U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: III**

Branch: Civil Engineering **Duration: 3 hrs.**

Course Code: 19CV3PCGDY **Max Marks: 100**

Course: Geodesy

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	Define surveying and explain the different classification of surveying	CO1	PO 1	**8**
	b)	A distance of 2000 m was measured by a 30 m chain. Later it was detected that the chain was 0.1m too long. Another 500m was measured and it was detected that the chain was 0.15m too long. If the chain was correct initially, determine the exact length that was measured.	CO1	PO2	**8**
	c)	Compare Scale and Representative Fraction. Mention the recommended RF and Scale for geological map, Topographical map.	CO1	PO1	**4**
		OR			
2	a)	With examples, distinguish between: i) Cumulative errors and compensating errors ii) Accuracy and precision iii) Check line and Tie line iv) plane and geodetic survey	CO1	PO1	**8**
	b)	A steel tape 20 m long standardized at 55°F with a pull of 10 kg was used for measuring a base line. Find the correction per tape length, if the temperature at the time of measurement was 80°F and the pull exerted was 16 kg. Weight of 1 cubic cm of steel = 7.86kg, weight of tape = 0.8 kg, E = 2.109 x 10^6 kg/cm^2, co-efficient of expansion of tape per 1°F = 6.2 x 10^{-6}.	CO1	PO2	**8**
	c)	Differentiate between Plan and a Map.	CO1	PO1	**4**
		UNIT - II			
3	a)	Explain the terms :(i) Magnetic meridian (ii) Dip (iii) declination (iv) isogonic lines	CO1	PO1	**8**

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		b)	What are the parts of a prismatic compass? Explain the function of each part	*CO1*	*PO1*	**6**
		c)	The following angles were observed in the clockwise direction in an open traverse. Angle ABC = 124° 15′, Angle BCD= 156° 30′, Angle CDE=102° 00′, Angle DEF= 95° 15′, Angle EFG= 215° 45′. The magnetic bearing of the line AB was 241° 30′. What would be the bearing of the line FG? For clockwise traverse	*CO1*	*PO2*	**6**
			OR			
	4	a)	Define two-point problem. With neat diagram illustrate resection after orientation by two points.	*CO1*	*PO1*	**10**
		b)	State the importance of orientation in plane table. What are the methods available for orientation?	*CO1*	*PO1*	**6**
		c)	The magnetic bearing of line as observed by the prismatic compass at a survey station is found to be S 42° E. If the declination is 7° 1' E, Determine the true bearing of the line.	*CO1*	*PO2*	**4**
			UNIT - III			
	5	a)	The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eight readings. The levels are 2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684. Enter the above readings in level book and calculate RL of points if the first reading was taken with a staff held on bench mark of 432.384. Use HI method. Apply check	*CO1*	*PO2*	**8**
		b)	Define Contour and Contour interval. Explain characteristics of contour lines.	*CO1*	*PO1*	**6**
		c)	What are temporary adjustments of dumpy level? Explain how they are performed?	*CO1*	*PO1*	**6**
			OR			
	6	a)	Derive an expression for the horizontal distance, vertical distance and the elevation of an elevated object by double plane method, when the base is inaccessible.	*CO1*	*PO1*	**10**
		b)	The following readings are taken on a line at regular intervals in continuously falling ground were 0.415, 1.025, 2.085, 2.925, 3.620, 4.595, 0.715, 2.115, 3.090, 4.405. Determine the reduced levels of various points, if the RL of the point on which the first reading was taken is 185.275 m. Use Rise and Fall method. Apply check.	*CO1*	*PO2*	**10**

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			UNIT - IV			
	7	a)	Explain step by step procedure for measuring horizontal angle by method of repetition and reiteration using theodolite with a neat tabular column.	*CO2*	*PO1*	**8**
		b)	A compound curve, consists of two simple circular curves of radii 350m and 500m is to be laid out between two straights. The angle of intersection between tangents and the two straights are 25° and 55°. Calculate the lengths of all three tangents.	*CO2*	*PO2*	**8**
		c)	List the advantages of transition curve.	*CO2*	*PO1*	**4**
			OR			
	8	a)	Define Simple Curve. Explain with neat sketch the elements of a simple curve.	*CO2*	*PO1*	**10**
		b)	A simple circular curve of 400 m radius and a deflection angle 40° is to be set out along a proposed railway alignment. The chainage of the first tangent point is 1804.25 m. Compute and tabulate the angles and the theodolite readings to set out the curve using Rankine's method. Take peg interval as 20 m.	*CO2*	*PO2*	**10**
			UNIT - V			
	9	a)	Define Global positioning system and explain its Principles and applications	*CO3*	*PO1*	**10**
		b)	List out salient features of total station	*CO3*	*PO1*	**10**
			OR			
	10	a)	Explain Aerial Photogrammetry and terrestrial photogrammetry.	*CO3*	*PO1*	**10**
		b)	Enumerate basic components of an ideal remote sensing system.	*CO3*	*PO1*	**6**
		c)	Explain sources of errors in GIS	*CO3*	*PO1*	**4**

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