Diploma in Civil Engineering / Diploma in Electrical & Mechanical Engineering

Term-End Examination

June, 2010

BET-023 : ELEMENTS OF SURVEY

Time : 2 hours   *Maximum Marks : 70*

Note :   *Question number 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 :   **7x2=14**

   (a)   In geodetic surveys higher accuracy is achieved if :

   (i)   Curvaline of earth surface is ignored.

   (ii)   Curvaline of earth surface is taken into account.

   (iii)   Angles between the curved lines are treated as plane angles.

   (iv)   None of these.

   (b)   Prolongation of a chain line accross an obstruction in chain surveying is done by :

   (i)   Making angular measurement

   (ii)   Drawing perpendicular with a chain

   (iii)   Solution of triangles

   (iv)   All the above

(c) The imaginary line passing through the intersection of cross hairs and optical centre of the objective is known as :

(i) Line of sight

(ii) Line of collemation

(iii) Axis of Telescope

(iv) None of these

(d) Two contour lines having the same elevation :

(i) Cannot cross each other

(ii) Can cross each other

(iii) Cannot unite together

(iv) Can unite together

(e) The vertical angle between longitudinal axis of a freely suspended Magnetic Needle and a horizontal line at its pivot is known as :

(i) Declination

(ii) Azimuth

(iii) Dip

(iv) Bearing

(f) The reduce bearing of a line is N 87°W. Its whole circle bearing is :

(i) 87°

(ii) 273°

(iii) 93°

(iv) 3°

(g) A traverse deflection angle is :

(i) Less than 90°

(ii) More than 90° but less than 180°

(iii) The difference between the included angle and 180°

(iv) The difference between 360° and the included angle.

2. (a) What are the obstacles in chain surveying ?   10
Explain the methods to overcome them.

(b) Explain the working principle of optical   4
square.

3. (a) Make a neat sketch of a Prismatic Compass   10
and mention the name of parts.

(b) Define the following terms :   4x1=4

(i) Whole circle bearing

(ii) Reduced bearing

(iii) True bearing

(iv) Magnetic bearing

4. (a) What do you mean by classification of   6
levelling ?

(b) A Dumpy Level was set up with Telescope   8
vertical over the peg driven at station O_1
such that Top of O_1 is 1.745 m from centre
of telescope. The foresight taken on peg O_2
was 1.123 m. The level was then moved
and set at station O_2. The height of centre
of Telescope from top of O_2 is 0.824 m and
the reading on staff held at O_1 is 1.438 m if
the RL of O_1 is given as 104.646 m, find true
R.L. of O_2.

5. (a) What are the methods of plane table   8
survey ? Explain them.

(b) What do you mean by two point problem ?   6
How it can be solved ?

6. (a) What are the factor affecting contour interval ? **6**

   (b) Make a neat sketch of a Dumpy Level showing the name of parts. **8**

7. (a) What are the methods of finding horizontal angle by theodolite ? Explain one of them. **8**

   (b) Explain the instrumental error in theodolite. **6**

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