



c09-c-105

3015

BOARD DIPLOMA EXAMINATION, (C-09)

APRIL/MAY—2015

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 classification of survey based on methods employed.
2. State three points to be kept in view while chaining on a sloping ground by stepping method.
3. Draw the conventional symbols for the following :
 - (a) Double railway line
 - (b) Metal road
 - (c) Level crossing
4. State the functions of ranging rod, plumb bob and cross staff.
5. State the purpose of compass survey.

6. Define the following terms :
- (a) Meridian
 - (b) Bearing
 - (c) Dip
7. Define the following terms :
- (a) Reduced level
 - (b) Line of collimation
 - (c) Axis of telescope
8. If a levelling staff is placed at a distance of 800 m from the instrument, find the (a) correction for curvature (Cc) and (b) correction for refraction (Cr).
9. Define the following terms :
- (a) Contour
 - (b) Contour interval
10. List 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. The following are the perpendicular offsets taken at 10 m intervals from a survey line *AB* to an irregular boundary line :

2.30 m, 3.80 m, 4.55 m, 6.75 m, 5.25 m, 7.30 m, 8.95 m,
8.25 m and 5.50 m

Calculate the area enclosed between survey line, irregular boundary, first and last offsets by (a) trapezoidal rule and (b) Simpson's rule.

12. A survey straight line $ABDE$ intersects a building between B and D to overcome the obstacle perpendicular to BC , 90 m long, sets out at B from C , two lines CD and CE are set out at angles 45° and 60° respectively with CB . Find the lengths of CD and CE such that points D and E fall on the prolongation of line AB . Find the obstructed distance BD .

13. The following are the observed bearings of the lines of a traverse $ABCD$ taken with a compass in a place where local attraction was suspected :

| Line | FB | BB |
|------|--------|--------|
| AB | 55 30 | 235 30 |
| BC | 125 15 | 304 15 |
| CD | 185 45 | 8 45 |
| DA | 283 45 | 101 45 |

Calculate the correct bearings of the lines after local attraction correction and tabulate the corrected bearings.

14. A closed compass traverse $ABCD$ was conducted and the following bearings were obtained :

| Line | Fore bearing | Back bearing |
|------|--------------|--------------|
| AB | 42 30 | 222 30 |
| BC | 122 50 | 302 50 |
| CD | 182 10 | 2 10 |
| DA | 323 50 | 143 50 |

Calculate the interior angles of the traverse and apply check.

15. The following reciprocal levels were taken with one instrument :

| Instrument at | Reading on | | Remarks |
|---------------|------------|-------|-----------------------------------|
| | A | B | |
| A | 1.560 | 2.650 | Distance between A and B is 100 m |
| B | 0.460 | 1.500 | RL of A is 150.500 m |

Find the (a) true difference of elevation between A and B and (b) RL of B.

16. Explain interpolation of contours by (a) estimation, (b) arithmetical calculation and (c) graphical method.
17. The following staff readings were observed successively with a dumpy level and levelling staff. The instrument was shifted after second and fifth readings 0·675, 1·230, 0·750, 2·565, 2·225, 1·935, 1·835, 3·220. The first staff reading was taken with staff held on a BM of RL of 125·325 m. Enter the readings in the level book. Compute the RLs by HI method. Apply the check.
18. Explain with neat sketch how the plans are enlarged or reduced by using pantagraph.
