

C 132

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Third Semester

Civil Engineering

CE 1204 — SURVEYING — I

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw neat sketches wherever necessary.

PART A — (10 × 2 = 20 marks)

1. Differentiate between plane and geodetic surveying.
2. Differentiate between Gunter's Chain (surveyors chain) and Engineer's chain.
3. What is local attraction?
4. Explain the terms : true bearing and magnetic bearing.
5. Name four methods of plane tabling.
6. Define bench mark and reduced level.
7. Define the term : transiting the telescope.
8. Distinguish between closed traverse and open traverse.
9. What are the aims when undertaking setting out operations?
10. What are the three classes of circular curves?

PART B — (5 × 16 = 80 marks)

11. (i) Describe the different kinds of chains used for linear measurements. (8)
- (ii) A steel tape 20 m long standardized at 55° F with a pull of 10 kg was used for measuring a base line. Find the correction per tape length, if the temperature at the time of measurement was 80° F and the pull exerted was 16 kg. Weight of 1 cc of steel = 7.86 gm, Weight of tape = 0.8 kg and $E = 2.109 \times 10^6$ kg/cm². Coefficient of expansion of tape per 1° F = 6.2×10^{-6} . (8)

12. (a) (i) Explain the two common systems of bearings. (8)
 (ii) The following bearings were observed while traversing with a compass.

Line	F.B.	B.B.	Line	F.B.	B.B.
AB	45° 45'	226° 10'	CD	29° 45'	209° 10'
BC	96° 55'	277° 05'	DE	324° 48'	144° 48'

Mention which stations were affected by local attraction and determine the corrected bearings. (8)

Or

- (b) (i) What are the sources of errors in compass survey? (8)
 (ii) Write a note on (1) the earth's magnetic field and Dip (2) Fore and Back Bearing. (8)
13. (a) Explain the different operations involved in working with plane table. (16)

Or

- (b) (i) Explain the radiation and intersection methods of plane tabling. (8)
 (ii) What are the characteristic features of contours? (8)
14. (a) (i) Explain the temporary adjustments for a dumpy level. (8)
 (ii) Explain the special methods of spirit levelling. (8)

Or

- (b) (i) The following consecutive readings were taken with a level and 5 meter levelling staff on continuously sloping ground at a common interval of 20 meters : 0.385; 1.030; 1.925; 2.825; 3.730; 4.685; 0.625; 2.005; 3.110; 4.485 the R.L. of the first point was 208.125 m. Rule out a page of level book and enter the readings. Calculate the R.L's of the points by rise and fall method also the gradient of the line joining the first and last point. (12)
 (ii) List some of the difficulties encountered in levelling. (4)
15. (a) (i) Briefly explain the different methods of adjusting a traverse. (8)
 (ii) With a neat sketch show the different parts of a simple circular curve. (8)

Or

- (b) (i) What is a transition curve? Why this is used?
 (ii) What is meant by 3-4-5 rule? How this is applied to a single roomed building?