

Reg. No. :

C 3136

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

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 do you understand by “working from whole to part”?
2. Explain the construction of a diagonal scale.
3. What is meant by local attraction?
4. Explain the terms : true bearing and magnetic bearing.
5. Name some of the errors in plane tabling.
6. What are the different kinds of bench marks?
7. What is the method of reiteration?
8. What are the methods of traversing?
9. What are the aims when undertaking setting out operations?
10. What is a transition curve?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Describe the different kinds of chains used for linear measurements. (8)
- (ii) What are the common obstacles in chaining? Explain any one method of overcoming each. (8)

Or

- (b) (i) Explain with neat sketches any two instruments for setting out right angles to a chain line. (8)
- (ii) What is a well conditioned triangle? Why is it necessary to use a well conditioned triangle? (8)
12. (a) (i) Write a note on :
- (1) The earth's magnetic field and Dip. (8)
- (2) Fore and Back Bearing.
- (ii) The following bearings were observed while traversing with a compass.

Line	F.B.	B.B.	Line	F.B.	B.B.
AB	75° 05'	254° 20'	CD	165° 35'	345° 35'
BC	115° 20'	296° 35'	DE	224° 50'	44° 05'
EA	304° 50'	125° 05'			

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

Or

- (b) (i) Write a note on :
- (1) the Whole circle bearing system and the Quadrantal bearing system.
- (2) Adjustments of a prismatic compass. (4 + 4)
- (ii) The following are the bearings taken on a closed compass traverse :

Line	FB	BB	Line	FB	BB
AB	80° 10'	259° 0'	BC	120° 20'	310° 50'
CD	170° 50'	350° 50'	DE	230° 10'	49° 30'
EA	310° 20'	130° 15'			

Compute the interior angles and correct them for observational errors. (8)

13. (a) (i) What is meant by contour interval (C.I)? Explain how proper C.I. is to be chosen? (8)
- (ii) With neat sketches explain any two methods of locating the position on plan by solving the three point problem. (8)

Or

- (b) (i) Explain the radiation and Intersection methods of plane tabling. (8)
- (ii) What is a "Planimeter"? Explain how the volume of a reservoir could be determined through plane table and contour surveying. (8)
14. (a) (i) Explain - Simple leveling, Differential Levelling and the systems of reducing of levels. (8)
- (ii) During a construction work, the R.L. at the bottom of a R.C. Chajja had to be determined. The following readings were recorded. Reading on the temporary BM = 1.360 ; Reading on peg on ground = 1.035 ; Change of Instrument ; Reading on peg on ground = 1.246 ; Reading on inverted staff at the bottom of chajja = 2.460. Enter the readings in a level field book page and calculate the R.L. at the bottom of the Chajja. (8)

Or

- (b) A page of a level book was defaced so that the only legible figures were : Consecutive entries in the column of R.L.s : 55.565 (BM) ; 54.985 (TP) ; 55.170 ; 53.670 ; 53.940 (TP) ; 52.180 ; 52.015 ; 51.480 (TP) ; 53.145 ; 54.065 (TBM) ; Entries in the BS column : 1.545 ; 2.310 ; 0.105 ; 3.360 in order from the top of the page. Reconstruct the page as booked and check your work. Calculate the corrected level of the TBM if the instrument is known to have an elevated collimation error of 60" and back and foresight distance averaged 80 and 30 meters respectively.
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) Briefly explain the procedure of positioning of structure. (8)
- (ii) Two tangents intersect at chainage 59 + 60, the deflection angle being 50.5° . Calculate the necessary data for setting out a curve of 15 chains radius to connect the two tangents by the Rankine's method of tangential angles. If the theodolite has a least count of $20''$, tabulate the actual readings of deflection angles to be set out. Normal chord is 20 m length. (8)
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