curve. (8)
