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Question Paper Code : 41002

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Third Semester

Civil Engineering

080100012 — SURVEYING — I

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the principles of surveying?
2. The distance AB on the ground as measured on a plan drawn to a scale of 1 cm = 50 m was found to be 500 m. Later it was detected that the surveyor wrongly used a scale of 1 cm = 40 m in the calculations. Find the true length of the line.
3. Differentiate between 'true meridian' and 'magnetic meridian'.
4. What temporary adjustments are to be carried out in plane table surveying?
5. What is a 'saddle'?
6. Find the combined correction for curvature and refraction for distance of 400 m and 3 km.
7. Distinguish between 'collimation in azimuth test' and 'spire test'.
8. What is meant by 'balancing a traverse'?
9. What is a 'broken-bone' curve?
10. Define 'stopping sight distance'.

PART B — (5 × 16 = 80 marks)

11. (a) How survey has been classified? Explain each survey briefly. (16)

Or

- (b) (i) The distance measured between two points on a sloping ground is 450 m. Find the correction to be applied and the horizontal distance if the angle of slope is 10° , if the slope is 1 in 5 and if the difference in elevation between the two points is 45 m. (8)

- (ii) An offset is laid 4° out from its true direction in the field. Find the resulting displacement of the plotted point on the plan for the following cases, if the offset measured was 8.0 m and the scale of plotting was 6 m to 1 cm, in the direction parallel to the chain line, in the direction perpendicular to the chain line. (8)

12. (a) (i) The bearings observed in traversing with a compass at a place where local attraction was suspected are given below. (10)

Line	Fore Bearing	Back Bearing
AB	S $45^\circ 30'$ E	N $45^\circ 30'$ W
BC	S $60^\circ 00'$ E	N $60^\circ 40'$ W
CD	N $03^\circ 20'$ E	S $05^\circ 30'$ W
DA	S $85^\circ 00'$ W	N $83^\circ 30'$ W

At what stations do you suspect local attraction? Find the corrected bearing on the line.

- (ii) Compare chain surveying and compass surveying. (6)

Or

- (b) What are the various methods of resection? Explain them briefly. (16)

13. (a) A dumpy level was setup midway between two peg points 80 m apart. The readings on the staff at the two pegs were 3.200 m and 3.015 m respectively. The instrument was then moved by 20 m ahead of the second peg, in line with the two pegs. The respective staff readings were 2.825 m and 2.690 m. Calculate the staff readings on the two pegs to provide a horizontal line of sight. (16)

Or

- (b) Discuss in detail, the methods of direct and indirect contouring. (16)

14. (a) Enlist the sources of errors in a theodolite survey. (16)

Or

- (b) In a four sided closed traverse ABCDA, the following information is given : (16)

Side	Length (m)	Deflection Angle	Bearing	Co-ordinates
AB	160	?	S 40° W	?
BC	340	116° (L)	?	26500 S } Point B 22400 W }
CD	210	60° (L)	?	?
DA	?	?	?	?

Fill the missing data.

15. (a) (i) State the functions of a transition curve. (6)
(ii) Explain the methods used for determining the length of a transition curve. (10)

Or

- (b) (i) Describe the methods for setting out of a building. (10)
(ii) Brief the steps involved in mine surveying. (6)