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

**B.Tech II Year I Semester Supplementary Examinations June 2019**  
**SURVEYING**  
(Civil Engineering)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)**UNIT-I**

- 1 a Briefly explain the principles of surveying. 4M  
 b A steel tape was exactly 30 m long at 20°C when supported throughout its length under a pull of 98N. A line was measured with this tape under a pull of 147N and at a mean temperature of 32°C and found to be 780 m long. The cross-sectional area of the tape = 0.03 cm<sup>2</sup>, and its total weight = 6.8N. For steel  $\alpha = 11 \times 10^{-6}$  per °C and  $E$  for steel =  $20.58 \times 10^6$  N/cm<sup>2</sup>. Compute the true length of the line if the tape was supported during measurement (i) at every 30 m (ii) at every 15 m. 8M

**OR**

- 2 a Explain three-point problem with sketches. 7M  
 b Write down different types of errors in Surveying. 5M

**UNIT-II**

- 3 a Briefly explain the temporary adjustment of leveling. 4M  
 b The following consecutive readings were taken with a dumpy level on a continuously sloping ground at common intervals of 30 m 0.905 (point A), 1.745, 2.345, 3.125, 3.725, 0.545, 1.390, 2.055, 2.955, 3.445, 0.595, 1.015, 1.850, 2.655, 2.945 (point B). The RL of A was 395.500 m. Tabulate the page of field book and calculate the levels of the points. 8M

**OR**

- 4 a Mention the uses of contours in civil engineering works. 6M  
 b Describe in detail how you would proceed in the field for:  
 (i) profile leveling (ii) reciprocal leveling. 6M

**UNIT-III**

- 5 a What do you mean by contour and contour interval? State the various characteristics of contour lines. 6M

Station Point	Reading on BM (m)	Vertical Angle	R.L of BM
A	1.085	10°48'	R.L of BM = 150.000m
B	1.265	7°12'	AB=50 m

- b Give a list of the permanent adjustments of a transit theodolite. 6M

**OR**

- 6 a What is the principle of Tacheometry? 6M  
 b Enumerate the parts of the Transit Theodolite. Explain in detail. 6M

**UNIT-IV**

- 7 a Describe with sketch the method of setting a simple circular curve by Rankine's deflection angle method. 7M  
 b Derive the expression for the elements of a compound curve. 5M

**OR**

- 8 a Write short notes on reverse curves. 4M  
 b Two tangents AB and BC intersect at a point B at chainage 150.5 m. calculate all the necessary data for setting out a circular curve of radius 100 m deflected angle 30° by the method of offsets from the long chord. 8M

**UNIT-V**

- 9 a How will you measure the horizontal angle and vertical angle by using total station? 8M  
 b Explain in brief about transit time. 4M

**OR**

- 10 a Describe in detail about the Visible light instrument. 8M  
 b Write short notes on total stations. 4M

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