



C14-C-404

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**BOARD DIPLOMA EXAMINATION, (C-14)**  
**MARCH/APRIL—2016**  
**DCE—FOURTH SEMESTER EXAMINATION**  
**SURVEYING—III**

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. State the principle and necessity of trigonometrical leveling.
2. State the term 'staff intercept' and list the constants of tacheometry in stadia tacheometry.
3. Enumerate the difference between stadia and tangential tacheometry.
4. List the methods of curve setting.
5. Define degree of curve and state the relation between radius and degree of curve.
6. State the components of GIS.
7. State the basic principles of terrestrial photogrammetry.
8. List the types of map projections.
9. List any three parts of total station and state their functions.
10. List any three advantages of total station.

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**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.** Determine elevation of top of Chimney A from the following observations :

<i>Instrument at</i>	<i>Sight to</i>	<i>Vertical angle</i>	<i>Staff reading on BM (m)</i>	<i>Remarks</i>
<i>P</i>	<i>A</i>	18 36	0.862	RL of BM 420 380 m
<i>Q</i>	<i>A</i>	10 12	0.950	Distance <i>PQ</i> 50 m <i>A</i> , <i>P</i> and <i>Q</i> are in same vertical plane

**12.** In order to find the height of an electric pole, two vertical angles 3 30 and 5 25 are measured to top and bottom of the pole from instrument station which is at a distance of 80 m from base of pole. Find the height of pole and RL of top and bottom of the pole.

**13. (a)** In a tangential tacheometry, the following observations were taken. Calculate the horizontal distance between the instrument station and staff station :

<i>Inst. station</i>	<i>Staff station</i>	<i>Target</i>	<i>Vertical angle</i>	<i>Staff reading</i>
<i>O</i>	<i>A</i>	Lower	4 30	0.750
		Upper	6 30	3.050

**(b)** The stadia readings with horizontal sight on a vertical staff held 50 m away from a tacheometer were 1.285 and 1.780 m. The focal length of object glass was 25 cm. The distance between the object glass and trunion axis of the tacheometer was 15 cm. Calculate the stadia intercept.

14. A tacheometer fitted with analytic lense was set up at station C and following readings were obtained :

<i>Instrument at</i>	<i>Staff station</i>	<i>WCB</i>	<i>Vertical Angle</i>	<i>Hair Readings</i>
C	A	12 25	0 00	1·880, 2·250, 2·620
	B	60 45	15 10	1·830, 2·150, 2·470

Determine the length of line *AB* and also RL of *A* and *B*, if RL of *C* 130 m, Multiplying constant 100 and additive constant 0.

15. (a) Describe the method of setting out a circular curve using two theodolites method.
- (b) Calculate the necessary data to set out a circular curve of radius 320 m and deflection angle  $30^\circ$  by the method of perpendicular offsets from tangent (take peg interval 10 m).
16. Two tangents intersect at a point *B* of chainage 380 m. The deflection angle being  $30^\circ$ . Calculate the data for setting out a simple circular curve of radius 300 m by Rankine's method of deflection angles with a peg interval of 30 m. Also prepare the table if theodolite used was having 20 least count.
17. Explain staking out a point, line and an arc using total station.
18. (a) Write a short note on GPS.
- (b) Explain the use of stereoscope in photogrammetry.

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