



c16-c-106

5017

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2018

DCE—FIRST YEAR EXAMINATION

SURVEYING—I

Time : 3 hours]

[Total Marks : 80

PART—A

2×15=30

- Instructions :** (1) Answer *any fifteen* questions.
(2) Each question carries **two** marks.
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

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1. Define surveying.
2. What are the main divisions of surveying?
3. State the two fundamental principles of surveying.
4. State the classification of survey based on the object of survey.
5. State the principle of chain surveying.
6. A surveyor measured the distance between two stations on a plan drawn to a scale of 10 m to 1 cm and result was 686 m. Later, however, it was discovered that he used a scale of 20 m to 1 cm. Find the true distance between the stations.

7. Define ranging.*
8. The length of a line was found to be 600 m when measured with 20 m chain. If the chain is 15 cm short, find out the correct length of line.
9. What are the types of errors in ordinary chain?
10. A chain was tested before starting the survey, and was found to be exactly 20 metres. At the end of the survey, it was tested again and was found to be 20.15 metres. Area of the plan of the field drawn to a scale of 1 cm = 10 m and was found 75.5 sq. cm. Find the true area of the field in sq. m.
11. Define the following terms :
- (a) Bearing
 - (b) Meridian
12. State the principle of compass surveying.
13. What is meant by local attraction?
14. What is a magnetic declination?
- * 15. Define levelling.
16. What are the temporary adjustments of a level? How is it done?
17. Define the following terms :
- (a) Benchmark
 - (b) Axis of bubble tube
18. State the desired relationship between fundamental lines of levelling instrument.
19. State any four objectives of levelling.
20. What are the different errors in levelling?

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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.

- 21.** (a) Explain the fundamental principles of surveying.
(b) State any four purposes of surveying.
- 22.** (a) State any four precautions to be taken while entering readings into the field book.
(b) Plot the following cross-staff survey of a field *ABCDEFGG* and calculate its area :

	750	D
	650	210 E
C 180	490	
	300	250 F
B 160	180	
	100	50 G
	0	A

- 23.** (a) State the formula used to calculate the area by average ordinate rule.
(b) The following perpendicular offsets were taken at 10 m intervals from a chain line to an irregular boundary line 3·10, 4·20, 5·35, 6·45, 7·15, 8·25, 7·95 and 5·20 m. Find the area by (i) trapezoidal rule and (ii) Simpson's rule.
- 24.** (a) What is traversing? What are the types of traverses?
(b) Draw a neat sketch of a prismatic compass and label its parts.

25. (a) ^{*} What is a magnetic dip?

(b) The observed bearings of the lines of a traverse *ABCDE* with a compass in a place where local attraction was suspected are given below :

<i>Line</i>	<i>Fore Bearing</i>	<i>Back Bearing</i>
<i>AB</i>	191 45	13 00
<i>BC</i>	39 30	222 30
<i>CD</i>	22 15	200 30
<i>DE</i>	242 45	62 45
<i>EA</i>	330 15	147 45

Find the correction and corrected bearings to the lines.

26. The following consecutive readings were observed successfully with a levelling instruments. 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 up a page of level book and enter the readings. Determine the RL of various points on which the first reading is 136.440 by rise and fall method.

27. A page of a level field book partly defaced is produced below. Supply the missing entries marked with a cross :

<i>Station</i>	<i>BS</i>	<i>LS</i>	<i>FS</i>	<i>Rise</i>	<i>Fall</i>	<i>RL</i>	<i>Remarks</i>
1	1.200					100.00	BM
2		X			0.650	X	
3	1.350		1.565	X		X	CP ₁
4		X		0.085		X	
5	X		X		X	X	
6		X		X		100.240	CP ₂
7			2.50			99.150	
Total	4.415		X	1.075	X		

28. Draw a neat sketch of dumpy level and mention its parts.
