| BET-023 |

DIPLOMA IN CIVIL ENGINEERING
DCLE(G) / DCLEVI
Term-End Examination
June, 2015

00713

BET-023 : ELEMENTS OF SURVEY

Time : 2 hours   *Maximum Marks : 70*

Note : *Question No.* **1** *is* **compulsory.** *Attempt any* **four** *questions from the remaining. All questions carry equal marks.*

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

    (a) Chain Survey deals with measurement in

        (i) Horizontal plane

        (ii) Vertical plane

        (iii) Both Horizontal and Vertical planes

        (iv) None of the above

(b) Angle between two plane mirrors of an optical square is

(i) 60°

(ii) 45°

(iii) 30°

(iv) $28\frac{1}{2}$ °

(c) Two contour lines having same elevation

(i) can unite together

(ii) can cross each other

(iii) cannot unite together

(iv) cannot cross each other

(d) Differential levelling is also called as

(i) Fly levelling

(ii) Check levelling

(iii) Reciprocal levelling

(iv) Profile levelling

(e) The instrument used for accurate centering in plane table survey is

(i) Plumb Bob

(ii) Alidade

(iii) Plumb Fork

(iv) Trough Compass

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

(i) Recce Survey

(ii) Earthwork Survey

(iii) Geographic Survey

(iv) Geodetic Survey

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

(i) Agonic lines

(ii) Isogonic lines

(iii) Isoclinic lines

(iv) Aclinic lines

2. (a) What are the basic objectives and purposes of survey ? Discuss the basic principles of survey. *7*

(b) A survey line AB was measured by a chain of 30 m length and was found to be 2340 m. The same line AB when measured by a 20 m chain length recorded 2350 m. While calibrating, 30 m chain was found to be 2 cm too short. What was the error in the 20 m chain ? *7*

3. (a) Write in brief the process of temporary adjustments of theodolite. *4*

(b) Explain with neat sketches how the following angles are measured with the help of theodolite : *10*

(i) Horizontal angle

(ii) Vertical angle

4. **(a)** Convert the following whole circle bearings to reduced bearings : *4*

  (i) 42°58'

  (ii) 156°12'

  (iii) 219°47'

  (iv) 327°34'

(b) During a compass survey a traverse ABCDE was run. The bearings as measured are recorded in the table given below. Compute the interior angles of the traverse. Also calculate the closing error, if any. *10*

SIDE	AB	BC	CD	DE	EA
FB	106°19'	27°06'	279°42'	193°17'	126°32'
BB	286°19'	207°06'	99°42'	13°17'	306°32'

5. **(a)** What are the various methods of plane table survey ? Explain with the help of neat sketches. *7*

(b) Explain the characteristics and uses of contour lines showing them by neat sketches. *7*

6. What do you understand by three point problem ? How is it solved ? Explain any one method in detail. *14*

7. Write short notes on any *four* of the following : $4\times3\frac{1}{2}=14$

    (i) Line of Sight

    (ii) Optical Squares

    (iii) Checks of Level Book

    (iv) Surveyor's Compass

    (v) Transiting

    (vi) Swinging