

Code No: RT21015

**R13****SET - 1****II B. Tech I Semester Supplementary Examinations, May/June - 2016****SURVEYING**

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
2. Answer **ALL** the question in **Part-A**  
3. Answer any **THREE** Questions from **Part-B**

**PART -A**

1. a) What are the survey stations?  
b) What is the purpose of traversing?  
c) Define reciprocal leveling  
d) How will you find the constants of a tacheometer?  
e) What is meant by Degree of curve?  
f) Write the method of a computation of volume of earthwork

**PART -B**

2. a) Differentiate clearly between plane and geodetic surveying.  
b) Distinguish clearly between cumulative and compensative errors.
3. A nominal distance of 30m was set out with a 30m steel tape from a mark on the top of one peg to a mark on the top of another, the tape being in catenary under a pull of 10kg and at a mean temperature of 70°F. The top of one peg was 0.25m below the top of other. The top of higher peg was 460m above mean sea level. Calculate the exact horizontal distance between the marks on the two pegs and reduce it to mean sea level, if the tape was standardized at a temperature of 60°F, in catenary, under a pull of (a) 8 Kg , (b) 12 Kg, (c) 10 Kg.  
Take radius of earth = 6370 Km  
Density of tape = 7.86 g/cm<sup>3</sup>.
4. a) Differentiate between permanent and temporary adjustments of level.  
b) Discuss the effects of curvature and refraction in levelling. Find the correction due to each and the combined correction.
5. Explain how would you measure with theodolite:  
a) Horizontal angle by repetition  
b) Vertical angle  
c) Magnetic bearing of line.
6. Calculate the reduced levels of the various station pegs on a vertical curve connecting two uniform grades of +0.5% and -0.7%. The Chainage and the reduced level of the point of intersection are 500m and 330.750m respectively. Take the rate of change of grade as 0.1% per 30m.
7. Derive an expression for trapezoidal formula for volume. Compare it with the prismoidal formula.

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