6021

BOARD DIPLOMA EXAMINATION, (C-16)

MAY/JUNE—2023

DCE - FIRST YEAR EXAMINATION

SURVEYING—I

Time : 3 Hours]   [Total Marks : 80

PART—A   3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. State the fundamental principles of surveying.

2. What are the instruments used for chain surveying.

3. Draw the conventional signs of the following :
   (a) Chain line
   (b) Benchmark
   (c) Railway line

4. State the purpose of compass surveying.

5. Differentiate between the whole circle bearing and quadrantal bearing.

6. State any four objectives of levelling.

7. Define the following terms :
   (a) Back sight
   (b) Fore sight
   (c) Intermediate sight

8. Mention different kinds of benchmarks used in levelling.

9. State the any six uses of contour maps.

10. What are the applications of electronic planimeter?

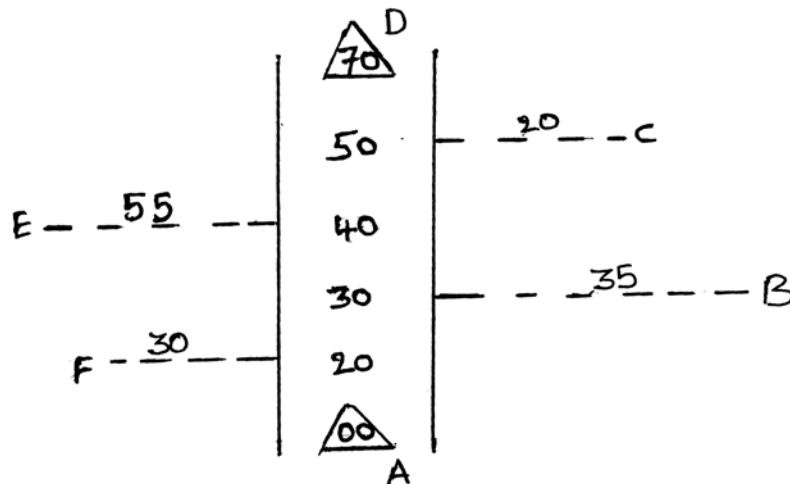**Instructions :** (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. *(a)* State the classification of surveying based on instruments used. 5

(b) Explain how you can measure the vertical angle using Abney level. 5

12. Plot the following cross staff survey of a field and calculate its area. 10

13. Explain various errors in chain surveying. 10

14. The following bearings were observed in a closed compass traverse lines ABCDA. Identify the stations effected by the local attraction and calculate the corrected bearings. 10

Line	AB	BC	CD	DA
Fore Bearing	124°30′	68°15′	310°30′	200°15′
Back Bearing	304°30′	246°00′	135°15′	17°45′

15. Explain the method of correcting closing error by Bowditch rule. 10

16. The following details refer to reciprocal levels taken with a dumpy level :

Instrument station	Staff readings		Remarks
	A	B	Distance between
A	1.505	2.875	A and B =1, 150 M
B	0.750	1.895	R.L of B = 100.00

Find *(a)* the R.L of A, *(b)* the combined error for curvature and refraction and *(c)* the collimation error in the instrument.   10

17. The following staff readings were observed successively with a level. The instrument was shifted after the 2nd and the 5th readings : 0.675, 1.230, 0.750, 2.565, 2.225, 1.935, 1.835 and 3.220. The first reading was taken on the staff held on benchmark of R.L 125·325 m. Rule out the page field book and enter the above readings. Calculate the reduced level of the points by height of instrument method and show the usual check.   10

18. Draw a sketch of dumpy level and mention its parts. Explain the function of any 4 parts.   6+4

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