4020

BOARD DIPLOMA EXAMINATION, (C–14)

APRIL/MAY—2015

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 *(a)* plane surveying and *(b)* geodetic surveying.　　1½+1½

2. State the classification of surveys based on the instruments used.　　3

3. Draw the conventional signs adopted in chain surveying for the following :　　3

(a) Unmetalled road

(b) Road in cutting

(c) Level crossing

4. Explain the function of each of the following :　　3

(a) Chain

(b) Arrow

(c) Plumb-bob

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5. Define offset and mention the types of offset.   1+2

6. What are the instruments used for chain surveying?   3

7. Define *(a)* true meridian and *(b)* magnetic meridian.   1½+1½

8. Convert the following whole-circle bearings into quadrantal bearings :   3

     (a) 78º20

     (b) 130º30

     (c) 280º30

9. State any three purposes of compass survey.   3

10. State the uses of pentagraph.   3

<div align="center">PART—B   10×5=50</div>

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. Explain the fundamental principles of surveying.   10

12. The following perpendicular offsets were taken at 30 m intervals from a baseline to an irregular boundary line :   5+5

     5·9 m, 12·5 m, 16·5 m, 15·8 m, 18·4 m, 20·9 m, 24·2 m, 21·8 m, and 19·4 m. Calculate the area in square meters enclosed between the baseline, the irregular boundary line and the first and last offsets by—

     (a) average ordinate rule;

     (b) trapezoidal rule.

13. A chain line *AB* is obstructed by a big pond and the points *A* and *B* are on either side of pond. At *A* a line *CAD* was ranged out. The distances *AD* = 320 m, *AC* = 280 m, *DB* = 530 m and *CB* = 485 m are measured. Find the distance *AB*.   10

14. What are different types of obstacle in chaining? Explain by any two methods how chaining is continued when a river comes across a chain line.   4+3+3

15. *(a)* Define local attraction. How can you detect local attraction?   2

   (b) State various errors occured in compass survey.   8

16. *(a)* List the equipments required for compass survey.   2

   (b) What are the temporary adjustments of prismatic compass?   8

17. The observed bearings of the lines of a traverse *ABCDE* with a compass in a place where local attraction was suspected are given below :

Line	Fore Bearing	Back Bearing
AB	191 45	13 00
BC	39 30	222 30
CD	22 15	200 30
DE	242 45	62 45
EA	330 15	147 45

Find the correction and corrected bearings to the lines.   10

18. *(a)* List the minor instruments used in surveying.   6

   (b) State the uses of any one instrument.   4

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