C16-C–105

6021

BOARD DIPLOMA EXAMINATION, (C-16)

JUNE/JULY—2022

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 surveying.

2.   Define an offset and mention the types of offsets.

3.   State any four points to be kept in mind in selecting the survey stations.

4.   Distinguish between closed and open traverse.

5.   The magnetic bearing of a line *AB* is S 42°E and magnetic declination is 8° 20′ E. What is the true bearing of the line *AB*?

6.   Define the following terms :

(a) Level surface

(b) Datum

(c) Line of collimation

7. Define the following terms :

   (a) Contour

   (b) Contour interval

8. Find the level difference between the points *A* and *B* if B.S and F.S. readings taken on them respectively are 2·105 m and 3·220 m.

9. Define the following terms :

   (a) Bench mark

   (b) Height of instrument

10. Name any six features in the construction of electronic planimeter.

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 instruments used for taking linear and angular measurements.

    (b) Explain any two minor instruments used in surveying.

* 12. Explain the errors in chain surveying.

13. The following offsets were taken from a survey line to a hedge.

Distance (m)	0	5	10	15	20	30	40	55	70
Offset (m)	3·29	4·05	6·23	5·75	4·76	5·26	4·32	3·92	2·91

Find the area between survey line and the hedge by *(a)* Trapezoidal rule and *(b)* Simpson's rule.

*

14. The following*are the observed bearings of the lines of a traverse *ABCD* taken with a compass in a place where local attraction was suspected :

Line	FB	BB
AB	55°30⌐	235°30⌐
BC	125°15⌐	304°15⌐
CD	185°45⌐	8°45⌐
DA	283°45⌐	101°45⌐

Calculate the correct bearings of the lines after local attraction correction and tabulate the corrected bearings.

15. Explain the operations involved in field in compass surveying.

16. A page of a level field book partly defaced is reproduced below. Supply the missing entries marked with a cross.

Station	B.S	I.S	F.S	Rise	Fall	R.L	Remarks
1	1·200					100·00	B.M
2		×			0·65	×	
3	1·350		1·565	×		×	C.P$_1$
4		×		0·085		×	
5	×		×		×	×	
6		×		×		100·240	CP$_2$
7			2·50			99·150	
Total	4·415		×	1·075	×		

17. The following reciprocal levels were taken with dumpy level.

Instrument at	Staff reading on		Remarks
	A	B	
A	1·156	2·597	Distance between A & B = 1200 m
B	0·987	2·418	R.L of A = 625·555 m

Find

(a) The true difference in elevation between *A* and *B*.

(b) RL of *B*.

18. Explain interpolation of contours by

(a) estimation

(b) arithmetical calculation and

(c) graphical method

★ ★ ★