S. M

Reg. No. :

Question Paper Code : 97028

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

Third Semester

Civil Engineering

CE 6304 — SURVEYING – I

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What is the difference between plane surveying geodetic surveying?

2.   What is meant by well conditioned triangle?

3.   Define Dip and Declination.

4.   State the three point problem.

5.   Define datum.

6.   What do you mean by positive RL and negative RL?

7.   Define contour interval.

8.   State mass diagram.

9.   Write down the steps in temporary adjustments of theodolite surveying.

10. In equation $D = KS + C$, what are represented by D, K, S and C.

PART B — (5 × 16 = 80 marks)

11. (a) (i)   Explain the method of reciprocal ranging.   (6)

         (ii) A survey line PQ intersects a pond. To overcome this obstacle two
               stations A and B were taken on either side of the pond. A line AC,
               90 m long was laid down on the left of AB, and a second line AD,
               130 m long was laid down on the right of AB. If points C, B and D
               are on the same straight line and CB = 75 m and BD = 78m,
               determine the length AB.   (10)

                                      Or

     (b) What are the different sources of error in chain surveying? Distinguish
          between cumulative and compensating errors.   (16)

12. (a) The bearings of the sides of a traverse ABCDE are as follows :

Side	Fore bearing	Back bearing
AB	107° 15'	287° 15'
BC	22° 0'	202° 0'
CD	281° 30'	101° 30'
DE	189° 15'	9° 15'
EA	124° 45'	304° 45'

Compute the interior angles of the traverse. (16)

Or

(b) Explain briefly the following methods of solution of three point problem : (16)

(i) Bessel's graphical method

(ii) Trial and error method.

13. (a) The following consecutive readings were taken with a level and 4m levelling staff ground at common interval of 30m as 0.725 on A, 0.955, 2.875, 3.785, 3.835, 0.865, 1.035, 1.785, 2.625, 3.845, 0.965, 1.575 and 2.015 on B. The elevation of point A is 120.50 m. Makeup level book page, apply usual check and calculate the reduced levels of points. Also calculate the gradient of line AB.

Or

(b) (i) What are the different sources of error in levelling and explain them in detail? (10)

(ii) Write notes on profile leveling and cross sectional levelling. (6)

14. (a) What do you mean by contouring? Describe its characteristics with neat sketch and its uses. (16)

Or

(b) (i) The areas enclosed by contours on the upstream face of dam in a hydro-electric project as

Contour(m)	800	790	780	770	760	750	740	730
Area (hectares)	31.41	26.74	24.89	22.23	19.37	17.74	12.91	5.35

The lowest draw down level is 733 m. Compute the full reservoir capacity. (8)

(ii) State and derive the Simpson's rule and write down its limitations. (8)

15. (a) Draw a neat diagram of transit theodolite and describe its essential parts. (16)

Or

(b) Derive the expressions for horizontal and vertical distances by stadia method when the line of sight is inclined, but staff is held vertically and considering the angle of elevation. (16)

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