B MD – 1A

Total No. of Printed Pages: 2

PRN No.	

PAPER CODE	V313-225 B (RE)

December 2023 (REEXAM)

TY B. TECH -CIVIL ENGINEERING (SEMESTER - I)

COURSE NAME: ADVANCED SURVEYING **COURSE CODE: CVUA31205B**

(PATTERN 2020)

Time: [2 Hrs] **[Max. Marks: 60]**

(*) Instructions to candidates:

1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data wherever required**
4) **All questions are compulsory. Solve any two sub questions each from each Question 1 ,2, 3,4,5,and 6 respectively**

Q. No.	Question Description	Max. Marks	CO mapped	BT Level
Q.1	a) What are the various points to be considered for selecting a triangulation station?	[5]	1	Understanding
	b) An observer standing on the deck of a ship just sees a lighthouse top with his eye at a height of 9m. The top of the lighthouse is 64m above mean sea level. Determine the distance of the observer from the lighthouse.	[5]	1	Apply
	c) Correct the observed vertical angle for height of signal, refraction, and curvature from the following data: Observed vertical angle=+2°48'39"; height of instrument=1.12m; height of signal=4.87m; horizontal distance=5112m; co-efficient of refraction= 0.07; Rsin1" = 30.88m	[5]	1	Apply
Q2	a) Explain the following terms with examples: True error, most probable value, Residual Error, most probable error, weight of an observation.	[5]	2	Apply
	b) Explain spherical excess. List various methods for computing the sides of a spherical triangle. Explain any one method.	[5]	2	Understanding
	c) The angles of triangle ABC were recorded as follows: A = 77°14'20" Weight 4 B = 49°40'35" Weight 3 C = 53°04'52" Weight 2 Find the most probable values of angle A, B, C. Use method of correlates.	[5]	2	Apply

Q3.	a) What are various potential error sources that affect GPS signal or result?	[5]	3	Understanding
	b) Describe briefly various applications of Global Positioning System.	[5]	3	Understanding
	c) What is referenced ellipsoid? Why is it required for mapping / positioning?	[5]	3	Apply
Q.4	a) Explain with example Active and Passive remote sensing.	[5]	4	Apply
	b) Explain remote sensing. List advantages and limitations of remote sensing.	[5]	4	Understanding
	c) Explain three kinds of scattering of EM radiation in atmosphere	[5]	4	Understanding
Q.5	a) Explain various components of GIS?	[5]	5	Understanding
	b) Explain the advantages and disadvantages of Raster data and Vector data.	[5]	5	Understanding
	c) Explain three basic kinds of vector entities with examples	[5]	5	Understanding
Q.6)	a) Explain the terms Crab and Drift.	[5]	6	Understanding
	b) A scale of aerial photograph is 1:10000, effective at an average elevation of terrain of 500m. The size of aerial photograph is 230 mm× 230 mm. Focal Length of camera is 20 cm. Speed of aircraft is 180 kmph, longitudinal overlap is 60% and side overlap is 30%. Determine the number of photographs required for the area of 30 km × 22.5 km. Also determine the exposure interval and flying height.	[5]	6	Apply
	c) Derive an expression for displacement due to ground relief.	[5]	6	Apply