

Final 21-02-2022

Course Code: 1930111

Roll No:

MLRS- R19



# MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

II B.Tech I Sem Supplementary Examination, February-2022

## Surveying & Geomatics

(CIVIL)

Time: 3 Hours.

Max. Marks: 70

Note: 1. Answer any FIVE questions.

2. Each question carries 14 marks and may have a, b as sub questions.

- 1 a) Explain with sketch, ranging a line if the end stations are not intervisible 7M CO BL2  
Two points A and D are connected by a traverse survey ABCD and the following records are obtained. AB = 219m; BC = 170.5m; CD =  
b) 245.75m Angle ABC =  $118^{\circ}15'$ ; Angle BCD =  $180^{\circ}40'$ . Assuming that 7M CO BL4  
AB is in meridian, determine: i) The latitude and departure of D relative to A. ii) The length AD. iii) The angle BAD.

The following bearings were taken in running a compass survey.

Line	Fore Bearing	Back bearing			
AB	$124^{\circ}30'$	$304^{\circ}30'$			
BC	$68^{\circ}15'$	$246^{\circ}0'$			
2 CD	$310^{\circ}30'$	$135^{\circ}15'$	14M	CO	BL4
DA	$200^{\circ}15'$	$174^{\circ}45'$			

At what stations local attraction is suspected? Find the correct bearings of the lines and included angles.

- 3 a) Explain the process of profile levelling and cross sectional levelling 4M CO BL2  
The following staff readings were observed successively with level, the instrument having been moved forward after the second, fourth and eighth readings: 0.875, 1.235, 2.310, 1.385, 2.930, 3.125, 4.125, 0.120,  
b) 1.875, 2.030, 3.765. The first reading was taken with the staff held upon 10M CO BL4  
a benchmark of elevation 132.135. Enter the readings in level book-form and reduce the levels. Apply the usual checks. Find also the difference in level between the first and the last points

- 4 Define contour. Explain the characteristics of contour with sketches. 4M CO BL2  
A series of offsets were taken at 3m intervals in the following order from a chain line to a curved boundary 2.16, 1.53, 1.80, 1.98, 1.80, 1.59, 1.80, 2.52, 2.43, 2.40, 2.58, 2.70, 2.91, and 3.06 meters. Find the area 10M CO BL3  
between the chain line, curved boundary and the end offsets by Simpson's rule and trapezoidal rule.

- 5 a) What is transit theodolite and what are the temporary adjustments in Theodolite? 7M CO BL2  
b) How will you measure horizontal angle using theodolite by repetition 7M CO BL2

method and reiteration method?

A theodolite survey of a closed traverse gives the following data. Balance the traverse and also find the independent coordinates of the stations. The fore bearing of line AB is  $30^{\circ}25'$

- | Line | Length (m) | Included angle   |
|------|------------|------------------|
| AB   | 186        | $118^{\circ}20'$ |
| BC   | 164        | $82^{\circ}10'$  |
| CD   | 303        | $137^{\circ}00'$ |
| DE   | 162        | $73^{\circ}44'$  |
| EA   | 240        | $128^{\circ}36'$ |
- 6
- 7 a) What are the common difficulties in setting out simple curves? Describe briefly the methods employed in overcoming them. 7M CO BL2
- b) Explain the two theodolite method of setting out a curve with the help of a sketch. 7M CO BL2
- OR**
- 8 a) What are the fundamental parameters required in Total Station surveying? 7M CO BL2
- b) Explain the principle of Electromagnetic Distance Measurement and describe the types of EDM instruments? 7M CO BL2
- 9 a) List out the various applications and uses of photogrammetry. 7M CO BL2
- b) . Differentiate between aerial and terrestrial photogrammetry. 7M CO BL2
- OR**
- 10 a) Classify Photogrammetry based on sensor system and types of photographs 7M CO BL2
- b) What is relief displacement? Derive an expression for the relief displacement in a vertical photograph. 7M CO BL2

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