



c14-c-106

**4020**

**BOARD DIPLOMA EXAMINATION, (C-14)**

**OCT/NOV—2016**

**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 the instruments used.
2. Differentiate between the plan and map giving example for each. 1½+1½
3. State any three points kept in mind while selecting the survey stations.
4. Explain the terms with an aid of sketch (a) base line, (b) check line and (c) tie line.
5. Define ranging and list the methods of ranging.
6. Write the formulae for calculating the area using Trapezoidal rule and Simpson's rule.
7. State under which conditions compass survey is preferable.

- \* 8. In a closed traverse  $PQR$  by a compass in clockwise direction the forebearings are  $PQ$   $50^\circ$ ,  $QR$   $170^\circ$  and  $RP$   $300^\circ$ . Calculate the included angle at  $P$ ,  $Q$  and  $R$ .
9. What are the types of error in compass survey?
10. State the working principle of pentagraph and any two uses of the instrument.

**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 the two main principles of surveying with the help of sketches. 6  
 (b) List any four duties of surveyor. 4
12. (a) What are the precautions to be taken while entering the measurements and details in the field book? 4  
 (b) How can you adjust the erroneous length due to shortening and elongation of a chain? 6
13. (a) Briefly explain how the cumulative and compensating errors occur in chaining. 6  
 (b) A line was measured with a chain which was found to be 100 mm too short at the end of measuring a length of 1460 m. Find the true length of the line, if the chain used is exactly 30 m at the beginning of the work. 4
- \* 14. A chain line  $ABC$  crosses a river at  $90^\circ$ .  $B$  and  $C$  are two points, located at the near and far banks respectively.  $AB$   $57.73$  m. A perpendicular  $BD$  is erected at  $B$  for a length of 100 m, and  $\angle ABD = 90^\circ$ . The whole circle bearing of  $C$  and  $A$  taken at  $D$  are  $30^\circ$  and  $120^\circ$  respectively. Find the width of the river. 10

- \* 15. (a) Explain the types of errors those occur while using a compass. 6
- (b) Write any eight precautions to be taken while conducting a compass survey. 4

16. The following fore-and back bearings were observed with a compass. Where do you suspect the local attraction? Find the corrected bearings. 10

<i>Line</i>	<i>Forebearing</i>	<i>Back Bearing</i>
<i>AB</i>	72 45	252 00
<i>BC</i>	349 00	167 15
<i>CD</i>	298 30	118 30
<i>DE</i>	229 00	48 00
<i>EA</i>	135 30	319 00

17. The following fore-and back bearings of a closed traverse with a compass. Sketch and compute the interior angles of the traverse and apply usual checks. 10

<i>Line</i>	<i>Forebearing</i>	<i>Back Bearing</i>
<i>AB</i>	N45 10 E	S45 10 W
<i>BC</i>	S60 40 E	N60 40 W
<i>CD</i>	S4 50 E	N4 50 W
<i>DA</i>	N80 40 W	S80 40 E

18. (a) Explain how you can measure the slope of the ground using an Abney level. 6
- (b) Write any four precautions to be taken while using a planimeter. 4

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