

B.Tech. CIVIL ENGINEERING (BTCLEVI)**Term-End Examination****December, 2015****BICE-002 : SURVEYING***Time : 3 hours**Maximum Marks : 70*

Note : *Attempt any seven questions. All questions carry equal marks. Assume missing data, if any.*

1. Discuss the classifications of surveying based on the
 - (a) instruments used,
 - (b) objective of survey, and
 - (c) methods employed. 4+3+3

2. (a) Explain the types and sources of errors in surveying. 4
 - (b) A distance of 2000 m was measured with a 30 m chain. After the measurement, the chain was found to be 10 cm longer. It was found to be 15 cm longer after another 500 m was measured. If the length of the chain was correct before the measurement, determine the exact length of the whole measurement. 6

3. (a) Write the differences between prismatic and surveyor's compasses. 4
- (b) Convert the following quadrantal bearings into whole circle bearings and find their back bearings : 6

N 67 E, S 31 E, N 26 W and S 43 W.

4. The following consecutive readings are taken with a level and a 4 m levelling staff, along continuously sloping line AB at a common interval of 20 m : 0.385, 1.030, 1.925, 2.825, 0.625, 2.005, 3.110. The R.L. of the first point was 200.00 m. Calculate the R.L.s of each point by rise and fall method. 10
5. Enumerate the methods for Plane Table Surveying. Explain any one method in detail with a suitable line diagram. 10
6. (a) The following lengths and bearings were recorded in running a compass traverse ABCD. There are obstacles which prevent direct measurement of bearing and length of line AD.

Line	Length in m	Bearing
AB	485	342°
BC	1720	16°
CD	1050	14°

Calculate the length and bearing of line AD. 8

- (b) Differentiate between Magnetic Bearing and True Bearing. 2

7. (a) Explain the temporary adjustment of transit theodolite. 5
- (b) Define the following terms associated with theodolite survey : 5
- (i) Vertical axis
 - (ii) Horizontal axis
 - (iii) Trunnion axis
 - (iv) Face left observations
 - (v) Axis of plate level tube

8. Write short notes on any *two* of the following : $2 \times 5 = 10$

- (a) Direct and Indirect Ranging
- (b) Reciprocal Levelling
- (c) Effects of Curvature and Refraction

9. Write short notes on any *four* of the following : $4 \times 2 \frac{1}{2} = 10$

- (a) Fast Needle Method
- (b) Accessories for Compass Survey
- (c) Local Attraction
- (d) Field Book
- (e) Offsets
- (f) Correction for Temperature and Pull