C16-C–304

6225

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2021

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. List any six parts of a theodolite.

2. Write the types of errors in theodolite surveying.

3. Define the following :

(a) Line of collimation

(b) Axis of telescope

4. State the necessity of conducting trigonometric levelling.

5. A theodolite was set up at a distance of 50 m from the base of a pole. The vertical angle measured to the top of pole was 12° 40'. Determine the reduced level of top of chimney if the backsight taken on a benchmark of RL + 100·000 m was 1·145 m.

6. List any three uses of Tacheometry.

7. Two distances of 20 m and 100 m were accurately measured out and intercepts on the staff between the outer stadia were 0·196 m at the former distance and 0·996 m at the later. Calculate the tacheometric constants.

8. Define degree of curve.

9. Define the following :

(a) Point of commencement

(b) Point of tangency

10. List the advantages of Total station.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. Explain the procedure for measuring horizontal angle by repetition method.

12. Explain the procedure for measuring vertical angles using theodolite.

13. In order to determine the elevation of top of a signal Q on a hill, observations were made from two instrument stations P and R, at 50 m distance apart. The stations P and R are in line with Q. The angles of elevation of Q at P and R were 31°40' and 27°32' respectively. The staff readings upon the bench mark of reduced level 182·40 m were 1·905 m and 2·850 m respectively when the instrument was at P and R. Determine the elevation of the top of signal.

14. Following readings were taken by a tacheometer from a station. The staff is kept vertical. The value of constant of tacheometer is 100 and it is fitted with an anallatic lens. Find out the horizontal distance from A to B and the reduced level of B.

Station	Staff station	Vertical angle	Hair readings	Remarks
A	BM	–6°00'	1·100,1·153,2·060	RL of BM is 976·00 m
	B	+8°00'	0·982,1·085,1·185	

15. Determine the gradient from a point A to a point B from the following observations made with a tacheometer fitted with an anallatic lens. The constant of the instrument was 100 and the staff was held vertical.

Instrument station	Staff station	Bearing	Vertical angle	Hair readings
P	A	134°	+10°32'	1·360,1·915,2·470
	B	224°	+5°6'	1·065,1·885,2·705

16. Two straights PQ and QR are connected by a circular curve of 250 m radius. Calculate the five elements of the curve if the deflection angle is 30°.

17. Two roads intersect at a chainage of 1200 m. These two roads are to be connected by a simple circular curve of 250 m radius. Calculate the data necessary to set out a curve by the method of offsets from chords produced. The deflection angle is 30° and the peg interval 30 m. The chain used is of 30 m.

18. Explain the procedure for traversing using Total station.

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