C14–C–**106**

4020

BOARD DIPLOMA EXAMINATION, (C–14)
SEPTEMBER/OCTOBER - 2020
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. Write any three differences between geodetic surveying and plane surveying.   1½+1½

2. What is the classification of survey based on instruments used?   3

3. What is meant by offset? Mention the types of offsets.   1+2

4. State the formulae to be used in—

    (a) average ordinate rule;

    (b) trapezoidal rule;

    (c) Simpson's rule.   1×3=3

5. State the functions of each of the following :   1×3=3

    (a) Cross-staff

    (b) Arrow

    (c) Ranging rod

6. Mention what type of obstacles are the following : 1×3=3

   (a) Pond

   (b) Building

   (c) Raising ground

7. Define the following terms : 1×3=3

   (a) Arbitrary meridian

   (b) Magnetic meridian

   (c) True meridian

8. Convert the following quadrantal bearings to whole circle bearings : 1×3=3

   (a) N 36° 30′ E

   (b) S 28° 00′ E

   (c) S 47° 00′ W

9. Define the following terms : 1½+1½

   (a) Closed traverse

   (b) Open traverse

10. State any three uses of abney level. 1×3=3

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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. Write about the stages of survey operations. 10

12. Explain the errors that occur in chain surveying. Also write the reasons for occurring these errors. 5+5

13. *(a)* Classify the obstacles in chain surveying. 4

   (b) Explain how chaining can be continued if a building completely blocks the view along the chain line. 6

14. *(a)* 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. **8**

(b) Where the chain surveying is unsuitable? **2**

15. *(a)* Convert the following WCB into quadrantal bearings : **4½**

   (i) 285° 15′

   (ii) 145° 30′

   (iii) 301° 30′

(b) Define—

   (i) bearing;

   (ii) meridian. **3**

(c) Write any three purposes of compass surveying. **2½**

16. The following bearings were observed with a compass. Calculate the interior angles of the traverse *ABCDE* : **10**

Line	Fore Bearings	Back Bearings
AB	60° 30′	240° 30′
BC	122° 00′	302° 00′
CD	46° 00′	226° 00′
DE	205° 30′	25° 30′
EA	300° 00′	120° 00′

17. A chain line *PQR* crosses a river *Q* and *R* is located on the near and distant banks respectively. The length of the line *PQ* = 50 m. A line *QS* 100 m is set at right angles to the chain line at *Q*. The whole circle bearings of *R* and *P* taken at *S* are 300° 00′ and 210° 00′ respectively. Find the width of the river. **10**

18. Explain the working principles of the following : **5×2=10**

(a) Abney level

(b) Pentagraph

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