DIPLOMA IN CIVIL ENGINEERING
DCLE(G) / DCLEVI

Term-End Examination

□□517   **December, 2017**

BET-023 : ELEMENTS OF SURVEY

Time : 2 hours   *Maximum Marks : 70*

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

1. Select the most appropriate answer for each of the following multiple choice objective type questions :   *7×2=14*

    (a) The survey in which curvature of the Earth is taken into account is called

    (i) Earth survey

    (ii) Curvature survey

    (iii) Hydrographic survey

    (iv) Geodetic survey

    (b) Levelling deals with measurement in

    (i) Horizontal plane

    (ii) Vertical plane

    (iii) Inclined plane

    (iv) All of the above

(c)   The lines joining points of equal magnetic declination are called as

   (i)   Aclinic lines

   (ii) Isoclinic lines

   (iii) Agonic lines

   (iv) Isogonic lines

(d)   If the R.L. of a B.M. is 200·00 m, the B.S. is 1·215 m and F.S. is 1·870 m, the R.L. of forward station is

   (i)   199·345 m

   (ii) 200·655 m

   (iii) 203·085 m

   (iv) 200·345 m

(e)   In chain surveying, perpendiculars to the chain line are set out by

   (i)   Clinometer

   (ii) Prismatic compass

   (iii) Theodolite

   (iv) Optical square

(f)   Number of links in a 30 m metric chain is

   (i)   100

   (ii) 200

   (iii) 150

   (iv) 180

(g) Staff reading over a station, whose elevation is known, is called

(i) Fore Sight

(ii) Back Sight

(iii) Datum

(iv) Reduced level

2. (a) Define Surveying. What are the principles of surveying ? Explain them briefly.   7

(b) The length of a survey line measured with a 30 m chain was found to be 631·50 m. When the chain was compared with a standard chain, it was found to be 0·10 m too long. Find the true length of the survey line.   7

3. (a) What is the difference between a Prismatic compass and a Surveyor's compass ?   7

(b) Convert the following whole circle bearing to a reduced bearing :   7

(i) 334° 52' 20"

(ii) 213° 43' 18"

4. (a) What do you understand by contours ? Explain the characteristics of Contours.   7

(b) What are the different methods of contouring ? Explain any one method with the help of neat sketches.   7

5. The following readings were successively taken with an instrument in levelling work :

0·32, 0·53, 0·62, 1·78, 1·91, 2·35, 1·75, 0·35, 0·69, 1·24 and 0·98 m.

The position of the instrument was changed after the 3rd, 7th and 9th reading. Draw the level book and enter the above readings properly. Assume the R.L. of first point as 81·53 m. Calculate the R.L. of all points and apply usual checks.   *14*

6. (a) What are the various methods of Plane Table Survey ? Explain any one method in detail.   *7*

    (b) Explain the advantages and disadvantages of plane table survey.   *7*

7. Write short notes on any *four* of the following : $4 \times 3\frac{1}{2} = 14$

    (a) Geodetic Survey

    (b) Face Left and Face Right Observations

    (c) Lehman's Rule

    (d) Local Attractions

    (e) Contour Intervals

    (f) Tie Stations

    (g) Different Types of Chains

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