

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

**Term-End Examination**

**00136**

**June, 2017**

**BET-023 : ELEMENTS OF SURVEY**

*Time : 2 hours*

*Maximum Marks : 70*

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**Note :** *Question no. 1 is compulsory. Attempt any four more questions from the remaining questions. All questions carry equal marks. Use of scientific calculator is permitted.*

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1. Choose the correct alternative : 7×2=14

(a) For a plain scale of 1 cm = 100 m, the Representative Fraction (RF) will be

(i)  $\frac{1}{10000}$

(ii)  $\frac{1}{1000}$

(iii)  $\frac{1}{100}$

(iv)  $\frac{1}{10}$

- (b) The number of links in a 30 m chain is
- (i) 100
  - (ii) 150
  - (iii) 200
  - (iv) 50
- (c) The whole circle bearing of a line is  $135^\circ$ . Its reduced bearing is
- (i)  $45^\circ$
  - (ii) N  $45^\circ$  E
  - (iii) S  $45^\circ$  E
  - (iv)  $315^\circ$
- (d) The first reading on a Bench Mark is called
- (i) Foresight
  - (ii) Intermediate sight
  - (iii) Line of sight
  - (iv) Back sight
- (e) A contour line must close
- (i) upon itself
  - (ii) anywhere
  - (iii) necessarily within the limits of the map
  - (iv) None of the above
- (f) Orientation of plane table is done by
- (i) Spirit level
  - (ii) Trough compass
  - (iii) Plumbing fork
  - (iv) Drawing sheet

- (g) The process of turning the telescope over its supporting axis through  $180^\circ$  in a vertical plane is known as
- (i) Swinging
  - (ii) Changing face
  - (iii) Transiting
  - (iv) Face left
2. (a) Describe the principles of surveying. 7
- (b) Classify surveying based on the purpose. 7
3. (a) Explain the various systematic errors in chain surveying. 7
- (b) A 20 m chain was found to be 6 cm too long after chaining 2000 m. The same chain was observed to be 8 cm too long after chaining the total distance of 4000 m. Assuming that the chain was correct at the commencement of work, find the true length of the total distance chained. 7
4. (a) Define local attraction. How is it detected and eliminated? 7
- (b) The magnetic bearing of a line as observed by the prismatic compass at a survey station is found to be  $260^\circ$ . If the local attraction at this station is known to be  $6^\circ$  E and the declination is  $12^\circ$  West, find the true bearing of the line. 7

5. (a) Explain the indirect method of locating contours. 7

(b) The following notes refer to reciprocal levels taken with a dumpy level :

Instrument near	Staff reading at	
	A	B
A	2.850 m	3.750 m
B	1.925 m	2.615 m

Find the true R.L. of B if R.L. of A is 126.50 m. 7

6. (a) Discuss the various advantages of plane table survey. 7

(b) Explain the three-point problem and describe the Lehman's method of its solution. 7

7. (a) Describe the procedure of levelling of theodolite at a station. 7

(b) Explain the stepwise process of setting out a vertical angle by a theodolite. 7

8. Write short notes on the following :  $4 \times 3 \frac{1}{2} = 14$

(a) Magnetic Declination

(b) Profile Levelling

(c) Ranging

(d) Traversing