



**c16-c-105**

**6021**

**BOARD DIPLOMA EXAMINATION, (C-16)**

**OCT/NOV—2018**

**DCE—FIRST YEAR EXAMINATION**

**SURVEYING—I**

*Time : 3 hours ]*

*[ Total Marks : 80*

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**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. Write any three purposes of surveying.
2. State the principles of chain surveying. Explain any two purposes of chain surveying.
3. Explain about 'metric chain'.
4. Distinguish between open traverse and closed traverse.
5. Convert the following whole circle bearings to the reduced bearings :
  - (a) 20°
  - (b) 150°
  - (c) 210°
6. Define (a) level surface, (b) datum and (c) horizontal line.

7. State any three desired relationships among fundamental lines of levelling instrument.
8. Define (a) back sight, (b) change point, and (c) height of instrument.
9. Explain (a) error due to curvature, and (b) error due to refraction.
10. Write any three applications of electronic planimeter.

**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) Write the classification of survey based on the objective of survey.  
(b) Write the procedure to find the area of map with a planimeter. 5+5=10
12. (a) Explain the method of 'reciprocal ranging'.  
(b) The distance between two points, measured with a 30 m chain, was recorded as 540 m. It was afterwards found that the chain was 6 cm too long. What was the true distance between the points? 5+5=10
13. The following perpendicular offsets were taken at 30 m intervals from a base line to an irregular boundary line :  
5.9 m, 12.5 m, 16.5 m, 15.8 m, 18.4 m, 20.9 m, 24.2 m, 21.8 m and 19.4 m  
Calculate the area in square metres of the irregular boundary—  
(a) trapezoidal rule;  
(b) Simpson's rule.

14. In a closed traverse, if the observed bearings are as under, determine the correct included angles :

Line	FB	BB
<i>AB</i>	150°30	329°45
<i>BC</i>	78°0	256°30
<i>CD</i>	42°30	223°45
<i>DE</i>	315°45	134°15
<i>EA</i>	220°15	40°15

15. (a) What are the instruments used while conducting compass surveying?

(b) State various errors that occur in compass surveying.

5+5=10

16. The following readings were observed successively with a levelling instrument :

0.585 m, 1.010 m, 1.735 m, 3.295 m, 3.775 m, 0.350 m,  
1.300 m, 1.795 m, 2.575 m, 3.375 m, 3.895 m, 1.735 m,  
0.635 m and 1.605 m

The instrument was shifted after fifth and eleventh readings. Draw up a page of level book and determine the RL of various points if the RL of the point on which the first reading was taken is 136.440. Use the rise and fall method. Apply check.

17. (a) Define benchmark. Explain the types of benchmark.

(b) Explain about 'fly levelling'.

5+5=10

18. Explain the indirect methods of contouring.

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