

- (b) Write any *four* disadvantages of chain surveying.
- (c) Write any *four* uses of contour map.
- (d) What is reduced level ? Explain with an example.
- (e) How to find the tachometer constant ?
- (f) Write any *four* disadvantages of traversing.
- (g) What is transition curve ?
- (h) List of different types of curve.
- (i) What is theodolite ? Explain any *two* uses of theodolite.
- (j) Write down the working principle of planimeter.

Roll No.

Total Pages : 04

Sep-21-00019

B.Tech. EXAMINATION, 2021

Semester III (CBCS)

ENGINEERING SURVEYING—I

CE-303

Time : 2 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within 20 pages only (A4 size sheets/assignment sheets), no extra sheet allowed. The candidates should write only on one side of the page and the back side of the page should remain blank. Only blue ball pen is admissible.

Note : Attempt *Four* questions in all, selecting *one* question from any of the Sections A, B, C and D. Q. No. **9** is compulsory.

Section A

- 1. (a) What are the points to be kept in mind while selecting survey stations ? 7½
- (b) What precautions should be taken while taking field notes ? 7½

2. What is Compass ? Explain any *eight* parts of prismatic compass with a diagram. **15**

Section B

3. What are the different methods of plane table surveying Explain each with diagram. **15**
4. The following staff readings were observed successively with level, the instrument having been moved forward after the second, fourth, eight and eleventh reading : 0.875, 1.235, 1.295, 1.7850, 2.310, 1.385, 2.930, 3.125, 4.125, 0.120, 1.875, 2.030, 2.582 and 3.765. The first reading was taken with the staff held upon a benchmark of elevation 132.135. Find the reduced level at each point and apply usual checks (solve by both method). Also find the difference in level between the first and the last points. **15**

Section C

5. What are the different steps of permanent adjustment of transit theodolite ? Explain with a diagram. **15**
6. Explain any *two* methods of setting out of curves. What is transition curve ? Determining length of transition curve by any two conditions. **15**

Section D

7. The following offsets were taken at 15 m intervals from a survey line to an irregular boundary line : 3.50, 4.30, 6.75, 5.25, 7.50, 8.80, 7.90, 6.40, 4.40, 3.25 m. Calculate the area enclosed between the survey line, the irregular boundary line, and the offsets, by :
- (a) The trapezoidal rule
 - (b) Average ordinate rule
 - (c) Simpson's 1/3 rule. **15**
8. The chainage of the intersection point of two straights is 1060 m, and the angle of intersection is 120° . If radius of a circular curve to be set out is 570 m, and peg interval is 30 m, determine the tangent length, the length of the curve, the chainage at the beginning and end of the curve, the length of the long chord, the lengths of the sub-chords, and the total number of chords. **15**

(Compulsory Question)

9. Attempt all questions : **$1\frac{1}{2} \times 10 = 15$**
- (a) Define true meridians, magnetic meridians, declination and dip with diagram.