



c09-c-105

**3015**

**BOARD DIPLOMA EXAMINATION, (C-09)**

**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 fundamental principles of surveying.
2. Draw the conventional signs adopted in chain surveying for the following :
  - (a) Chain line
  - (b) River
  - (c) Road culvert
3. Define offset and mention the types of offset.
4. What are the instruments used for chain surveying?
5. Convert the following quadrantal bearings to whole circle bearings :
  - (a) N 36°30 E
  - (b) S 28°00 E
  - (c) N 58°30 W

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6. State the <sup>\*</sup> purpose of compass survey.
7. If a leveling staff is placed at a distance of 800 m from the instrument, find—  
 (a) correction for curvature;  
 (b) correction for refraction.
8. State any three characteristics of contours.
9. State any three objectives of leveling.
10. State the purpose and principle of pentagraph.

**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. What are the types of obstacle in chaining? Explain by any two methods how chaining is continued when a river come across a chain line.
12. Following perpendicular offsets were taken from the centreline of a road to a hedge :

Offset no.	1	2	3	4	5	6	7	8	9
Offset (in m)	4	6	5	7	5	4	3	4	6
Distance (in m)	0	15	30	45	60	80	100	110	120

Calculate the area between the centreline of road and hedge by applying (a) trapezoidal rule and (b) Simpson's rule.

13. (a) Define local attraction and how you can detect local attraction.  
 (b) State various errors that occur in compass survey.

14. A closed compass traverse *PQRS* is run with prismatic compass in a clockwise direction :

<i>Line</i>	<i>FB</i>	<i>BB</i>
<i>PQ</i>	46°10	226°10
<i>QR</i>	119°20	298°40
<i>RS</i>	169°30	351°10
<i>SP</i>	280°20	99°20

Calculate the included angles of the traverse *PQRS* and apply the usual checks.

15. The following consecutive readings were observed with a leveling instrument. The instrument was shifted after 5th and 11th readings :

0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300,  
1.795, 2.575, 3.375, 3.895, 1.735, 0.635, 0.605

Draw a page of level book and enter the readings. Determine the RL of various points, if the RL of the point on which the first reading was taken is 136.440 m by rise and fall method. Apply check.

16. (a) State the uses of contour.  
(b) What is reciprocal leveling? Explain reciprocal leveling briefly with a neat sketch.
17. Explain with a neat sketch the constructional details of a dumpy level.
18. Explain how you can measure the vertical angle using Abney level.

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