(4)

Determine the missing bearings from the following data :

Line	Length (m)	W.C.B
AB	550	60°00'
BC	1200	?
CD	880	?
DE	1050	310°00'

20

Section–D

8. A tacheometer is placed at a station A and readings on staff held vertical upon a B.M. of R.L. 100.20m and at station B are 0.640, 2.200, 3.760 and 0.010, 2.120, 4.230m, respectively. The angle of depression of the telescope in the first case is 6°19' and in the second case is 7°42'. Find the horizontal distance from A to B and R. L. of station B, if the instrument has constants 100 and 0.5. 20

9. (a) What do you mean by vertical curve ? Explain the different types of vertical curves with neat sketches. 10

(b) Two tangents meet at chainage 1022 m; the deflection angle is 36°. A circular curve of radius 300m is introduced in between them. Find the following :

(i) Tangent length
(ii) Chainage of the tangent points
(iii) Length of the circular curve. 10

B. Tech. 3rd Semester Civil Engg. Examination, December – 2016

SURVEYING–I

Paper–CE–207–F

Time allowed : 3 hours] [Maximum marks : 100

Note : (i) Question No. 1 is compulsory. Attempt one question from each section.

(ii) All questions carry equal marks.

(iii) Assume missing data, if any, suitably.

1. (a) Working from whole to the part
(b) Difference between WCB and QB
(c) Face left and face right
(d) Tapes and its types
(e) Differentiate fly leveling and profile leveling
(f) Tacheometric constants
(g) Compound circular curve
(h) Enumerate the instruments used in plane table surveying
(i) Necessity of vertical curves
(j) Local attraction. 20

Section–A

2. (a) A 30 m long steel tape was standardized at a temperature of 20°C and with a pull of 100N. the tape was measured a distance AB when the temperature was 45°C and the pull was 150 N.

P.T.O.

the tape was supported at the ends only. Compute the corrections per tape length if cross-sectional area of tape is 4mm², the unit weight of the tape material is 0.0786N/mm³, $E = 2.109×10^6$ kN/m² and co-efficient of expansion of tape per 1°C $= 11.5×10^{-6}$. 15

(b) What do you mean by chainage and offset? Describe in brief. 5

3. (a) A 30 m chain was tested before starting the day's work and found to be 20 cm too short. After measuring a length of 1200m, the chain was tested again and was found to be 10 cm too long. At the end of day's work the chain was tested again and was found to be 30 cm too long. Find the true length of the line if the total length measured was 2648m. 15

(b) Define surveying. Explain the classification of surveying in detail. 10

Section–B

4. (a) The following are bearing taken on a closed compass traverse.

Line	F.B.	B.B.
AB	124° 30'	304°30'
BC	68°15'	246°00'
CD	310°30'	135°15'
DA	200°15'	17°45'

Compute the correct bearings of the lines and included angles. 10

(b) Define the following :
(i) True meridian and magnetic meridian 10
(ii) Fore bearing and back bearing
(iii) Declination and dip.

5. (a) The following staffs were observed successively with a level, the instrument having been moved after third and sixth readings.
1.585, 1. 315, 2. 305, 1,325, 1. 065, 1.815 and 2.385m.
Enter the above reading in page of level book and calculate the R.L. of remaining points if the first reading was taken with a staffheld on a bench mark of 216.0950m. 10

(b) Explain the direct and indirect methods of contouring. What are the advantages and disadvantages of these methods? 10

Section–C

6. (a) State the three point problem. Explain how it is solved by the graphical method? 10

(b) Explain the methods used for measuring the horizontal angles of a traverse. 10

7. For a closed traverse ABCDA, the bearings of lines BC and CD could not be measured due to an obstruction.