2110220259B

Reg. No…………………
Signature…………………

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, NOVEMBER – 2025

ADVANCED SURVEYING

[Maximum Marks: **75**]   [Time: **3** Hours]

PART-A

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

(9 x 1 = 9 Marks)

		Module Outcome	Cognitive level
1.	Define the terms - Contour interval and Horizontal equivalent in Contouring.	M1.01	R
2.	Size of a theodolite is specified by--------------	M1.02	R
3.	Latitude and Departure of a survey line of length l and reduced bearing ѳ respectively are------------	M2.02	U
4.	Mention 2 methods for setting out a simple circular curve.	M2.04	R
5.	Electronic theodolites are used for................ measurement.	M3.01	R
6.	Mention any 2 uses of total station in surveying.	M3.02	R
7.	List any 2 types of map projection.	M4.03	R
8.	Expand GNSS.	M4.04	R
9.	Name the 2 types of photogrammetry.	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.	Mention any 3 characteristics of contours.	M1.01	U
2.	Suppose you want to prolong a straight line forward from an existing point using a theodolite. Explain the procedure for doing so without transiting the theodolite.	M1.02	U
3.	Draw a neat sketch of a simple circular curve and mark its components.	M2.04	R
4.	Explain any 2 methods for balancing the traverse.	M2.02	U
5.	Explain the working principle of any one EDM instrument.	M3.01	U
6.	List the different sources of error in total station data.	M3.04	R
7.	List any 4 components of total station.	M3.02	R
8.	List the data types in GIS.	M4.03	R
9.	List the components of Remote sensing.	M4.01	R
10.	List the components of GPS receiver.	M4.02	R

		Module Outcome	Cognitive level
III.	State the fundamental lines and their relations if the theodolite is in perfect adjustment.	M1.02	U
	OR		
IV.	The area within the contour lines at the site of the reservoir and the face of the proposed dam are as follows.	M1.01	A

Contour in m	350	352	354	356	358	360	362
Area in sq m	300	10500	76000	145000	270000	415000	470000

Taking 350m as bottom level and 362m as FRL, find the volume of water in reservoir in cubic metres.

		Module Outcome	Cognitive level
V.	Explain how magnetic bearing of a survey line can be measured using a theodolite .	M1.04	U
	OR		
VI.	Explain the method for horizontal angle measurement using theodolite when several angles are to be measured at station.	M1.03	U
VII.	Determine the RL of top of temple from the following observations. Station A, B and Top of temple are in the same vertical plane.	M2.03	A

Instrument at	Vertical angle	Reading on BM	Remarks
A	$10^0 12'$	1.570 m	RL of BM = 543.075 m
B	$8^0 20'$	1.260 m	Distance AB = 30m

OR

		Module Outcome	Cognitive level
VIII.	Define the term deflection angle and write the procedure for traversing by deflection angle.	M2.01	U
IX.	Find the area of the traverse by using Independent Coordinates method using the given data. Assume the coordinates of station A as (100, 100)	M2.02	A

Line	Latitude		Departure	
	Northing	Southing	Easting	Westing
AB	108.00		4.00	
BC	15.00		249.00	
CD		123.0	4.00	
DA	0			257.00

OR

		Module Outcome	Cognitive level
X.	Calculate the Ordinates from a 150 m long chord at 15 m interval to set out a simple circular curve of radius 350m.	M2.04	A

XI.	Write in brief, the steps involved in measuring the area of a plot with a single stationed total station. **OR**	M3.02	U
XII.	List the advantages of using total station in surveying.	M3.01	U
XIII.	Explain the three segments in GPS. **OR**	M4.02	U
XIV.	Explain the applications of drone surveying.	M4.04	U

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