6225

C16-C–304

6225

BOARD DIPLOMA EXAMINATION, (C-16)

JANUARY/FEBRUARY—2022

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.

1. List the fundamental lines of theodolite.

2. Define latitude and departure of a survey line.

3. What are the various methods of closing error and balancing the traverse?

4. State the principle and necessity of trigonometric leveling.

5. Derive the expression for finding the height of object whose base is inaccessible in trigonometric leveling.

6. Explain how the additive and multiplying constants of tacheometry are determined in the field.

7. Define tacheometry. What is the need of tacheometric surveying?

8. Define terms *(a)* point of Tangency and *(b)* length of curve.

9. Derive the expression between the radius of curve and degree of curve.

10. List the parts of total station.

PART—B

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain the method of measuring the horizontal angle by repetition method using theodolite with a neat sketch. 10

12. The following table gives the corrected latitudes and departures in (m) of the sides of closed Traverse ABCD : 10

SIDE	LATITUDE		DEPARTURE	
	N	S	E	W
AB	108	—	4	—
BC	15	—	249	—
CD	—	123	4	—
DA	0	—	—	257

Calculate the area of Traverse by co-ordinates method. Assume co-ordinates of 'A' as (100, 100).

13. Find the elevation of the top of Q of the signal on a hill from the following data, stations P and R being in line with Q: 10

Inst. Station	*Angle of elevation*	*Sight to*	*Staff readings on B.M.*	*Remarks*
P	28° 42'	Q	2.75	*(i)* RL of BM = +257.28m
R	18° 6'	Q	3.70	*(ii)* Distance PR = 90m

14. A Tacheometer was setup at station A and the following readings were obtained on a vertically held staff. 10

Instrument at	*Staff at*	*Vertical angle*	*Stadia readings*	*Remarks*
A	BM	– 02° 18' 18"	1.50 1.80, 2.10	RL of BM = 400.55 m
	B	+ 08° 36' 00"	0.75 1.50, 2.25	

Calculate the horizontal distance from A to B and the RL of B, if the constants of instruments were 110 and 0·4.

15. Derive the distance and elevation formulae for fixed hair method in Tacheometry for inclined sights when staff held vertical with a neat sketch. 10

16. Explain the procedure for setting a simple curve by *(a)* Radial offsets method and *(b)* Perpendicular offsets method. 5+5=10

17. Two tangents intersect at chainage 1200m, the deflection angle being 40°, Compute the table for setting out a 400m radius curve by Rankine's method.Take 30m chord length in general reach. 10

18. *(a)* Write short notes on EDM. 4

(b) Explain the procedure of measuring the area with single station set up using total station . 6

★★★