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C14-C-106

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BOARD DIPLOMA EXAMINATION, (C-14)

JUNE—2019

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 fundamental principles of surveying. 1½+1½=3
2. Write any three points to be kept in mind while recording field observations.
3. State the function of each (a) cross-staff, (b) arrow and (c) ranging rod.
4. List the obstacles in chain surveying giving one example for each.
5. What is an offset? Distinguish between perpendicular and oblique offset.
6. Draw the conventional signs adopted in chain surveying for (a) chain line, (b) river and (c) road culvert.
7. Define local attraction. How it is detected?
8. Write any three instrumental errors in prismatic compass.
9. Find the true bearing for the observed readings (a)  $PQ = N43^{\circ}20'E$ , declination  $2^{\circ}15'W$  and (b)  $RS = S150^{\circ}25'E$ , declination  $1^{\circ}10'E$ .
10. Mention any three uses of Abney level.

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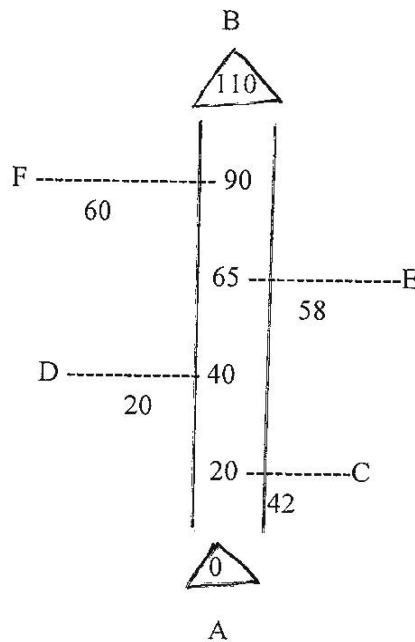
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**PART—B**

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) Explain different stages of survey operations. 6  
(b) Briefly explain with sketch under which conditions geodetic surveying is conducted. 4
12. (a) Explain the perpendicular offset and oblique offset in chain surveying with sketches. 4  
(b) Explain the stepping method of chaining on a sloping ground. 6
13. (a) Explain how you can measure a chain line when a pond interrupts the line. 4  
(b) Plot the following cross-staff survey of a field and calculate its area : 6



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14. The following perpendicular offsets were taken from a chain line to a curved boundary line :

<i>Chainage</i> (in m)	0	5	10	15	20	30	40	60	80
<i>Offset</i> (in m)	2.50	3.80	4.60	5.20	6.10	4.70	5.80	3.90	2.20

Calculate the area between survey line and the hedge and the end offsets by (a) Trapezoidal rule and (b) Simpson's rule.

15. (a) Explain the temporary adjustments of a prismatic compass. 8  
 (b) Write any four precautions to be taken while conducting a compass survey. 2

16. The following fore and back bearings were observed with a compass. Where do you suspect the local attraction? Find the corrected bearings :

<i>Line</i>	<i>Fore bearing</i>	<i>Back bearing</i>
<i>AB</i>	N55°00'E	S54°00'W
<i>BC</i>	S67°30'E	N66°00'W
<i>CD</i>	S25°00'W	N25°00'E
<i>DE</i>	S77°00'W	N75°30'E
<i>EA</i>	N64°30'W	S63°30'E

17. (a) Explain how you check the accuracy of a closed traverse. 5  
 (b) Briefly describe the procedure of adjusting closing error by Bowditch rule. 5
18. (a) What is pentagraph? Explain the working principle of a pentagraph with a neat sketch. 6  
 (b) Write any four precautions to be taken while using a planimeter. 4

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