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C16–C–105

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BOARD DIPLOMA EXAMINATION, (C–16)

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. State the principles of engineering surveying.

2. What is well-conditioned triangle? Why is it preferred?

3. Draw conventional sign of the following :

(a) Embankment

(b) Cutting

(c) Gate

4. The magnetic bearing of a line *AB* is 65° 30 . Calculate the true bearing, if the declination is 4° 30 W.

5. Define true meridian, magnetic meridian and local attraction.

6. State how you would make use of the Abney level for levelling.

7. Define the following terms :

(a) Mean sea level

(b) Intermediate sight

(c) Change point

8. List the types of levelling staves based on method of construction.

9. RL of a factory floor is 100·500. Staff reading on the floor is 1·610 m and staff reading when the staff is held inverted with bottom touching the roof is 3·700 m. Find the height of the roof above floor.

10. Define contouring. List the various methods of contouring.

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)* State the classification of surveying based on purpose.

(b) Explain with aid of a diagram, the construction and use of pentagraph.

12. The following perpendicular offsets were taken at 10 m intervals from a survey line to an irregular boundary line :

3·82 m, 4·37 m, 3·82 m, 5·26 m, 7·59 m, 8·90 m, 9·52 m, 8·42 m and 6·43 m

Calculate area enclosed between the survey line and the irregular boundary using trapezoidal rule and Simpson's rule.

13. Explain various methods of overcoming different obstacles in chain surveying.

14. Explain the Bowditch rule for correcting closing error in compass traverse.

15. Explain the different types of errors in a compass traverse.

16. List the characteristics of contour with support of sketches.

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

0·894; 1·643; 2·896; 3·016; 0·954; 0·692; 0·582;
0·251; 1·532; 0·996; 2·135

The instrument was shifted after the fourth and the eighth readings. The first reading was taken on the staff held on benchmark of RL 820·765. Rule out the page field book and enter the above readings. Calculate the reduced levels of the points and show the usual checks.

18. Describe the procedure for conducting profile levelling for a proposed road between main building of your polytechnic and adjacent major road.

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