

**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech. II Year I Semester Regular Examinations February-2025**

**SURVEYING**

(Civil Engineering)

**Time: 3 Hours**

**Max. Marks: 70**

**PART-A**

(Answer all the Questions 10 x 2 = 20 Marks)

- |   |   |                                                         |     |    |    |
|---|---|---------------------------------------------------------|-----|----|----|
| 1 | a | Define surveying.                                       | CO1 | L1 | 2M |
|   | b | Make a note on non-metric chain.                        | CO1 | L1 | 2M |
|   | c | Define contour gradient.                                | CO2 | L1 | 2M |
|   | d | List out the various methods of calculating the volume. | CO2 | L1 | 2M |
|   | e | What is departure and latitude?                         | CO3 | L1 | 2M |
|   | f | Define omitted measurement.                             | CO3 | L1 | 2M |
|   | g | How a curve is designated?                              | CO5 | L1 | 2M |
|   | h | List out the applications of total station.             | CO5 | L1 | 2M |
|   | i | Define focal length.                                    | CO6 | L1 | 2M |
|   | j | Mention the various types of photogrammetry.            | CO6 | L1 | 2M |

**PART-B**

(Answer all Five Units 5 x 10 = 50 Marks)

**UNIT-I**

- |           |   |                                                     |     |    |     |
|-----------|---|-----------------------------------------------------|-----|----|-----|
| 2         |   | Explain in detail the classifications of surveying. | CO1 | L2 | 10M |
| <b>OR</b> |   |                                                     |     |    |     |
| 3         | a | Write short notes on dip and declination.           | CO1 | L1 | 6M  |
|           | b | Define bearing & mention the types of bearing.      | CO1 | L1 | 4M  |

**UNIT-II**

- |   |   |                                                                        |     |    |    |
|---|---|------------------------------------------------------------------------|-----|----|----|
| 4 | a | Mention the various types of levels and explain briefly tilting level. | CO2 | L1 | 5M |
|   | b | Write short notes on methods of leveling.                              | CO2 | L1 | 5M |

**OR**

- |   |  |                                                                                                                                                                                                                                                                                                                                                                                                    |     |    |     |
|---|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|-----|
| 5 |  | The following perpendicular offsets were taken at 10m intervals from a survey line to an irregular boundary line: 3.25, 5.60, 4.20, 6.65, 8.75, 6.20, 3.25, 4.20 and 5.65m. Calculate the area enclosed between the survey line, the irregular boundary line and the first and the last offsets, by the application of (i) Average ordinate rule, (ii) Trapezoidal rule, and (iii) Simpson's rule. | CO2 | L4 | 10M |
|---|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|-----|

### **UNIT-III**

- 6 Derive an expression to find the height of an object by double plane method. **CO3 L3 10M**

**OR**

- 7 Mention the various methods used for the measurement of angles in a theodolite traverse. Briefly explain the methods of included angles. **CO4 L2 10M**

### **UNIT-IV**

- 8 Explain the various elements of a simple curve with a neat sketch. **CO5 L2 10M**

**OR**

- 9 A compound curve is made up of two arcs of radii 380 m and 520 m. The deflection angle of the combined curve is  $105^\circ$  and that of the first arc of radius 380 m is  $58^\circ$ . The chainage of the first tangent point is 848.55 m. Find the chainage of the point of intersection, common tangent point, and forward tangent point. **CO5 L2 10M**

### **UNIT-V**

- 10 a Write short notes on basic concepts of photogrammetric surveying. **CO6 L1 5M**  
b Discuss about the perspective geometry of aerial photograph. **CO6 L2 5M**

**OR**

- 11 Explain in detail about radial triangulation. **CO6 L2 10M**

**\*\*\* END \*\*\***