

1124**Code : 15CE21T***Register
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II Semester Diploma Examination, Nov./Dec. 2018**SURVEYING – I****Time : 3 Hours]****[Max. Marks : 100**

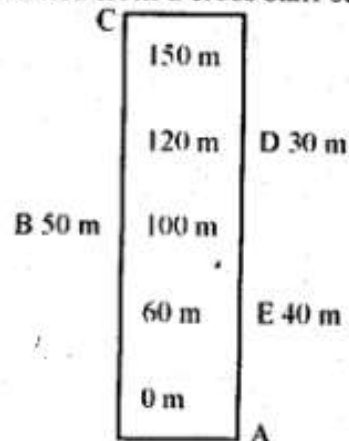
- Note :** (i) Answer any **six** full questions from Section – I.
(ii) Answer any **seven** full questions from Section – II.

SECTION – I

1. Explain the classification of surveying based on the nature of field. **5**
2. Define Bearing and explain fore bearing and back bearing. **5**
3. Define the terms : **5**
 - (i) Datum
 - (ii) M.S.L.
 - (iii) B.S.
 - (iv) Line of collimation
 - (v) GTS, Bench mark
4. What is parallax ? How it can be eliminated ? **5**
5. List the different methods of levelling and explain fly levelling. **5**
6. Explain the instrumental errors in levelling. **5**
7. What is contour interval ? List the factors to be considered for selecting contour interval. **5**
8. List any ten characteristics of contour. **5**
9. State the methods adopted for computing the areas. Explain any one method. **5**

SECTION - II

10. (a) What are the points to be considered for selecting survey stations ? 5
 (b) Explain Reciprocal ranging with sketch. 5
11. (a) What are the obstacles in chain surveying ? Explain any one method. 4
 (b) Calculate the area obtained from a cross staff survey. 6



12. (a) Compare chain surveying and compass surveying. 5
 (b) Convert the following Q.B. to W.C.B. and W.C.B. to Q.B. 5
 Q.B. :
 (i) N 30° 30' E
 (ii) S 45° 30' W
 W.C.B.
 (iii) 25° 30'
 (iv) 210° 30'
 (v) 283° 15'
13. (a) What is local attraction ? 2
 (b) The fore bearings and back bearings of the lines of a closed compass traverse are given. Correct the bearings and mention at what stations the local attraction was suspected. 8

Line	F.B.	B.B.
AB	32° 30'	214° 30'
BC	124° 30'	303° 15'
CD	181° 00'	1° 00'
DA	289° 30'	108° 45'

14. (a) Explain temporary adjustments of a dumpy level. 5
 (b) Explain the operation of differential levelling. 5

15. The following readings were observed with a level. The instrument having been moved after third and sixth readings. 10

2.220, 1.600, 2.085, 2.865, 1.265, 0.605, 1.985, 1.045, 2.685 m.

Enter the above readings in a page of level book and calculate the R.L. of the points if the first reading was taken with a staff held on a B.M of 432.850.

16. (a) Explain the procedure of setting grades for sewer. 6
 (b) The R.L of a floor is 64.545. A staff reading on the floor is 0.650 and the inverted staff reading to the bottom of a T-Beam is 3.015. Find the height of the beam above the floor and R.L. of the bottom of the T-Beam. 4

17. (a) A contractor asked to set out a sewer grades from the following data. Find the height of the boning rod and height of sight rail at A, B and C. 7

	A	B	C	D
GL	170.620	169.350	168.950	168.750
Invert	167.300	166.900	166.500	166.100

Sewer gradient is 1 in 150 falling from A to D at an interval of 60 mt. The height of sight rail at D is 1.75 mt.

- (b) Briefly explain how the profile is plotted. 3

18. (a) Write any four uses of contours. 4
 (b) The area enclosed by contours in a lake are as under. 6

Contour (m)	Area (m ²)
300	2000
320	8500
340	16500
360	25500
380	32000

Calculate the volume of water in the lake between 300 m contour and 380 m contour by prismoidal rule.

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19. (a) Write the formula to calculate the cross-sectional area of an earthen embankment with sketch for the Level section. 2
- (b) The following perpendicular offsets were taken from chain line to an irregular boundary. 8

Chainage	Offset in M
0	15.50
10	26.20
25	31.80
40	25.60
60	29.00
75	31.50

Calculate the area between the chain line, the boundary and the end offsets.