

**Diploma in Civil Engineering / Diploma
in Electrical & Mechanical Engineering**

Term-End Examination

December, 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 question :- 7x2=14

(a) Least count of prismatic compass is

(i) 1° (ii) $30'$

(iii) $45'$ (iv) $20''$

(b) Length of Engineer's chain is

(i) $100'$ (ii) $60'$

(iii) $33'$ (iv) $20m$

(c) Numbers of links in 30m chain are

(i) 150 (ii) 100

(iii) 66 (iv) 16

- (d) Contour interval is
- (i) Horizontal difference
 - (ii) Vertical difference
 - (iii) Bearing difference
 - (iv) None of above
- (e) Plotting of instrument station on a plane table is done by
- (i) Radiation Method
 - (ii) Re-section Method
 - (iii) Intersection Method
 - (iv) None of above
- (f) Reduced bearing of a line is 530° E. Its whole circle bearing is
- (i) 140°
 - (ii) 150°
 - (iii) 210°
 - (iv) 360°
- (g) Sum of internal angles of a closed traverse having n sides
- (i) $(2N-4) \times 90$
 - (ii) $(2N-4) \times 180$
 - (iii) $(2N-4) \times 360$
 - (iv) None of the above

2. (a) Define the following terms: $3 \times 2 = 6$
- (i) Whole circle bearing and Reduced Bearing
 - (ii) Back sight and fore sight
 - (iii) Line of sight and axis of telescope

- (b) Determine the value of included angle of a closed traverse ABCDA in a compass survey conducted in clockwise direction. Details of fore bearing of traverse are given as below 8

Line	Fore bearing
AB	40°
BC	70°
CD	210°
DA	280°

3. (a) Describe briefly the advantages and disadvantages of plane table survey. 6

- (b) The following reading were recorded by a Dumpy Level : 8

1.63, 1.87, 1.84, 1.91, 2.01, 2.31, 1.87, 1.96, 2.12, and 1.99m. The first reading was taken on B.M. having R.L. 100m and level was shifted after 4th, 6th and 8th reading. Enter the reading in form of level book and find R.L. of each points.

4. What do you mean by two point problem ? How it is solved ? 14

5. (a) What are the different type of chain used in surveying ? Explain briefly . 8

- (b) A 20m chain was found correct at the time of start survey. A line measured with it was found to be 1230 m long. Whereas actually it was 1245m. What was the length of the chain at end of the survey ? 6

6. (a) Explain the characteristics of contour. 6
- (b) Define the following terms 8
- (i) contour interval and horizontal equivalent.
 - (ii) Transiting and surveying of telescope.
 - (iii) face Left and face Right.
 - (iv) Principles of surveying.
7. (a) Describe the temporary adjustment of theodolite. 6
- (b) Explain how the following angles are measured with the help of theodolite - 8
- (i) Horizontal angle
 - (ii) Vertical angle
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