TED (21) 3011

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N22-2110220259A

Reg.No..............................

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER – 2022

ADVANCED SURVEYING

[Maximum marks: 75]

(Time: 3 Hours)

PART A

I. Answer all questions in one word or one sentence. Each question carries one mark.

(9 x 1 = 9 Marks)

		Module outcome	Cognitive level
1	Trunnion axis of theodolite is ……	M1.02	R
2	Define contour	M1.01	R
3	Give the relationship between degree of the curve and its radius provided the radius to be substituted in metres.	M2.04	R
4	Give the distance formula in tacheometry when the line of sight is horizontal and staff is held truly vertical.	M2.03	R
5	Name any 2 EDM instruments	M3.01	R
6	A total station is a combination of….. and…….	M3.02	R
7	Acquisition of information about an object or phenomenon without making physical contact with the object is ……….	M4.01	U
8	Name the three spatial data models in GIS	M4.03	R
9	Expand GNSS	M4.04	R

PART B

II. Answer any eight questions from the following. Each question carries three marks.

(8 x 3 = 24 Marks)

		Module outcome	Cognitive level
1	Sketch roughly a contour representing a hill	M1.01	U
2	Explain the procedure for finding the deflection angle of a traverse line	M1.04	U
3	Define open and a closed traverses	M2.01	R
4	Define the terms point of commencement and point of tangency in curves	M2.04	R
5	Explain the working principle of any one Electronic Distance measuring instrument.	M3.01	U

6	List any 6 advantages of total station	M3.02	R
7	Explain the principle behind the working of total station	M3.02	U
8	List the four types of Map projections	M4.03	R
9	List out any 6 applications of remote sensing in civil engineering	M4.01	R
10	Enumerate the components of GPS receiver	M4.02	R

PART C

Answer all questions. Each question carries seven marks.   **(6 x 7 = 42 Marks)**

		Module outcome	Cognitive level
III	The areas enclosed by various contours plotted at a proposed reservoir site is given in table below 	Contour (m)	200	205	210	215	220
Area (ha)	3	8	15	20	25 | Find the volume of water in the reservoir in cubic metres using both prismoidal and trapezoidal rule **OR**	M1.01	A
IV	List any 4 uses of theodolite in surveying. Explain any of the listed uses with the help of sketches.	M1.04	U
V	Explain the repetition method for measurement of horizontal angles. List out the errors that are eliminated by means of repetition method **OR**	M1.03	U
VI	Briefly explain the following technical terms (i) Vertical axis (ii) Transiting (iii) Swinging (iv) Telescope normal (v) Telescope inverted	M1.02	U
VII	Explain traversing by the method of included angles **OR**	M2.01	U
VIII	Two straight intersect at chainage 2500m and the angle of intersection is 120^0. If the radius of the simple curve to be introduced is 600m, find the following. (i) Tangent distance (ii)Chainage of point of commencement (iii) Chainage of point of tangency (iv) Length of long chord.	M2.04	A
IX	A closed traverse was conducted round an obstacle and the following observations were made. Work out the missing quantities.	M2.02	A

Table for question IX:

Side	Length	Whole circle Bearing	Latitude	Departure
AB	500	$98^030'$	-73.91	494.50
BC	620	$30^020'$	535.12	313.11
CD	468	$298^030'$	223.31	-411.29
DE	?	230^0		
EA	?	$150^010'$		

X	**OR** An instrument was set up at P and the angle of elevation to a vane 4m above the foot of the staff held at Q was $9^0 30'$. The horizontal distance between P and Q was known to be 2000m. determine the RL of the staff station Q, given that RL of the instrument axis was 2650.38m.	M2.03	A
XI	Write in brief, the steps involved in traversing with a total station. **OR**	M3.03	U
XII	Explain the temporary adjustments in total station set up	M3.02	U
XIII	Explain the components of remote sensing with the help of a figure **OR**	M4.01	U
XIV	Explain the three segments in GPS	M4.02	U

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