

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

December, 2017

00082

BICE-004 : ADVANCE SURVEYING

Time : 3 hours

Maximum Marks : 70

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

1. (a) Discuss the use of an anallactic lens in an external focussing telescope used in tacheometry. What are its advantages and disadvantages ?

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- (b) In tacheometric surveying, the readings of 3 diaphragm webs on a staff held at a distant point were recorded as 0.650, 0.990 and 1.320 metres, the telescope held horizontally. If the multiplying and additive constants were 100 and 0.5 respectively, calculate the distance of the staff from the instrument station. If the RL of instrument station was 25.250 m and height of line of sight was 1.45 m, determine the RL of the staff station.

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2. (a) Explain clearly the procedure of setting out a simple curve by Rankine's method of deflection angles. Derive the expressions for the same. 10
- (b) Explain what is transition curve and where it is used. 4
3. (a) Briefly explain the fundamental quantities measured by total station. How can they be used to find the level and coordinates of an observed station ? 8
- (b) When the gauge reading was 3.65 m, the following soundings were taken :
1.75 m, 3.8 m, 4.5 m, 7.8 m and 8.6 m.
If the gauge reading at L.W.O.S.T is 2.85 m, reduce the sounding to L.W.O.S.T. 6
4. (a) What are the requirements of a site selected for a base line in triangulation survey ? What equipments are necessary to measure a base line accurately ? 8
- (b) Define Remote Sensing and briefly explain the principle of remote sensing. 6
5. (a) Discuss various zones of the Earth with a labelled neat sketch. 8
- (b) Define the following astronomical terms : 6
 - (i) Celestial Horizon
 - (ii) Celestial Poles
 - (iii) Celestial Equator

6. (a) Define the term Photogrammetry. 2
- (b) Derive an expression for distortion due to ground relief in aerial photographs. 5
- (c) Define the term Parallax. Derive the parallax equation. 7
7. Write short notes on any *four* of the following : $4 \times 3 \frac{1}{2} = 14$
- (a) Relief Displacement
- (b) EDM
- (c) Anallactic Lens
- (d) Subtense Method
- (e) Resolution in Remote Sensing
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