

Roll No.

3029

**B. Tech. 3rd Semester (Civil Engg.)
Examination – March, 2021**

SURVEYING

Paper : PCC-CE-207-G

Time : Three Hours]

[Maximum Marks : 75

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

*Note : Attempt five questions in all, selecting one question from each Section. Question No. 1 is compulsory.
All questions carry equal marks.*

1. Describe the following : 15
- (a) Types of tape corrections
 - (b) Differentiate fly leveling and profile leveling
 - (c) Refraction and curvature
 - (d) Advantages of plane table surveying
 - (e) Types of transition curves
 - (f) Uses of theodolite

3029- 1400 -(P-4)(Q-9)(21)

P. T. O.

SECTION - A

2. (a) Define surveying. Explain the classification of surveying on different basis. 7
- (b) What is the necessity of chain surveying? Describe the different instruments used for measurement in chain surveying? 8
3. The bearings observed for a closed traverse are given below. Give the corrected bearings by the method of included angles. 15

Line	F. B	B. B
AB	191°30'	13°00'
BC	69°30'	246°30'
CD	32°15'	210°30'
DE	262°45'	80°45'
EA	230°15'	53°00'

SECTION - B

4. Data from a differential levelling have been found starting with the initial reading on B.M. (elevation 150.485m) are as follows: 1.205, 1.860, 0.125, 1.915, 0.395, 2.615, 0.880, 1.760, 1.960, 0.920, 2.595, 0.915,

2.255, 0.515, 2.305 and 1.170. The instrument was shifted after 3rd, 6th, 10th and 14th readings. Put the data in a complete field note form and carry out reduction of levels by Rise and Fall method. All units are in meters. 15

5. (a) Derive a relationship for axis signal correction. 7
 (b) An instrument has set up at P and the angle of elevation to a vane 4m above the foot of the staff held at Q was $9^{\circ}30'$. $PQ = 2500\text{m}$, RL of instrument axis = 2565.44m. Find RL of staff station. 8

SECTION - C

6. (a) What is plane surveying? What are the instruments used in plane table surveying. 8
 (b) Define contour line. Explain the characteristics of contour lines. 7
7. The record of a closed traverse is given below, with two distances missing.

Line	Length (m)	Bearing
AB	100.5	N $30^{\circ} 30'$ E
BC	?	S $45^{\circ} 00'$ E
CD	75.0	S $40^{\circ} 30'$ W
DE	50.5	S $60^{\circ} 00'$ W
EA	?	N $40^{\circ} 15'$ W

Calculate the lengths of BC and EA.

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-(P-4)(Q-9)(21) (3)

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SECTION – D

8. Following readings were taken by a tacheometer with the staff held vertical. The tacheometer is fitted with an anallactic lens and the multiplying constant is 100. Find out the horizontal distance from A to B and the R.L. of B. 15

Instrument at	Staff station	Vertical angle	Staff readings (m)	Remarks
	B.M.	$-6^{\circ}0'$	1.100, 1.153, 2.060	R.L. of
A	B	$+8^{\circ}0'$	0.982, 1.105, 1.188	B.M.= 976.00 m

9. (a) Draw a neat sketch of a circular curve and describe the different elements of a circular curve. 8
- (b) Enumerate different methods of setting out of vertical curve and explain any two methods. 7