



C-16-C-106

**5017**

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

MARCH / APRIL - 2019

**DCE - FIRST YEAR EXAMINATION**

**SURVEYING - I**

Time : 3 Hours]

[Total Marks : 80

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**PART - A**

**2×15=30**

- Instructions :**
- (1) Answer any 15 questions.
  - (2) Each question carries 2 marks.
  - (3) Answer should be brief and straight to the point and shall not exceed five simple sentences.

- 1 Define :
  - (a) plane surveying
  - (b) Geodetic surveying.
2. State the fundamental principles of surveying.
- 3 State any four stages of survey operation.
- 4 List any two instruments used for taking linear and angular measurement.
- 5 Define ranging and State the methods of ranging.
- 6 Define : (I) Base line (II) Check line.
- 7 List any four instruments used for chain surveying.

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- 8** Draw the conventional signs adopted in chain surveying for the following :
- (I) Chain line (II) River (III) Open well (IV) Pipe Railing.
- 9** The length of a line was found to be 600m when measured with 20m chain. If the chain is 15cm short, find out the correct length of line.
- 10** List out any two precautions a surveyor to be observed while booking the field work of a chain survey.
- 11** State the purpose of compass survey.
- 12** Define the terms : (i) Whole circle bearing (ii) local attraction
- 13** Define : (i) Fore bearing (ii) back bearing
- 14** Find the back bearings of the following lines from the observed Fore Bearing : (i) PQ-79 °24' (ii) RS= 354° 24'.
- 15** Define the following terms : (a) Level surface (b) Level line.
- 16** Name any two types of leveling staff.
- 17** List any four types of bench marks.
- 18** List the errors in leveling.
- 19** If levelling staffs is placed at a distance of 800m from the instrument find : (a) Correction for curvature (b) Correction for refraction.
- 20** List the fundamental lines of a dumpy level.

## PART - B

10×5=50

- Instructions :**
- (1) Answer any **FIVE** questions.
  - (2) Each question carries **TEN** marks.
  - (3) Answer should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 21** (a) State the classification of surveys based on instruments used. **4**
- (b) Explain the general classification of land surveying. **6**
- 22** (a) State the various types of obstacles in chaining. **3**
- (b) The following perpendicular offsets were taken at 30m intervals from a base line to an irregular boundary line 5.9m, 12.5m, 16.5m, 15.8m, 18.4m, 20.9m, 24.2m, 21.8m and 19.4m **7**
- calculate the area in square meters enclosed between the baseline and the irregular boundary line and the first and last offsets by (i) Trapezoidal rule (ii) Simpson's rule.
- 23** (a) Distinguish between cumulative errors and compensating errors **4**
- (b) A chain line AB is obstructed by a big pond and the points A and B are on either side of pond. At A a line CAD was ranged out. The distance AD=320m, AC=280m, DB=530m and CB=485m. are measured. Find the distance AB. **6**
- 24** (a) Explain secular variation and diurnal variations. **4**
- (b) The bearings of the lines OA, OB, OC, and OD are  $45^{\circ}15'$ ,  $123^{\circ}30'$ ,  $216^{\circ}45'$  and  $320^{\circ}00'$  respectively. Find the included angles  $\angle AOB$ ,  $\angle BOC$ ,  $\angle COD$ , and  $\angle DOA$ . **6**

- 25 The bearings observed in a traverse survey, at a place where local attraction was suspected are given below :

<i>Line</i>	<i>Fore bearing</i>	<i>Back bearing</i>
PQ	124° 30'	304° 30'
QR	68° 15'	246° 00'
RS	310° 30'	135° 15'
SP	200°15'	17° 45'

At what stations do you suspect local attraction ? Find the corrected bearings of the lines.

- 26 The following consecutive readings were observed with a levelling instrument. The instrument was shifted after 5<sup>th</sup> and 11<sup>th</sup> readings 0.585, 1.010, 1.735, 3.295, 3.775, 0.350, 1.300, 1.795, 20575, 3.375, 3.895, 1.735, 0.635, 0.605. Draw a page of level book and enter the readings. Determine the R.L of various points, if the R.L of the point on which the first reading was taken is 136.440 by rise and fall method. Apply check.
- 27 Describe in detail the process of :  
 (a) Profile levelling (b) Cross sectioning.
- 28 (a) Compare the collimation method with rise and fall method. **5**  
 (b) An observer at a position 12 m above the sea level **5**  
 observes the luminous object . The distance between the observer and the object is 65 KM. Find the height of the luminous object.