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C20-C–304

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BOARD DIPLOMA EXAMINATION, (C-20)

JUNE/JULY—2022

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 transit theodolite.

2. Differentiate between plate bubble and altitude bubble.

3. Write the equation for balancing of traverse by Bowditch's rule.

4. State three different case which comes under trigonometric levelling.

5. Differentiate between staff intercept and stadia intercept.

6. Define tacheometry.

7. State the relation between radius and degree of curve for an arc of 30 m length.

8. Define *(a)* point of curve and *(b)* mid-ordinate.

9. Name three segments of GPS.

10. State four components of GIS.

PART—B

8×5=40

Instructions : (1) Answer **all** questions.

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

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

11. *(a)* Explain the steps involved in carrying out temporary adjustments of a transit theodolite for taking observations.

(OR)

(b) Calculate the missing length and bearing of the line AB from the following theodolite traverse data :

Line	Length(m)	Reduced Bearing
AB	?	?
BC	453·00	N21°49'E
CD	529·40	N80°22'W
DA	589·00	S74°20'W

12. *(a)* Determine elevation of top of chimney A from the following observations :

Inst. Station	Sight to	Vertical Angle	Remarks
P	A	+ 24°23'	Staff reading on BM is 1·340 m
Q	A	+ 16°60'	Staff reading on BM is 1·235 m, RL of BM = 151·260 m, PQ = 30 m

(OR)

(b) In order to know the RL of the top of a tower, the theodolite was set up at a distance of 45 m from its base. The vertical angle measured to the top of the tower was 20°40'. The RL of instrument axis was 151. 25 m. Determine the RL of the top of tower.

13. *(a)* Calculate the distance AB and the RLs of A and B from the data given below :

Inst. Station	H.I. (m)	Staff Station	W.C.B	Vertical Angle	Cross Hair Readings (m)	Remarks
P	1·55	A	30°30'	4°30'	1·155, 1·755, 2·355	RL of
		B	75°30'	10°15'	1·250, 2·00, 2·750	P = 150 M

(OR)

(b) During the course of tangential tacheometry, the following readings were noted. Calculate the horizontal distance PQ.

Instrument Station	Staff Station	Target	Vertical Angle	Remarks
P	Q	Lower	–6°40'	Lower and Upper targets are in same vertical plane 3 m apart
		Upper	–4°20'	

14. *(a)* Calculate the radial offsets to be set out at 10 m interval along the tangents to locate a 320 m radius curve. Take intersection angle as 120°.

(OR)

(b) A simple circular curve has a radius of 300 m and a long chord of length 130 m. Calculate offsets to the curve from long chord at 10 m intervals.

15. *(a)* Write the applications of GIS in civil engineering.

(OR)

(b) Explain the process of taking coordinates of various points using GPS.

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) Question carries **ten** marks.

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

16. Two tangents intersect at a chainage of 1430 m, the deflection angle being 40°, compute the table for setting out a 400 m radius curve by Rankine's method. Take 30 m chord length. Assume suitable data, if needed.

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