

**DIPLOMA IN CIVIL ENGINEERING DCLE (G)**

**Term-End Examination**

00495

**December, 2014**

**BCE-031 : ADVANCED SURVEY**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** *Question number 1 is compulsory. Attempt any four questions from the remaining. Use of scientific calculator is permitted. Assume missing data, if any, suitably.*

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1. Select the most appropriate answer for each of the following multiple choice questions :  $7 \times 2 = 14$

- (a) A closed traverse is balanced if
- (i) Lat = 0, Dip = 0
  - (ii) Lat = 0
  - (iii) Dip = 0
  - (iv) None of the above
- (b) Least Count of Transit Theodolite is
- (i)  $1^\circ$
  - (ii)  $1'$
  - (iii)  $20'$
  - (iv)  $20''$

(c) The length of long chord of a simple circular curve of radius 'R' and deflection angle ' $\Delta$ ' is

(i)  $R \sin \frac{\Delta}{2}$

(ii)  $2R \sin \frac{\Delta}{2}$

(iii)  $R \operatorname{cosec} \frac{\Delta}{2}$

(iv)  $R \sec \frac{\Delta}{2}$

(d) Multiplying constant of the tacheometer is generally kept

(i) 50

(ii) 100

(iii) 200

(iv) None of the above

(e) If R is the radius of a simple circular curve and D is the degree of curve, relation between R and D will be

(i)  $R = \frac{15}{\sin \frac{D}{2}}$

(ii)  $R = \frac{30}{\sin \frac{D}{2}}$

(iii)  $R = \frac{15}{\cos \frac{D}{2}}$

(iv) None of the above

- (f) The term 'GPS' is defined as
- (i) Global Point System
  - (ii) Global Positioning System
  - (iii) General Photo System
  - (iv) None of the above
- (g) Valley curves have convexity
- (i) Downward
  - (ii) Upward
  - (iii) No convexity
  - (iv) None of the above

2. (a) Explain temporary adjustments of a Theodolite. 4
- (b) Draw a neat sketch of a simple circular curve and show its various elements. Write any two relationships between elements of a circular curve. 10
3. (a) Explain the working principles of a subtense bar in tacheometry. 4
- (b) The following table gives the site measurements of a traverse. Calculate the missed lengths. 10

Line	Length (m)	Reduced Bearing
AB	278.60	S 62.68° E
BC	376.40	N 57.60° E
CD	318.40	N 47.13° W
DE	?	N 88.78° W
EA	?	S 21.93° W

4. Calculate all data necessary for setting out a curve of 375 m radius and  $60^\circ$  deflection angle by the method of offsets from chord produced. The peg interval is 30 m. The chainage of point of intersection is 1250 m. 14
5. (a) What are two different types of EDM ? 4
- (b) Enlist the names of different methods of Traversing by theodolite. Explain any one of them briefly. 10
6. (a) What are the constants of a tacheometer and how are they determined ? 6
- (b) Explain the basic principles of surveying in brief. 8
7. Write short notes on any **four** of the following :  $4 \times 3 \frac{1}{2} = 14$
- (i) Total Station
- (ii) Hydrographic Survey
- (iii) Transiting
- (iv) Swing of Telescope
- (v) Face Left and Face Right
- (vi) Compound Curve
- (vii) Automatic Level