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BOARD DIPLOMA EXAMINATION, (C–14)

MARCH/APRIL—2016

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 any three purposes of conducting surveying.

2. List any three instruments used for taking linear and angular measurements.　　　　1½+1½

3. Briefly describe the principle of chain surveying.

4. Write any three situations under which the chain surveying is unsuitable.

5. The distance between two points measured with a 20 m chain was recorded as 327 m. It was afterwards found that the chain was 3 cm too long. What was the true distance between the points?

6. What is the purpose of running check lines and tie lines in chain surveying?

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7. Differentiate between *(a)* true meridian and magnetic meridian and *(b)* true bearing and magnetic bearing.   1½+1½

8. Compute the back bearings form the given fore bearings :

(a) S 79° 04 E

(b) N 88° 12 W

(c) N 28° 12 E

9. Distinguish between closed traverse and open traverse in compass surveying.

10. State the uses of any three minor instruments used in surveying.

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PART—B   10×5=50

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

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

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

11. *(a)* Explain the general classification of land surveying.   7

(b) Write the three types of engineering surveys carried out in connection with Civil Engineering works.   3

12. *(a)* What are the duties of the leader in chain surveying?   2

(b) Explain the method of reciprocal ranging with a neat sketch.   8

13. The following perpendicular offsets were taken from a chain line to a hedge :

Chainage (in m)	0	15	30	45	60	70	80	100	120	140
Offset (in m)	7·60	8·50	10·70	12·80	10·60	9·50	8·30	7·00	6·40	4·40

Calculate the area between survey line and the hedge, and the end offsets by *(a)* Trapezoidal rule and *(b)* Simpson's rule.   10

14. *(a)* List the obstacles in chain surveying. 2

(b) A 30 m chain was tested before the commencement of the days work and found 5 cm too long. After chaining a distance of 1600 m it was checked again and found to be 10 cm too long. At the end of days work after chaining 3000 m the chain was found to be 18 cm too long. Find the true distance measured. 8

15. *(a)* Define local attraction. How is it detected? 2

(b) Define closing error in a compass traverse. Explain how it is adjusted using graphical method. (Bowditch rule) 8

16. The following fore and back bearings were observed with a compass. Where do you suspect the local attraction? Find the corrected bearings : 10

Line	Fore Bearing	Back Bearing
AB	44 15	222 30
BC	105 30	286 45
CD	194	14
DE	255 45	76
EA	304	124 15

17. The bearings of the sides of a traverse *ABCDEA* are given below. Sketch and compute the interior angles of the traverse and apply usual checks : 10

Line	Fore Bearing	Back Bearing
AB	110 15	290 15
BC	35 30	215 15
CD	276 30	96 30
DE	195 30	15 30
EA	132 15	312 15

18. *(a)* Explain how you can measure the vertical angle using Abney level. 6

(b) List any eight applications of electronic planimeter. 4

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