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Question Paper Code : 55239

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2011.

Third Semester

Civil Engineering

CE 2204 — SURVEYING - I

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by scale in surveying?
2. Define and distinguish between plane and geodetic surveying
3. What is meridian? Name the types.
4. What is alidade? State its uses.
5. What is profile levelling? State its application.
6. State the necessity of making, balancing of backsights and foresights.
7. What is meant by parallax?
8. Name the temporary adjustments in a transit.
9. What are transition curves?
10. Draw a neat sketch showing a simple circular curve and show essential notations.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the method of ranging by using a line ranger. (6)
 (ii) Discuss the methods of chaining across an obstacle to both chaining and ranging. (10)

Or

- (b) (i) Determine the sag correction for a 30 m steel tape under a pull of 80 N in 3 bays of 10 m each. The area of the cross section of the tape is 8 mm^2 and the unit weight of steel may be taken as KN/m^3 . (6)

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- (ii) A and B are two points on the opposite sides of a pond. The surveyor establishes a line AC clear of the pond such that B is visible from C. He establishes another point D on the line CB produced so that the line AD is also clear of the pond. If the distances AC, CB, BD and DA are 300 m, 150 m, 175 m and 250 m respectively, determine the distance AB. (10)

12. (a) The following bearings were observed in running a closed traverse

Line	Fore Bearing	Back Bearing
AB	$75^\circ 5'$	$254^\circ 20'$
BC	$115^\circ 20'$	$296^\circ 35'$
CD	$165^\circ 35'$	$345^\circ 35'$
DE	$224^\circ 50'$	$44^\circ 5'$
EA	$304^\circ 50'$	$125^\circ 5'$

At what stations do you suspect the local attraction? Find the correct bearings. If the declination was $5^\circ 10' \text{ E}$, what are the true bearings.

Or

- (b) (i) What is orientation of plane table? Name the methods and explain any one of it. (6)
 (ii) What are the different types of errors in plane table surveying? How would you minimise them? (10)

13. (a) Following readings were observed successively with a levelling instrument. The instrument was shifted after fifth and eleventh readings
 0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 2.575, 3.375, 3.895, 1.735, 0.635 and 1.605.

Draw up a page of level book and determine the R.L. of various points if the RL of the point on which the first reading was taken is 135.000 m.

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Or

- (b) (i) Explain the indirect methods of contouring. (10)
 (ii) A series of offsets were taken from a chain line to a curved boundary line at intervals of 15 m in the following order
 0, 2.65, 3.80, 3.70, 4.65, 3.60, 4.95 and 5.85 m
 Compute the area between the chain line, curved boundary and end offsets by trapezoidal rule and Simpson's rule. (6)

14. (a) Explain the various methods of horizontal angle using a theodolite.

Or

- (b) It is not possible to measure the length and fix the direction of a line AB directly on account of an obstruction between the stations A and B.

A traverse ACDB was therefore run and following data was obtained.

Line	Length (m)	Reduced Bearing
AC	45	$N 50^\circ E$
CD	66	$S 70^\circ E$
DB	60	$S 30^\circ E$

Find the length and direction of line BA.

15. (a) Two straight lines having an intersection angle of $25^\circ 12'$ are to be connected by a circular curve of radius 500 m. If the chainage of the intersection point is 1000 m, calculate the data for setting out the curve by

- (i) deflection distances method and
 (ii) tangential angles method. Take the normal chord as 20 m.

Or

- (b) Discuss the various surveying to be carried out for an engineering project.

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