3015

BOARD DIPLOMA EXAMINATION, (C–09)

MARCH/APRIL—2018

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 surveying and state three purposes of conducting surveying.

2. What are the duties of leader and follower while ranging and chaining?

3. What do you understand by *(a)* well-conditioned triangle and *(b)* Ill-conditioned triangle?

4. Draw the conventional signs for *(a)* baseline, *(b)* tunnel and *(c)* bench mark.

5. Define the following :

(a) Declination

(b) Local attraction

6. Distinguish between whole circle bearing and quadrantal bearing.

7. Define levelling, foresight and backsight.

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8. What are the fundamental lines of a dumpy level? State the relationship between them.

9. State any three uses of a contour map.

10. State the uses of electronic planimeter.

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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. 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)	7·6	8·5	10·7	12·8	10·6	9·5	8·3	7·0	6·4
Distance (in m)	0	15	30	45	60	70	80	100	120

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

12. What are the different types of obstacles in chaining? Explain by any two methods, how chaining is continued when a river comes across a chainline.

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

Line	FB	BB
PQ	50°00	230°00
QR	170°00	350°00
RS	230°00	50°00
SP	310°00	130°00

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

14. Below are given the observed bearings of the lines of a traverse *ABCDE* with a compass in a place where local attraction was suspected. Find the correction and corrected bearings to the lines :

Line	FB	BB
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

15. The following consecutive readings were observed with a levelling 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 any five uses of contour.

(b) State any five characteristics of contour.

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

18. Explain with neat sketch, how the pentagraph is used for enlargement and reduction of plans.

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