

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

Term-End Examination

00225 December, 2014

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) Plane table survey is used for
- (i) hilly areas
 - (ii) plane areas
 - (iii) small areas
 - (iv) city areas
- (b) Main principle of survey is to work from
- (i) part to whole
 - (ii) whole to part
 - (iii) high to low level
 - (iv) low to high level

- (c) A fixed point of reference, whose elevation is known is called
 - (i) Reduced level
 - (ii) Datum level
 - (iii) Bench mark
 - (iv) Instrument level
- (d) Levelling of Dumpy level is made with the help of
 - (i) Foot screws
 - (ii) Focussing screws
 - (iii) Tangential screws
 - (iv) Capstan headed screws
- (e) Theodolite is an instrument, which is precisely used for the measurement of
 - (i) Angles
 - (ii) Lengths
 - (iii) Levels
 - (iv) Bearings
- (f) Closed contours of increasing values towards their centre shows
 - (i) a saddle
 - (ii) a depression
 - (iii) a hillock
 - (iv) watershed line
- (g) The lines joining points of ZERO magnetic declination are called as
 - (i) Agonic lines
 - (ii) Isoclinic lines
 - (iii) Isogonic lines
 - (iv) Aclinic lines

2. (a) What is an "OFFSET" ? Describe "3-4-5 OFFSET" method in brief. 4
- (b) A survey map is required to be drawn to a scale of 1/10,000. A 30 m chain was used which was found to be accurate at the start of work, while 20 cm too long at closure. The area of plot was found to be 80 cm^2 on map. Calculate the actual area in hectares. 10
3. The following readings were taken with a level :
- 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 instrument was changed after 3rd, 7th and 9th readings. Draw a format of level book and enter the above readings properly. Assume RL of 1st point 81.53 m. Calculate the RLs of all the points. 14
4. (a) What is local attraction ? How is it detected and eliminated ? 4
- (b) Find the angles between OA and OB in the following cases where the respective bearings are : 10
- (i) $37^\circ 10'$ and $316^\circ 28'$
- (ii) $16^\circ 34'$ and $139^\circ 43'$
- (iii) $118^\circ 12'$ and $287^\circ 54'$
5. (a) Describe briefly the advantages and disadvantages of plane table surveying. 7
- (b) Explain the "LEHMANN'S RULE" with the help of neat sketches. 7

6. (a) Describe the temporary adjustments of a theodolite by neat sketches. 7
- (b) Define the following terms : $2 \times 3 \frac{1}{2} = 7$
- (i) Line of collimation
 - (ii) Bubble line
7. Write short notes on any **four** of the following : $4 \times 3 \frac{1}{2} = 14$
- (i) Reciprocal Levelling
 - (ii) Uses of Theodolite
 - (iii) Optical Square
 - (iv) Contours
 - (v) Hydrographic Survey
 - (vi) Magnetic Dip
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