



c16-c-105

6021

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER—2020
DCE—FIRST YEAR EXAMINATION
SURVEYING—I

Time : 3 hours]

Total Marks : 80

PART—A

- 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. Mention any six types of survey based on instruments. $\frac{1}{2} \times 6 = 3$
2. Draw the conventional signs adopted in chain surveying for the following : $1+1+1=3$
 - (a) Railway line single
 - (b) Lake
 - (c) Hill
3. A 30 m chain with 40 cm too short was used to measure a line and the result was 200 m. What was the true length? $1 \times 3 = 3$
4. Convert the given fore bearings to back bearings : $1+1+1=3$
 - (a) $189^{\circ}30'$
 - (b) 278°
 - (c) $20^{\circ}30'$

- * 5. Mention any six accessories used in compass surveying. $\frac{1}{2} \times 6 = 3$
6. Write about the different natural errors commonly find in levelling. $1 \times 3 = 3$
7. Define : $1 + 1 + 1 = 3$
 (a) Level surface
 (b) Horizontal plane
 (c) Vertical line
8. Write any six parts in wye level. $\frac{1}{2} \times 6 = 3$
9. Define : $1 \frac{1}{2} \times 1 \frac{1}{2} = 3$
 (a) Contour interval
 (b) Horizontal equivalent
10. Mention the names any six minor instruments. $\frac{1}{2} \times 6 = 3$

PART—B

- Instructions :** (1) Answer *any five* questions.
 (2) Each question carries **ten** marks.
 (3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. (a) State various types of obstacles in chaining with an example to each type. 5
- (b) *B* and *C* are two points on the opposite banks of a river along a chain line *ABC* which crosses the river at right angles to the bank from a point *P* which is 45.72 m from *B* along the bank, bearing of *A* is $215^\circ 30'$ and the bearing of *C* is $305^\circ 30'$ were observed. If the length of *AB* is 60.96 m. Find the width of the river. 5

- * **12.** (a) Explain well condition and ill conditioned triangle and also state which is preferred in chain surveying. 2+2=4

(b) The following offsets are taken from a survey to a hedge

Distance (m)	0	5	10	15	20	30	40	55	70
Offset (m)	3.29	4.05	5.5	6.9	7.5	8.2	7.8	4.2	5.3

Find the area between the survey line and the hedge by—

(i) trapezoidal rule;

(ii) Simpson's rule;

3+3=6

- 13.** The following bearings were taken with a compass in a closed traverse. It was suspected that local attraction was present. Find the corrected fore bearings and back bearings. 1×10=10

LINE	FB	BB
AB	75°5'	254°20'
BC	115°20'	296°35'
CD	165°35'	345°35'
DE	224°50'	44°05'
EA	304°50'	125°5'

- 14.** Define closing error. Explain adjustment of closing error by Bowditch's rule. 3+7=10

- 15.** The following staff readings were obtained when running a line of levels between two bench marks A and B—1.95, 2.90, 3.10, 2.95, 1.50, 1.91, 3.25, 2.51, 3.15, 0.45, 1.35, 2.75, 2.81, the instrument was shifted after 4,7 and 10th readings.

The RL of A is 100 and RL of B is 98.

(a) Enter all the reading in a tabular pro forma.

(b) Find elevations of all stations.

(c) Determine the error in the level B.

2+7+1=10

- 16.** Explain different methods of levelling with a neat sketch.

1×10=10

* **17.** (a) Write a short note on reciprocal levelling. 3

(b) The following details refer to reciprocal levels taken with a dumpy level

Instrument at	Staff reading on		Remarks
	<i>P</i>	<i>Q</i>	
<i>P</i>	1.525	2.975	Distance between <i>P</i> and <i>Q</i> is 1300 m, RL of <i>P</i> is 700.555 m
<i>Q</i>	0.750	1.895	

Find the following :

2+3+2=7

(i) RL of *P*

(ii) Combined error for curvature and refraction

(iii) Collimation error in the instrument

18. (a) Explain any one principle of surveying. 4

(b) Write the uses of planimeter. Explain its constructional features. 6

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