



C14-C-304

4228

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—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 (a) level surface and (b) vertical line.
2. Define benchmark and list out different types of benchmark.
3. List out different types of levelling staff used in levelling.
4. Write the formula for (a) refraction correction and (b) combined correction.
5. What is reciprocal levelling? When is it used?
6. List out different methods of locating contours.
7. What is meant by transit theodolite?
8. List out any six parts of a theodolite.
9. State any three instrumental errors in theodolite survey.
10. List out the fundamental lines of a transit theodolite.

**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.** Draw a neat sketch of dumpy level and mention its parts.  
**12.** Explain briefly about the sources of errors in levelling.  
**13.** Write any ten characteristics of contours.  
**14.** The following consecutive readings were taken with a dumpy level and a 4 m staff on a continuously sloping ground on a straight line at a common interval of 30 m.

0·680, 1·455, 1·855, 2·330, 2·885, 3·380, 1·055, 1·860  
2·265, 3·540, 0·835, 0·945, 1·530 and 2·445

The reduced level of the first point was 80·750 m. Rule out a page of a level field book and enter the above readings. Calculate the reduced levels of the points by the rise and fall method and apply usual checks.

- 15.** The following details refer to the reciprocal levels taken with a dumpy level :

<i>Instrument station near to</i>	<i>Staff readings on</i>		<i>Remarks</i>
	<i>A</i>	<i>B</i>	
<i>A</i>	1·505	2·875	Distance <i>AB</i> 1150 m
<i>B</i>	0·750	1·895	RL of <i>B</i> 100·000 m

Find—

- (a) RL of *A*;  
(b) combined error for curvature and refraction;  
(c) collimation error in the instrument.
- 16.** Explain the procedure to measure vertical angle by a theodolite.

- \* **17.** The following are the corrected latitude and departure of closed traverse *ABCD* :

<i>Line</i>	<i>Latitude (m)</i>	<i>Departure (m)</i>
<i>AB</i>	-116.1	- 44.4
<i>BC</i>	6.8	58.2
<i>CD</i>	80.5	17.2
<i>DA</i>	28.8	- 31.0

Assum the coordinates of station *A* as (200, 100).

- (a) Calculate the independent coordinates of other stations.  
 (b) Find the area of the traverse.
- 18.** The following are the length and bearings of a closed traverse *ABCD* :

<i>Line</i>	<i>Length</i>	<i>Bearing</i>
<i>AB</i>	76.80	S 39°48 W
<i>BC</i>	195.60	N 36°24 W
<i>CD</i>	37.20	N 21°12 W
<i>DA</i>	?	?

Calculate the length and bearing of the missing line *DA*.

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