



**c16-c-105**

**6021**

**BOARD DIPLOMA EXAMINATION, (C-16)**

**MARCH/APRIL—2018**

**DCE—FIRST YEAR EXAMINATION**

**SURVEYING—I**

*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. Name any six instruments used for linear measurements. ½×6=3
2. State the principle of chain surveying. 3
3. A 30 m chain with 40 cm too short was used to measure an area and the result was 200 m<sup>2</sup>. Find the true area of the given place. 3
4. Convert the given RB to WCB : 1×3=3
  - (a) N 40° 50 E
  - (b) N 40° 50 W
  - (c) S 40° 50 W
5. Define the following : 1×3=3
  - (a) Magnetic meridian
  - (b) Fore bearing
  - (c) Dip

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*[ Contd...*

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6. Write a note on refraction in levelling. Mention mathematical formula for correction. 2+1=3
7. Define the following : 1½×2=3  
 (a) Datum surface  
 (b) Reduced level
8. Write any three applications of contour maps. 1×3=3
9. Mention any two situations where reciprocal levelling is followed. 1½×2=3
10. Write three uses of clinometers. 1+1+1=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. (a) Explain the methods chaining on sloping ground. 5  
 (b) The area of field was found to be 4000 sq. m, when measured with a chain of 30 m length. If the length of the chain was 0.11 m too short, then find the correct area of the field. 5
12. Plot the following cross staff survey of a field PQRSTUV and calculate its area : 10

	750	S	
	650	210	T
R	180	490	
		300	250 U
Q	160	180	
		100	50 V
		0	P

13. Explain the parts of prismatic compass and their functions. 10

14. (a) What is local attraction? Explain the procedure in detecting a station affected by local attraction. 2+2=4

(b) Find the corrected fore and back bearings of the given closed compass traverse : 6

Line	FB	BB
AB	124° 30	304° 30
BC	68° 15	246° 00
CD	310° 30	135° 15
DA	200° 15	17° 45

15. Find out the missing figure and complete the level book page. Apply usual arithmetic check : 9+1=10

Station	BS	IS	FS	RISE	FALL	RL	REMARKS
1						149.500	BM
2		2.457			0.827		
3		2.400		0.057			
4	2.697					148.070	CP
5			2.051	0.646		148.716	CP
6		2.500		1.068		149.784	
7		2.896				149.388	
8					0.124		
9			2.672	0.348		149.612	

16. The following were the staff readings observed on a continuously sloping ground :

0.705, 1.205, 1.985, 2.345, 0.950, 1.340, 1.975, 0.760, 1.785, 0.905 and 1.235

The RL of the first point was 130.235 m.

(a) Enter the readings properly into the levelling field book proforma.

(b) Find reduce levels by HI method.

(c) Apply the usual arithmetical check. 8+1+1=10

17. (a) Write any five <sup>\*</sup>difficulties faced in levelling and explain to overcome the problems. 5
- (b) Calculate the correction due to curvature, correction due to refraction and correction for both for a distance of 700 m. 2+2+1=5
18. (a) Explain the fundamental principles of surveying. 4
- (b) State the principle of pantograph. Write the procedure to enlarge a given map. 3+3=6

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