| BICE-002 |

B.Tech. CIVIL ENGINEERING (BTCLEVI)

Term-End Examination

June, 2015

00656

BICE-002 : SURVEYING

Time : 3 hours   *Maximum Marks : 70*

*Note : Attempt any **seven** questions. All questions carry equal marks. Assume missing data, if any. Use of scientific calculator is permitted.*

1. (a) What do you understand by surveying ? What are the applications of surveying ?   5

    (b) Distinguish between the following :   5

    (i)   Plans and Maps

    (ii) Geodetic and Plain Surveying

2. (a) Explain the Direct Ranging and Indirect Ranging with suitable diagrams.   6

    (b) The length of a survey line when measured with a chain of 20 m nominal length was found to be 841·5 m When the chain was compared with a standard it was found to be 0·1 m too long. Compute the correct length of the line.   4

3. (a) Explain, with a neat sketch, the working of a prismatic compass.   8

(b) In an old map line AB was drawn to a magnetic bearing of 148° 40′ when the magnetic declination was 3° 20′ East. To what magnetic bearing should the line be set now, if the magnetic declination is 8° 20′ West ? *2*

4. The following data were recorded in running a compass traverse, and the length of AB and CD have been omitted :

Line	Length in m	Bearing
AB	?	33° 45′
BC	300	86° 23′
CD	?	169° 23′
DE	450	243° 54′
EA	268	317° 30′

Determine the omitted quantities. *10*

5. What is Plane Table Surveying ? What are its advantages and disadvantages ? Mention the errors in plane tabling. *10*

6. The following readings were observed successively with a levelling instrument. The instrument was shifted after 5th and 11th readings.

0·585, 1·010, 1·735, 3·295, 3·775,

0·350, 1·300, 1·795, 2·575, 3·375,

3·895, 1·735, 0·635 and 1·605 m.

Determine the R.L. of various points by rise and fall method, if RL of first point is 136·440 m. *10*

7. (a) With the help of a neat sketch, explain the fundamental axes of a theodolite.   5

(b) Define the following terms associated with theodolite survey :   5

    (i) Centring

    (ii) Line of Collimation

    (iii) Transiting

    (iv) Face Right Observation

    (v) Changing the Face

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

(a) Two point problem in plane table survey

(b) Types of cross staffs

(c) Points that should be considered while selecting station points

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

(a) Magnetic Dip

(b) Accessories of a Plane Table

(c) Bench Mark

(d) Loose Needle Method

(e) Correction of Sag and Pull

(f) Local Attraction