



c09-c-105

3015

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2013

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. Mention any six classifications of surveys based on the instruments used. ½×6=3

2. Draw the conventional signs adopted in chain surveying for the following : 1×3=3

(a) Metalled road

(b) Pipe fencing

(c) Temple

3. Define the following terms : 1×3=3

(a) Offset

(b) Perpendicular offset

(c) Oblique offset

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4. Define the following terms : 1½×2=3

(a) Declination

(b) True meridian

5. The magnetic bearing of line CD is S 30°-15 W. Find the true bearing if the declination is 10°-15 E. 1+2=3

6. The length of the line measured with a 20m chain was found to be 630·40m. It was afterwards found that the chain was 50 mm too long. Find the true length of the line. 1×3=3

7. Define the following terms used in leveling : 1½×2=3

(a) Line of collimation

(b) Axis of telescope

8. Find the corrections due to curvature, refraction and combined correction effect of both for a distance of 1300m. 1×3=3

9. Write short notes on the following : 1½×2=3

(a) GTS benchmarks

(b) Arbitrary benchmark

10. Write the functions of the following terms of electronic planimeter : 1×3=3

(a) Tracing arm

(b) Tracing point

(c) LED indicator

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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 various types of obstacles in chaining with an example to each type. 2+2+1
 (b) A line was measured by a 20m chain which was accurate before starting the day's work. After chaining 900m, the chain was found to be 60mm too long. After chaining a total distance of 1575m, the chain was found to be 140mm too long. Find the true distance of the line. 2+2+1

- 12.** The following perpendicular offsets were taken from the centre line to a hedge :

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

Compute the area between the centre line of road and hedge by applying (a) Trapezoidal rule and (b) Simpson's rule. 5+5

- 13.** The bearing of the sides of a traverse *ABCDEA* are given below. Compute the interior angles of the traverse : 2×5=10

Side	Forebearing	Back bearing
<i>AB</i>	110°-15	290° 15
<i>BC</i>	35°-15	215° 15
<i>CD</i>	276° 30	96° 30
<i>DE</i>	195° 30	15° 30
<i>EA</i>	132° 15	312° 15

14. The following are given the observed bearings of the lines of traverse *ABCDEA* with a compass in a place where local attraction was suspected :

<i>Side</i>	<i>Forebearing</i>	<i>Back bearing</i>
<i>AB</i>	191° 45	13° 00
<i>BC</i>	39° 30	222° 15
<i>CD</i>	22° 15	200° 30
<i>DE</i>	242° 45	62° 45
<i>EA</i>	330° 15	147° 45

Find the corrected bearings of the lines. 10

15. Find out the missing figure and complete the level book page.
Apply usual arithmetic check : 9+1=10

<i>Station</i>	<i>BS</i>	<i>IS</i>	<i>FS</i>	<i>Rise</i>	<i>Fall</i>	<i>RL</i>	<i>Remarks</i>
1						150.000	BM
2		2.457			0.827		
3		2.400		0.057			
4	2.697					148.070	CP
5			2.051	0.646		148.716	CP
6		2.500		1.068		149.784	
7		2.896				149.388	
8					0.124		
9			2.672	0.348		149.612	

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16. The following consecutive readings were taken with a level and a 4 m leveling staff on continuously sloping ground at a common interval of 30 m: 0.585 on A, 0.936, 1.953, 2.846, 3.644, 3.938, 0.962, 1.035, 1.689, 2.534, 3.844, 0.956, 1.579, 3.016, on B. The elevation of A was 520.450. Calculate RL's by HI method and apply the usual checks. Determine the gradient of the line AB. 8+1+1=10

17. The following notes refer to the reciprocal levels taken with one level :

Instrument at	Staff reading on		Remarks
	A	B	
A	1.156	2.597	Distance between A and B=1200 m RL of A=625.555
B	0.987	2.418	

Find (a) the true reduced level of B, (b) the combined correction for curvature and refraction and (c) the error in the collimation adjustment of the instrument. 3+1+6=10

18. Describe the working of pentagraph for enlarge a plan with a neat sketch. 6+4=10

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