

**B.Tech. CIVIL ENGINEERING (BTCLEVI)**

**Term-End Examination**

**June, 2015**

00056

**BICE-004 : ADVANCE SURVEYING**

*Time : 3 hours*

*Maximum Marks : 70*

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***Note :** Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

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1. (a) What are the applications of hydrographic surveying ? 3
- (b) What is Sounding ? Discuss the equipments required for the measurement of Depth. 2+5

2. To determine the elevation of "A", the following observations were made in a tacheometric survey, the staff being held vertically. The instrument is fitted with an anallactic lens and the value of the constant is 100.

Instrument station	Height of instrument	Staff station	Vertical angle	Staff reading	Remarks
O	1.440	BM	$-5^{\circ}40'$	1.332, 1.896, 2.460	RL of M 158.025
O	1.440	CP	$8^{\circ}20'$	0.780, 1.263, 1.746	
A	1.380	CP	$-6^{\circ}24'$	1.158, 1.617, 2.076	

Calculate the reduced level of A. 10

3. Why are transition curves provided at the ends of a circular curve ? Derive an expression for the length of a transition curve. 3+7
4. Explain "Reduction to Centre" applied to triangulation. 10
5. An instrument was set-up at point A with horizontal sight and when the staff was held at a BM of 500 m, reading was 3.56 m. The distance of point P from A was 2500 m and P was at angle of elevation  $5^{\circ}30'$ . Determine the RL of P. Apply Curvature and Refraction corrections. 10

6. Define the following astronomical terms :  $4 \times 2 \frac{1}{2} = 10$
- (a) The Celestial Horizon
  - (b) Zenith
  - (c) Celestial Equator
  - (d) Latitude
7. Explain the terms "passive remote sensing" and "active remote sensing". Discuss the different types of sensors used in remote sensing. 10
8. Explain the term Aerial Photogrammetry. Write the steps for flight planning for aerial photograph. 10
9. Write short notes on any *two* of the following :  $2 \times 5 = 10$
- (a) Total Station and its various components
  - (b) Types of EDM instruments
  - (c) Types of vertical curves
10. Write short notes on any *four* of the following :  $4 \times 2 \frac{1}{2} = 10$
- (a) Subtense Bar
  - (b) Parallax
  - (c) Primary and Secondary Triangulation
  - (d) Marking a Triangulation Station
  - (e) Radiometric Resolution