



C14-C-304

4228

BOARD DIPLOMA EXAMINATION, (C-14)
OCT/NOV—2016
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 levelling. What are different types of level used in levelling? 3
2. Define the following terms : 1½×2=3
 - (a) Curvature
 - (b) Refraction
3. Define the following terms : 1½×2=3
 - (a) Axis of bubble tube
 - (b) Axis of telescope
4. State the desired relationship between the fundamental lines of levelling instrument. 3
5. List any three sources of errors in levelling. 3

- * 6. List any three characteristics of contours. 3
- 7. Define the terms 'latitude' and 'departure of survey line'. 3
- 8. What do you understand about closing error? 3
- 9. Mention the four cases of omitted measurements. 3
- 10. What is meant by balancing the traverse? 3

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. The following consecutive readings were taken with a level and 4 m levelling staff on a continuously sloping ground :
 0.780, 1.535, 1.955, 2.430, 2.985, 3.480, 1.550, 1.960,
 2.365, 3.640, 0.935, 1.045, 1.630 and 2.545
 The RL of first point was 180.750 m. Calculate the reduced levels of the points by rise-and-fall method. 10
- 12. Explain the procedure of carrying out temporary adjustments of dumpy level. 10
- 13. The following reciprocal observations were made with a level :

<i>Instruments</i>	<i>Staff readings</i>		<i>Remarks</i>
	<i>A</i>	<i>B</i>	
<i>P</i>	1.210	2.545	Distance between <i>P</i> and <i>Q</i> is 1315 m
<i>Q</i>	0.580	1.985	RL of <i>Q</i> is 532.130 m

Find the (a) RL of *P*, (b) combined error for curvature and refraction, and (c) collimation error in the instrument. 10

- * **14.** Due to rain, some readings in a field book are erased. Find the missing entries from the remaining readings, find RL's and apply usual checks : 10

<i>Station</i>	<i>BS</i>	<i>IS</i>	<i>FS</i>	<i>Rise</i>	<i>Fall</i>	<i>RL</i>	<i>Remarks</i>
1	3.150					103.565	
2		2.245		0.905			
3	3.860		×	1.120			
4		2.125				107.325	
5		×				108.690	
6	×		2.235		1.475		
7		1.935			1.465		
8		3.225			1.290	104.460	
9			×		0.665		
<i>Total</i>	7.480		7.250				

- 15.** (a) Explain with neat sketches the process of reciprocal levelling. 6
 (b) List any four uses of contour maps. 4
- 16.** (a) State any four parts in a transit theodolite and mention their functions. 4
 (b) Explain the method of prolonging a straight line with a transit theodolite. 6
- 17.** The following are the corrected latitudes and departures of a closed traverse ABCDA :

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

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

- (a) Calculate the independent coordinates of other stations.
 (b) Find the area of the traverse. 10

- * **18.** Calculate the missing length and bearing of the line *AB* from the following theodolite traverse data : 10

<i>Line</i>	<i>Length (in m)</i>	<i>Reduced bearing</i>
<i>AB</i>	?	?
<i>BC</i>	453.00	N 21° 49 E
<i>CD</i>	529.00	N 80° 22 W
<i>DA</i>	589.00	S 74° 20 W
