6021

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2021

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. Define Engineering Surveying.

2. Examine whether a triangle having sides 80 m, 60 m and 40 m is a well-conditioned triangle or not.

3. Draw conventional sign of the following :

   (a) Tie Station

   (b) Compound Wall

   (c) Gate and Wall

4. The magnetic bearing of a line AB is S 38° 30′ E. Calculate the true bearing, if the declination is 5° 30′ E.

5. What is a traverse? List the different types of traverse.

6. State how you would make use of the Abney level for measuring slope.

7. Define Bench Mark. List the types of bench marks.

8. List the types of levelling staves based on method of taking readings.

9. State the relationship among the fundamental lines of dumpy level.

10. Define the terms Contour, Contour interval and Horizontal Equivalent.

PART—B

10×5=50

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 fundamental principles of surveying.

(b) Explain with aid of a diagram, the construction and use of Pentagraph.

12. The following perpendicular offsets were taken at 5 m intervals from a traverse line to an irregular boundary line 2·10, 3·15, 4·50, 3·60, 4·58, 7·85, 6·45, 4·65, 3·14 m. Compute the area enclosed between the traverse line and the irregular boundary using Average Ordinate rule and Trapezoidal rule.

13. In chaining an area containing a pond, two points C and D were selected on either sides of chain station A such that A, C and D points lie on a line. The point B, which is on the other side of the pond, is on the chain line AB. If the distance AC, AD, BC and BD are 35 m, 45 m, 100 m and 95 m respectively, determine the length of the chain line AB.

14. The following bearings were observed in running a compass traverse :

Line	AB	BC	CD	DA
Fore Bearing	66° 15′	129° 45′	218° 30′	306° 45′
Back Bearing	244° 0′	313° 00′	37° 30′	126° 45′

Find the corrected fore bearings and back bearings.

15. Explain the Bowditch rule for correcting closing error in compass traverse.

16. Describe any two methods of contouring.

17. The following consecutive readings were taken with a dumpy level: 3·864; 3·346; 2·932; 1·952; 0·854; 3·796; 2·639; 1·542; 1·934; 0·864; 0·655. The instrument was shifted after the fifth and the eighth readings. The first reading was taken on the staff held on bench mark of RL 150·250. Rule out the page field book and enter the above readings. Calculate the reduced levels of the points and show the usual checks.

18. Explain the various adjustments done to the instrument at each change point during fly levelling.

★ ★ ★