



c16-c-304

6225

BOARD DIPLOMA EXAMINATION, (C-16)

OCT/NOV—2017

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.

(4) Assume suitable data if necessary.

1. List the fundamental lines of theodolite.

2. List the component parts of theodolite.

3. The length and reduced bearing of survey line PQ are 225 m and N 30° W. Find (a) latitude and (b) departure.

4. Derive an expression for finding the RL of an object when the base is accessible.

5. What is trigonometric levelling? When is it used?

6. What is tacheometry? State its main purpose.

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7. What are the different methods of tacheometric survey?
8. Define the following terms :
  - (a) Mid-ordinate
  - (b) Point of curve
  - (c) Subchord
9. List the different angular methods of curve setting.
10. State three functions 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. Mention the sources of errors in theodolite surveying.
  12. Explain the method of measurement of vertical angle by a theodolite.
  13. In order to determine the RL of the top of the chimney, the theodolite was set up at a distance of 30 m from the base. The vertical angle measured to the top of the chimney was  $25^{\circ} 23'$ . The back sight taken on a nearby Br of RL 152.260 was 1.225 m. Determine the RL of the top of the chimney.
  14. A tacheometer was set up at an intermediate station *R* on the line *PQ* and the following readings were obtained :

Staff Station	Vertical Angle	Staff Readings		
<i>P</i>	$-3^{\circ} 24'$	0.580	1.515	2.885
<i>Q</i>	$+3^{\circ} 36'$	1.120	1.765	2.790

The instrument was fitted with an anallatic lens and has a constant of 100. Find the gradient of the line joining stations *P* and *Q*.

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- 15.** The following observations were made on a vertically held staff with a tacheometer set up at an intermediate point on a straight line  $PQ$  :

Staff Station	Vertical Angle	Staff Intercept (m)	Axial Hair Reading (m)
$P$	$-5^{\circ} 44$	2.450	2.215
$Q$	$-6^{\circ} 21$	1.535	2.420

The instrument was fitted with an anallatic lens and has a constant of 100. Compute the horizontal length  $PQ$  and the RL of  $Q$  given that  $P$  has an RL of 342.50 metres.

- 16.** Calculate the radial offsets to be set out at 10 m interval along the tangents to locate a 320 m radius curve.
- 17.** Two tangents intersect at a chainage of 1200 m with a deflection angle being  $30^{\circ}$ . Calculate all the necessary data for setting out a circular curve of radius 300 m by the method of offsets from the chord produced, taking a peg interval of 30 m.
- 18.** Explain the procedure for measurement of area with single station setup using total stations.

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A.A.N.M&V.V.R.S.R POLYTECHNIC, GUDIPALLERU, ERISHNAPET

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