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C16–C–105

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BOARD DIPLOMA EXAMINATION, (C–16)

OCT/NOV—2017

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. Differentiate between map and plan.

2. Define *(a)* base line, *(b)* check line and *(c)* tie line.

3. Write the conventional symbols for the following :
(a) Un-metalled road
(b) Canal
(c) Hill

4. Write any three purposes of compass surveying.

5. Convert the following reduced bearings to the whole circle bearings :
(a) N 25 30 W
(b) N 30 30 E
(c) S 20 45 W

6. Define *(a)* levelling, *(b)* vertical line and *(c)* elevation.

7. Explain any three fundamental lines in levelling instrument.

8. Explain about *(a)* contour, *(b)* contour interval and *(c)* horizontal equivalent.

9. A lighthouse is visible just above the horizon from a ship. If the height of the lighthouse is 200 m, determine the distance between the lighthouse and the ship.

10. Write any three uses of Abney level.

PART—B

10×5=50

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.

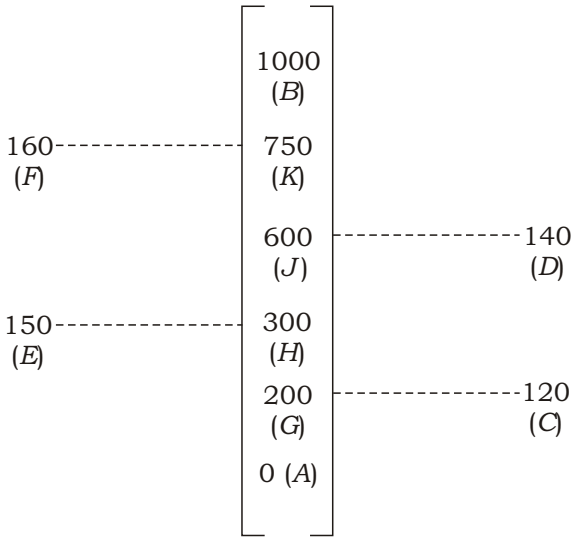
11. *(a)* Explain in detail about *(a)* plane surveying and *(b)* geodetic surveying.

(b) What are the applications of an electronic planimeter?

5+5=10

12. *(a)* Explain any two methods to continue the chaining when you came across a tall building.

(b) Plot the cross-staff survey of a field *ACDBFE* from the field book measurements given and determine the area of the field : 5+5=10



13. A survey line *ABC* crosses a river at right angles and cuts its banks at *B* and *C*. To determine the width *BC*, a line *BD*, 50 m long, was set out roughly parallel to the near bank. Points *C* and *D* were joined and line *CD* extended to another point *E*. Point *D* was joined to the mid-point *O* of the line *BE* and the line *DO* extended to point *F* such that *DO* *OF*. Points *E* and *F* were joined and the line *EF* extended to cut the survey line *ABC* at *G*. If *FG* 30 m and *GB* 70 m, determine the width of *BC*. 10

14. *(a)* Explain any five parts of prismatic compass with its functions.

(b) Define magnetic declination. List out the variations in magnetic declination. 5+5=10

15. What is closing error? Explain the method of correcting closing error by Bowditch's rule. 10

16. The following consecutive readings were taken with a dumpy level :

1·895, 1·500, 1·865, 2·570, 2·990,
2·020, 2·410, 2·520, 2·960, 3·115

The level was shifted after fourth, sixth and eighth readings. The RL of the first point was 30·500. Rule out a page as a level book and fill all columns. Use height of instrument method and apply usual checks. 10

17. *(a)* Explain with a neat sketch, the process of reciprocal levelling.

(b) Write any three difficulties faced in levelling. 7+3=10

18. The following are the areas of contour surveyed in a valley for reservoir. Calculate the capacity, when the contour interval is 4 m by *(a)* trapezoidal rule and *(b)* prismoidal rule : 10

Reduced levels (m)	*Contour area* (m^2)
130	12600
134	684000
138	2230200
142	4560500
146	6690600
150	8291000
154	99950000

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