D 4026

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Third Semester

Civil Engineering

CE 1204 — SURVEYING — I

(Regulation – 2004)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a well-conditioned triangle?

2. What are offsets? Name the types.

3. What is meant by local attraction? How is it checked?

4. What is two-point problem?

5. Differentiate between a level line and horizontal line.

6. Write down the prismoidal formula for finding out the volume using a contour map.

7. What do you understand by the name transit theodolite?

8. What are latitudes and departures?

9. What are shafts? Where are they used?

10. Where are reverse curves employed?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Briefly explain the procedure for recording data in a chain survey field book. (6)

(ii) Explain the method of reciprocal ranging. (10)

Or

(b) What are the obstacles encountered during a chain survey? Explain how they are overcome.

12. (a) (i) Compare Prismatic Compass and Surveyor's Compass. (4)

(ii) The following bearings were recorded while conducting a closed traverse using a compass. Find out the stations affected by local attraction and determine the corrected bearings. (12)

Line	AB	BC	CD	DA
FB	45° 45'	96° 55'	29° 45'	324° 48'
BB	226° 10'	277° 05'	209° 10'	144° 48'

Or

(b) (i) State Three point problem. Explain Bessel's method of conducting the same. (8)

(ii) How is plane table surveying different from other types of surveying? Where is it best suited? (8)

13. (a) (i) Describe the method of balancing sight on a slope. (6)

(ii) The following readings were taken with a level and a 5 m leveling staff on a slopping ground at 20 m intervals. Enter the readings in a page of a level book and find the gradient of the line joining the first and the last point. The R.L. of the first point is 200.000 m Adopt height of collimation method. (10)

0.380, 1.035, 1.930, 2.850, 3.775, 4.690, 0.625, 2.015, 3.160, 4.890.

Or

(b) (i) Explain with neat sketches how is leveling is done in the following circumstances.

(1) Taking level of an overhead point.

(2) Levelling past a high wall. (6)

(ii) The following perpendicular offsets were taken at 10 m intervals from a survey line to an irregular boundary. Calculate the area enclosed between the survey line, the end offsets and the boundary by trapezoidal method and Simpson's rule.

20.60 m, 12.40 m, 29.20 m, 18.80 m, 10.20 m. (10)

14. (a) Write in detail about the following permanent adjustments.

(i) Adjustment for vertical axis.

(ii) Adjustment for line of collimation.

(iii) Adjustment for horizontal axis.

Or

15.

(b) The following data refers to a closed traverse survey using a theodolite. Using Gales' traverse table, balance the traverse.

AB = 250 m, BC = 123 m, CD = 256 m, DA = 108 m

^A = 95° 24', ^B = 88° 42', ^C = 88° 12'. ^D = 88° 06'.

The whole Circle Bearing of AB = 86° 42'.

15. (a) Draw a simple circular curve and mark the salient points. Explain the setting out of curve by two theodolite method.

Or

(b) Briefly explain procedure for setting out a tunnel.
