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BOARD DIPLOMA EXAMINATION, (C-16)  
MARCH/APRIL—2018  
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. Define face left and face right observations of a transit theodolite.
2. Define (a) transiting of telescope and (b) swinging of telescope.
3. Define latitude and departure of a survey line.
4. Derive an expression for finding the height of an object when the base is accessible in trigonometric levelling.
5. State different cases of trigonometric levelling.
6. (a) State the different methods of tacheometric survey.  
(b) List the constants of tacheometer. 2+1

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7. Distinguish\* between fixed hair method and movable hair method of stadia tacheometry.
8. List the methods of curve setting in the field.
9. Define the following terms of a simple circular curve :  
 (a) Point of tangency  
 (b) Forward tangent  
 (c) Mid ordinate
10. State any six components of total stations.

**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. Describe the process of measuring horizontal angle between several points by reiteration method with a theodolite with the help of a neat sketch.
12. (a) What are meant by right deflection angle and left deflection angle?  
 (b) The following deflection angles were measured in running a traverse from A to G. If the true bearing of line AB is N65 20 E, calculate the true bearings of remaining lines :

Station	Deflection angle
B	21 40 R
C	20 20 L
D	35 25 R
E	16 35 R
F	15 41 L

2+8

13. Draw a neat sketch and determine the horizontal distance between A and signal tower P, also the elevation of the top of the signal tower P from the following data :

<i>Inst. At</i>	<i>Staff Reading on BM (m)</i>	<i>Sight to</i>	<i>Vertical Angle</i>	<i>Remarks</i>
A	1.515	P	32 40	RL of BM = 45.15 m
B	3.350	P	22 30	Distance AB 100 m

14. Derive distance and elevation formulas for fixed hair method in tacheometry for inclined sights when the staff held vertical with a neat sketch.

15. The following observations were made using a tacheometer fitted with an analytic lens, the multiplying constant being 100 :

<i>Inst. Station</i>	<i>H.I. (m)</i>	<i>Staff Station</i>	<i>W.C.B</i>	<i>Vertical Angle</i>	<i>Cross Hair Readings (m)</i>	<i>Remarks</i>
P	1.55	A	30 30	4 30	1.155, 1.755, 2.355	R.L. of P 150
		B	75 30	10 15	1.25, 2.0, 2.75	

Calculate the distance AB and the RLs of A and B.

16. Explain the procedure for setting simple circular curve by method of offsets from long chord with a neat sketch.

17. Calculate the necessary data to set out a right-handed circular curve of 600 m radius to connect two straights intersecting at a chainage of 3605 m by Rankine's method of deflection angles, the angle of deflection being 25° and peg interval is 30 m.

18. Explain how area of the given field can be calculated using total stations with a single station setup with a neat sketch.

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