4228

BOARD DIPLOMA EXAMINATION, (C–14)
OCT/NOV—2015
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. State any three objectives of leveling. 3

2. Mention different kinds of benchmarks used in leveling. 3

3. Define the following terms : 1+1+1
   (a) Level surface
   (b) Datum
   (c) Benchmark

4. What are the fundamental lines of a dumpy level? State the relationship between them. 3

5. Define *(a)* contour interval and *(b)* contour gradient. 1½+1½

6. State any three uses of contour maps. 3

7. State any three important uses of theodolite. 3

8. Define the following terms : 1+1+1

    (a) Transiting

    (b) Telescope normal

    (c) Swinging telescope

9. State any three instrumental errors in the theodolite surveying. 3

10. Briefly explain the method of prolonging a straight line with a transit theodolite. 3

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PART—B 10×5=50

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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 readings were observed successfully with a leveling instrument. The instrument was shifted after fifth and eleventh readings. Determine the RL of various points, if the RL of first reading was taken as 146·440 m. Use the height of instrument method : 10

    0·585, 1·010, 1·735, 3·295, 3·775, 0·350, 1·300, 1·795, 2·575, 3·375, 3·895, 1·735, 0·635 and 0·605 m

12. Draw a neat sketch of dumpy level and mention its parts. 10

13. The following reciprocal levels were taken with dumpy level : 10

Instrument at	Staff readings on		Remarks
	A	B	
A	1·156	2·597	Distance between A and B = 1200 m
B	0·987	2·418	RL of A = 625·555 m

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

14. The following is the page of level book entered in pencil. Some of the entries got erased, and have been marked with crosses. Calculate the missing readings. 10

Station	BS	IS	FS	Rise	Fall	RL
1	×					150·000
2		2·457		0·827		×
3		2·400		×		×
4	2·697		×		×	148·070
5	×		2·051			148·716
6		2·500				149·784
7		2·896				149·388
8		×			0·124	×
9			2·672			149·612

15. Explain the characteristics of contours. 10

16. State and explain the procedure of measuring the horizontal angles by repetition method. 10

17. The following are the corrected consecutive coordinates of a closed traverse. Calculate the area of the traverse by independent coordinate method : 10

Line	Latitude	Departure
AB	+ 77·062	+ 312·139
BC	+ 248·421	+ 101·734
CD	+ 123·993	– 254·686
DE	– 197·161	– 280·333
EA	– 252·315	+ 121·146

18. The following are the lengths and bearings of the sides of a closed traverse *ABCD* :	10

Line	Length (in m)	Bearing
AB	248·0	N 30° 0 E
BC	320·0	S 40° 0 E
CD	180·0	S 30° 0 W
DA	?	?

Compute the length and bearing of line *DA*.

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