

**II B.Tech I Semester(R07) Supplementary Examinations, May/June 2010**  
**SURVEYING**  
**(Civil Engineering)**

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Write short note on simple clinometers.  
 (b) A chain line ABC crosses a river, B and C being on the near and distant banks respectively. The respective bearings of C and A taken at D, a point 60 m measured at right angles to AB from B are  $280^0$  and  $190^0$ , AB being 32 m. Find the width of the river. [6+10]
2. (a) A tape is 30m at a standard tension of 100N, and its cross-section 6.0 mm×0.2 mm. If the applied tension is 80 N, and  $E=1.95 \times 10^5 \text{ N/mm}^2$ , calculate the correction.  
 (b) Calculate the horizontal length between two supports approximately level if the measured length is 50.441 m. The tape has a mass of 0.615 kg and the applied tension is 80 N. [8+8]
3. (a) Describe the methods of reducing the levels, and their relative advantages and disadvantages.  
 (b) Explain the importance of hand signals in levelling. [8+8]
4. (a) How the area of a plot is computed when the offsets are taken at equal intervals?  
 (b) Differentiate between a two-level section and a three-level section drawing neat sketches. [8+8]
5. (a) Two points P and Q are 9500m apart. Find the difference of levels of P and Q and the correction due to curvature of the earth and refraction from the following:  
 Angle of elevation at P =  $0^0 0' 12''$   
 Angle of depression at Q =  $0^0 02' 48''$   
 Heights of instrument at P and Q = 1.30m  
 Heights of signal at P and Q = 3.50 m  
 Radius of earth = 6367 KM  
 (b) What is the advantage of the fast needle method over loose needle method? [16]
6. (a) Two sets of tacheometric readings were taken from an instrument station A, the reduced level of which was 150.06m to a staff station B:  
 i. Instrument P- multiplying constant 100, additive constant 0.08m, staff held vertical  
 ii. Instrument Q- Multiplying constant 95, additive constant 0.10m, staff held normal to the line of sight.  

Instrument	At	To	Ht.of instrument	Vertical angle	Staff readings(m)
P	A	B	4.52	$30^0$	0.35, 3.31, 4.27
Q	A	B	4.47	$30^0$	

 What should be the stadia readings with instrument Q?  
 (b) Explain the use of tacheometer in contour surveying? [16]
7. (a) What are the common difficulties in setting out simple curves? Describe briefly the method employed in overcoming them?  
 (b) Define the following terms:  
 i. Point of Curvature  
 ii. Point of Tangency  
 iii. Mid-ordinate  
 iv. Point of compound curvature. [16]
8. Describe in brief the working and salient features of a Wild Tachymat electronic total station? [16]

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