

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

Term-End Examination 0 1 4 0 4
June, 2013

BET-023 : ELEMENTS OF SURVEY

Time : 2 hours

Maximum Marks : 70

Note : Question number 1 is compulsory. Attempt any four more questions out of question numbers 2 to 8. All questions carry equal marks.

1. Choose the correct alternative 7x2=14
- (a) The type of surveying in which the curvature of earth surface is neglected
- (i) plane surveying
 - (ii) geodetic surveying
 - (iii) hydrographic surveying
 - (iv) topographic surveying
- (b) The control points at the ends of the chain lines commanding the boundaries of survey are known as
- (i) tie stations
 - (ii) subsidiary stations
 - (iii) main stations
 - (iv) none of the above

- (c) The reduced bearing of a line is $N50^{\circ}E$. Its whole circle bearing is
- (i) 140°
 - (ii) 130°
 - (iii) 50°
 - (iv) 410°
- (d) The line joining the point of intersection of cross-hairs to the optical centre of object glass is known as
- (i) foresight
 - (ii) backsight
 - (iii) intermediate sight
 - (iv) line of collimation
- (e) The plane table survey is most suitable for
- (i) preparing small scale maps
 - (ii) preparing large scale maps
 - (iii) accurate work
 - (iv) none of the above
- (f) Contour lines cross a water shed and a valley line at
- (i) acute angles
 - (ii) right angles
 - (iii) obtuse angles
 - (iv) none of the above

(g) The process of turning the telescope over its supporting axis through 180^0 in a vertical plane is known as

- (i) swinging
- (ii) changing face
- (iii) transiting
- (iv) face left

2. (a) Explain the importance of surveying for the successful execution of any engineering project. 7

(b) Describe the various methods of establishment of horizontal control stations. Explain the situations where a particular method can be used. 7

3. (a) Explain the procedure to be adopted in chain surveying. 7

(b) A survey map is required to be drawn to a scale of $1/10000$. A 30m chain was used which was found to be accurate at commencement of work while 16cm too long at the closure. The area of plot survey was found to be 90cm^2 on map. Calculate the actual area of plot in hectares. 7



4. (a) Describe the procedure of measuring bearing with prismatic compass. 7
- (b) In an old survey, the value of magnetic declination was 5° W at the time it was made and the magnetic bearing of a given line was 220° . Calculate the true bearing of the line. 7
- If the magnetic declination in the same locality is 8° E now, calculate the present magnetic bearing of the line.
5. (a) What do you mean by Reciprocal Levelling ? Explain the procedure of determining the level difference between the two points. 7
- (b) Find the combined correction for curvature and refraction for distance of 3000m and 5000m. 7
6. (a) Explain the various methods of recording of observations. 7
- (b) Discuss the various adjustments required to be carried out on a plane table. 7
7. (a) Explain the various steps of setting up theodolite at a station. 7
- (b) Discuss the step by step procedure for measurement of horizontal angles by theodolite. 7

8. Write short notes on the following :

$4 \times 3\frac{1}{2} = 14$

- (a) Profile Levelling
 - (b) Traversing
 - (c) Magnetic Dip
 - (d) GTS bench marks.
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