

7227

BOARD DIPLOMA EXAMINATION, (C-20)

MAY—2023

DCE - THIRD SEMESTER EXAMINATION

SURVEYING—II

Time : 3 Hours]

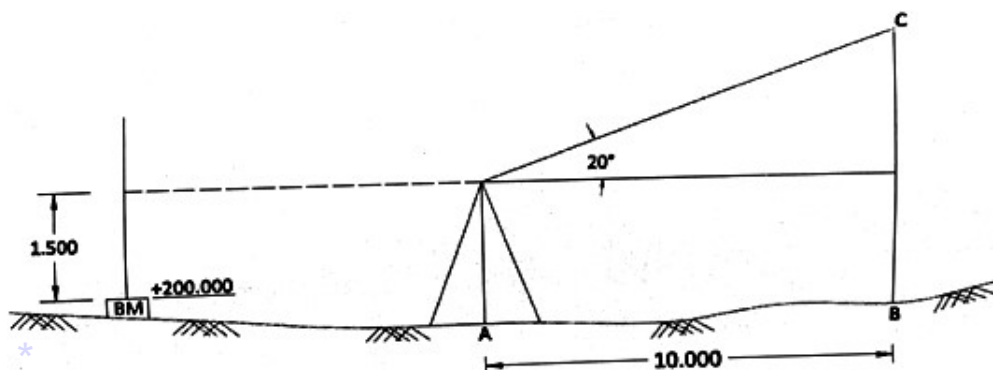
[Total Marks : 80

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.

- List the uses of a theodolite.
- Define the terms (a) consecutive coordinates and (b) independent coordinates.
- List the types of errors in theodolite surveying.
- Determine the RL of top of a pole 'C' shown in figure below. Back side reading taken on BM, RL of BM and distance between instrument station and pole(BC) are in meters.



5. State the principle of tacheometry.
6. Enumerate the difference between stadia and tangential tacheometry.
7. List the different methods of curve setting using chain and tape.
8. Define the terms (a) point of curve and (b) point of tangency.
9. State the components of GIS.
10. Write short note on GPS.

PART—B

8×5=40

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

11. (a) Explain various methods of theodolite traversing.

(OR)

- (b) The latitudes and departures of the lines of a closed traverse are given below. Take the independent coordinates of a point A(+200,+100) for North and East respectively.

Calculate (i) independent coordinates of other stations and (ii) area of the traverse.

Line	Northing	Southing	Easting	Westing
AB	-	155·650	160·200	-
BC	225·250	-	55·500	-
CD	165·320	-	-	95·600
DA	-	234·920	-	120·100

12. (a) Determine the elevation of top of an aerial pole from the following observations. Stations A, B and top of aerial pole are in the same vertical plane.

Instrument at	Staff Reading on BM (m)	Vertical angle to top of pole	Remarks
A	1.356	10°20'	RL of BM = 150.00 m
B	1.106	7°20'	Distance AB = 25.00 m

(OR)

- (b) In-order to find the height of an electric pole, two vertical angles +4°30' and -4°30' are measured to top and bottom of pole from instrument station, which is at a distance of 68m from the base of pole. Find the height of pole and RL of the bottom of pole. The RL of instrument axis is 100.000 m.

13. (a) The following observations were made using a tacheometer fitted with anallatic lens, the multiplying constant being 100.

Instrument Station at	Height of instrument (m)	Staff Station	WCB angle	Vertical	Hair readings (m)
O	1.550	A	30°30'	4°30'	1.155, 1.755, 2.355
		B	75°30'	10°15'	1.250, 2.000, 2.750

Calculate the distance AB and RL of A and B if the RL of O is 150.000 m.

(OR)

- (b) The distance of 50 m and 300 m were accurately measured out and the intercepts on the staff between the outer stadia were 0.490 at the former distance and 2.99 at the later. Find out the constants of the tacheometer.

14. (a) Explain the procedure for setting out a curve by one theodolite method.

(OR)

- (b) Two tangents AB and BC intersect at a point B at chainage 1000 m. The deflection angle is 30°. They are connected by a circular curve of radius 300 m. Determine (i) length of curve, (ii) length of long chord, (iii) chainage of point of commencement of curve and point of tangency and (iv) apex distance.

15. (a) Explain the types of data used in GIS.

(OR)

(b) State the merits and demerits of GPS.

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

16. Two straights intersect at a chainage 3670.00 m. Calculate all the necessary data for setting out a circular curve of radius 100 m and deflection angle 30° by the method of offsets from the long chord.

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