7022

BOARD DIPLOMA EXAMINATION, (C-20)
JUNE/JULY—2022

DCE - FIRST YEAR EXAMINATION

SURVEYING - I

Time : 3 hours]   [*Total Marks* : 80

PART—A

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. Write the differences between plan and map.   1½+1½

2. Under which circumstance chain surveying is unsuitable?   3

3. Define base line, check line and tie line.   1×3

4. Distinguish between FB and BB with a suitable example.   1½+1½

5. Convert the following into whole circle bearing :   3×1
(a) N39°45'E
(b) S79°50'W
(c) S82°30'E

6. Define the terms (a) change point, (b) height of instrument and (c) reduced level.   3×1

7. A man at position 8 m above sea level observes the peak of a hill. The distance between the man and the hill is 80 km. Find the height of the hill.   3

8. Define Profile leveling. Where do we apply it? 1+2

9. Differentiate between contour interval and horizontal equivalent.

1½+1½

10. What are the uses of minor instruments in surveying? 3

PART—B 8×5=40

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

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

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

11. *(a)* Explain the method of chaining on sloping ground by stepping method. 8

(OR)

(b) The distance between the two stations was measured with a 20 m chain and found to be 600 m. The same was measured with a 30 m chain and found to be 596 m. If the 20 m chain was 5 cm too short, what was the error in the 30 m chain? Find the correct distance between the two stations. 2+2+4

12. *(a)* List the precautions to be taken while entering the records in the field book of chain surveying. 8

(OR)

(b) The following offsets are taken from a survey line to a hedge. Find the area confined by boundaries applying trapezoidal method :

Distance	0	20	40	60	80	120	160	200	240	270	300
Offset (m)	12	10	8	6	4	5	7	8	10	11	13

13. *(a)* Explain briefly the sources of errors in compass traversing. 8

(OR)

(b) Following are the bearings observed in running a traverse with a compass in an area where local attraction was suspected. Find the correct bearings of the lines and tabulate them.　　8

Line	FB	BB
AB	N 43°30'E	S 45°30'W
BC	S 54°30'E	N 55°45'W
CD	S 5°00'W	N 5°00'E
DA	N 61°30'W	S 62°15'E

14. *(a)* What are Temporary adjustments of a dumpy level? Describe how they are performed.　　8

(OR)

(b) The following readings were observed successfully with a levelling instrument. The instrument was changed after 5th and 11th readings 0·585, 1·010, 1·735, 3·295, 3·775, 0·350, 1·300, 1·795, 2·575, 3·375, 3·895, 1·735, 0·635, 1·605. Draw up a page of level field book and determine the RL of various points if the point on which the first reading was taken is 136·440. Apply the rise and fall method.　　8

15. *(a)* In testing a dumpy level, the following records were noted while undertaking reciprocal leveling.

Instrument at	Reading at *A*	Reading at *B*
A	1·725	1·370
B	1·560	1·235

　(i) Is the line of collimation in adjustment?

　(ii) What should be correct staff reading at A, during the second setup to make the line of collimation truly horizontal?

　(iii) Find the amount of collimation error.　　2+3+3

(OR)

(b) Explain any two methods of locating Contours.　　4+4

PART—C
10×1=10

Instructions : (1) Answer the following question.

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

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

16. Explain the field procedure of reciprocal levelling with a neat sketch and write its application in civil engineering works. 8+2

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