



c14-c-106

4020

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH/APRIL—2017

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. Define surveying and levelling. 1½+1½
2. Distinguish between plane and geodetic surveying. 1½+1½
3. State any three purposes of chain surveying. 1×3
4. Define ranging and state the methods of ranging. 1+2
5. State and write the formulas for any two methods of calculating areas for the irregular boundaries in a chain surveying. 1+2
6. The length of a line measured with a chain of 30 meters was found to be 800 meters. The chain was found to be 15 cm too short. Find the true length of the line. 3
7. Convert the following whole circle bearings into quadrantal bearings : 1×3
 - (a) 163°45
 - (b) 293°15
 - (c) 84°45

- * 8. List all types of error in compass survey. 3
9. The magnetic bearing of a line is $56^{\circ}34'$. Calculate true bearing if the magnetic declination is $5^{\circ}16'$ East. 3
10. State various mined instruments used in surveying. 3

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) Discuss in brief the principles of surveying. 2
 (b) Write down the general classifications of survey based on all four ways. 8
12. (a) Explain the 3-4-5 method to erect a perpendicular to a chain line from a point on it. 4
 (b) List out the instruments used in a chain survey and explain briefly the use of each instrument. 6
13. (a) Write various types of obstacle in chaining with an example of each type. 4
 (b) A survey line BAC crosses a river, A and C being on the near and distant banks respectively. Standing at D , a point 25 meters measured perpendicularly to AB from A , the bearing of C and B are 320° and 230° respectively, AB being 75 meters. Find the width of the river. 6

- * **14.** Plot the following cross-staff survey of a field *ABCDEFG* and calculate its area as shown in the figure below (in hectares) : 10

| | | |
|--------------|-----|--------------|
| | 750 | <i>D</i> |
| | 650 | 210 <i>E</i> |
| <i>C</i> 180 | 490 | |
| | 300 | 250 <i>F</i> |
| <i>B</i> 160 | 180 | |
| | 100 | 50 <i>G</i> |
| | 0 | <i>A</i> |

- 15.** (a) Write about (i) meridian, bearing and angle between survey lines and (ii) whole circle and reduced bearings. 2+2

- (b) A line was drawn to a magnetic bearing of $230^{\circ}45'$ on an old map, when the magnetic declination was $6^{\circ}30'$ E. To what bearing should it be set now, if the present magnetic declination is $2^{\circ}30'$ W? 6

- 16.** What is closing error? Explain, how you adjust closing error by Bowditch graphical method. 10

- 17.** The following bearings were observed in running a closed traverse :

| <i>Line</i> | <i>FB</i> | <i>BB</i> |
|-------------|-----------|-----------|
| <i>AB</i> | 124 30 | 304 30 |
| <i>BC</i> | 68 15 | 246 00 |
| <i>CD</i> | 310 30 | 135 15 |
| <i>DA</i> | 200 15 | 17 45 |

At what stations do you suspect the local attraction? Determine correct bearings. 10

- * **18.** (a) What is pantagraph? Explain with the help of a sketch the constructional features of pantagraph. 7

- (b) Write any three uses of 'Abney level'. 3
