



# MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

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

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

## II B.Tech I Sem Supplementary Examination, July-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) Suggest the method to overcome an obstacle in chaining, where vision and chaining both are obstructed. 7M C01 BL2
- b) Distance between two stations when measured with 20m. chain was 1423m. It was afterward found that the chain was 10cm too long. Calculate true distance between two stations. 7M C01 BL3
- 2 Detect the Local attraction at stations and correct the bearings of lines of a traverse ABCDEA. Also calculate included angles. . 14M C01 BL4
- | Line | F.B     | B.B     |
|------|---------|---------|
| AB   | 59°00'  | 239°00' |
| BC   | 139°30' | 317°00' |
| CD   | 215°15' | 36°30'  |
| DE   | 208°00' | 29°00'  |
| EA   | 318°30' | 138°45' |
- 3 a) Explain with sketch six characteristics of Contours. 7M C02 BL2
- b) The following perpendicular offsets were taken at 10m intervals from a survey line AB to an irregular boundary line: 2.50, 3.80, 4.33, 6.76, 5.30, 7.25, 8.95, 8.25 and 5.50. Calculate the area in sqm, enclosed between the survey line, the irregular boundary, the first and the last offsets by i) Simpsons rule ii) the trapezoidal rule 7M C02 BL4
- 4 The following consecutive readings were taken with a level and 5m levelling staff on a continuously slopping ground at a common interval of 20 m, :0.385 (@A), 1.030, 1.925, 2.825, 3.730, 4.685, 0.625, 2.005, 3.110, 4.485 (@B). Prepare a page of field book and calculate the reduced level of points if first reading was taken on a bench mark of RL 208.125 m. Apply usual checks. Determine the gradient of the line AB. 14M C02 BL4
- 5 a) Describe briefly about temporary and permanent adjustments of theodolite 7M C03 BL2
- b) The length and bearing of a closed traverse is conducted where length and bearing of one line are omitted. Calculate the length and bearing of the line EA. 7M C03 BL4
- | Line | Length (m) | F.B     |
|------|------------|---------|
| AB   | 204.0      | 87°30'  |
| BC   | 226        | 20°20'  |
| CD   | 187        | 280°00' |
| DE   | 192        | 210°03' |
| EA   | ?          | ?       |

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|---|----|--|----|-----|-----|
| 6 | a) | Explain repetition method and reiteration method of measurement of horizontal angle. What are the errors eliminated by the method of repetition?   | 7M | C04 | BL2 |
|   | b) | Explain graphical method of adjustment of closing error of a traverse.   | 7M | C04 | BL2 |
| 7 | a) | Two roads meet at an angle of $127^{\circ}30'$ . Calculate the necessary data for setting out a curve of 15 chains radius to connect the two straight portions of the road if it is intended to set out the curve by chain and offsets only, (using perpendicular offsets methods) | 7M | C04 | BL4 |
|   | b) | Write the advantages and disadvantages of Total Station.   | 7M | C05 | BL2 |
| 8 | a) | Explain the basic principle of EDM. Write a brief note on Electromagnetic spectrum   | 7M | C05 | BL2 |
|   | b) | The following readings were taken with a tacheometer on to a vertical staff. Horizontal Distance Stadia Readings<br>46.20 m 0.780; 1.010; 1.240<br>51.20 m 1.860; 2.165; 2.470<br>Calculate the tacheometric constants.  | 7M | C05 | BL3 |

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