Ref. No. ***Ex/CE/PC/B/T/225/2025***

BACHELOR OF ENGINEERING IN CIVIL ENGINEERING EXAMINATION 2025

(Second Year, Second Semester)

SURVEYING II

Time: Three Hours Use separate answer scripts for each Part **Full Marks: 100**

(PART I: 30 + PART II: 35 + PART III: 35)

SL No		PART I: 30 *(Attempt any Two Questions)*		Marks
1	(a)	What are the basic information may be observed FCC?	CO5	5
	(b)	What is called reference data in remote sensing? Make a list of three reference data. Which one of these three reference data is authentic and why?		1+1+3=5
	(c)	How do you identify the natural and artificial features through satellite imageries?		3
	(d)	How do you differentiate the clouds from snow coverage in an image?		2
2	(a)	Explain fundamentals of visual image interpretation and its importance. What are the elements of visual image interpretation?	CO5	2+3= 5
	(b)	What is the importance of the temporal aspect of image interpretation? Explain briefly.		5
	(c)	What are the different applications of remote sensing in natural resource management? Explain briefly.		5
3	(a)	What are the basic information may be observed FCC?	CO5	5
	(b)	What is called reference data in remote sensing? Make a list of three reference data. Which one of these three reference data is authentic and why?		1+1+3=5
	(c)	A group of same species of trees existing on both side of a hill. The group of trees on one side of the hill is showing different reddish tone than the trees on other side of the hill. Why? How do you identify that they are of same species?		2+3=5

[Turn over

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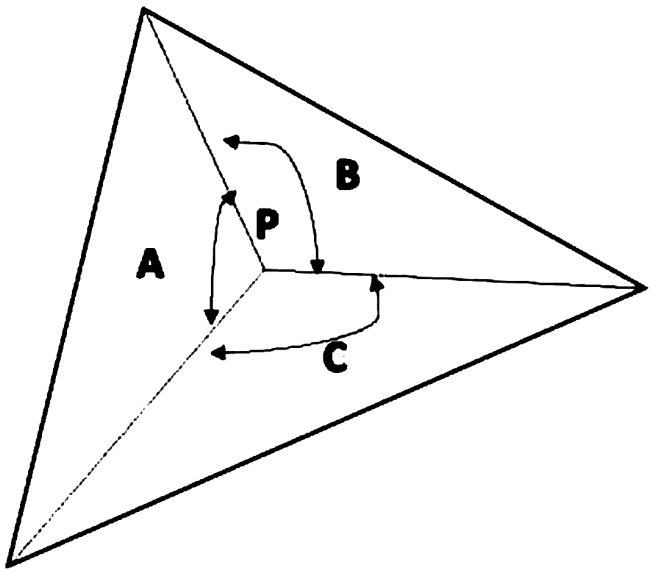
B.E. CIVIL ENGINEERING SECOND YEAR SECOND SEMESTER EXAM 2025

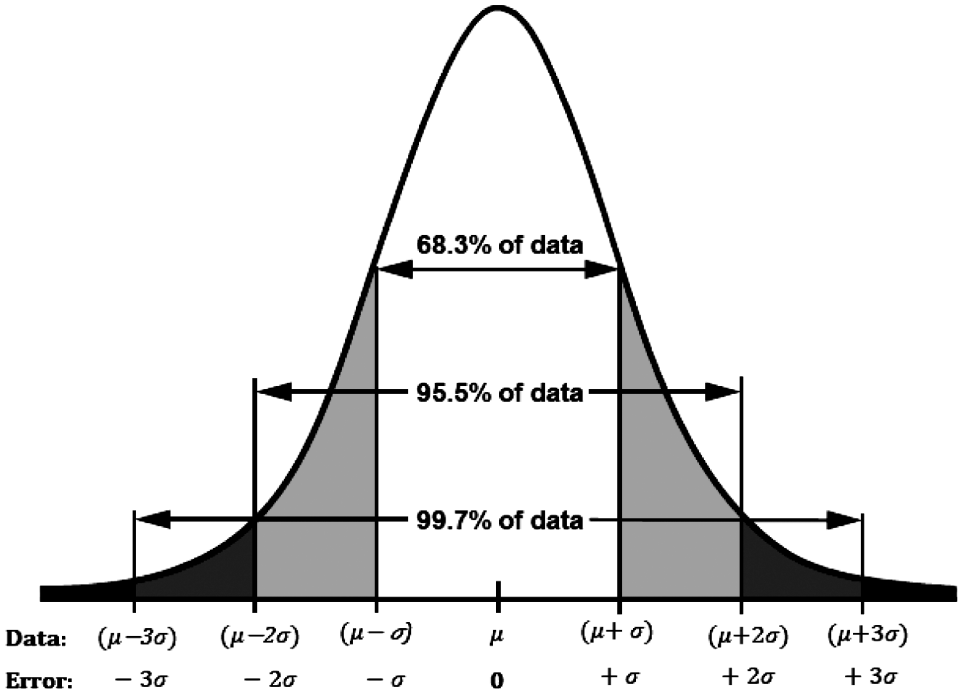
SUBJECT: SURVEYING II (CE/PC/B/T/225)

Time: 3 hours **Full Marks: 35**

Instructions: Use Separate Answer scripts for each part.

Part - II

Sl. No.	Question	CO	Marks
1. A	*If four central angle in a station point of traverse is: A:* $110°20'48''(weight:1)$ *; B:* $92°30'12''(weight:4)$ *; C:* $56°12'00''(weight:2)$ *; D:* $100°57'04''(weight:5)$. *Determine their corrected values.*	[C02]	[6]
1. B	*The following three angles A, B and C observed at a station point P (P is internal point of Traverse as shown in Fig.). A:* $77°12'12'' \pm 5''$ *B:* $138°48'30'' \pm 12''$ *C:* $143°59'08'' \pm 13''$ *Determine their corrected values.* 	[CO2]	[6]
1. C	*Find the coordinate of the reflector station point if the coordinate of the instrument station point is (550,650,150), the slope distance is 550 m, the Zenith angle at the instrument station is* $60°$*, Physical height of instrument at instrument station is 1.75 m, Physical height of the reflector at reflector station is 2.00 m, horizontal angle of the line connecting the instrument and reflector is* $45°$.	[CO1]	[6]
1. D	*In a carrying a line of levels across a river large amount of data were taken with a level under identical conditions. If the average value and standard deviation observed for a particular level is 2.32 m and 0.01 m respectively, find the chances of getting an erroneous measurement:* *i. in between 2.3 m and 2.31 m.*	[CO2]	[6]

	ii. *in between 2.29 m and 2.33 m.* *iii.* *more than 2.35 m.* *iv.* *less than 2.30 m.* 		
2. A	*Find the most probable values of angle A and B from the following observations (by forming normal equations):* $A = 15°10'30''$ *(weight 5);* $B = 25°10'40''$ *(weight 3);* $A + B = 40°21'20''$ *(weight 2)*	[CO2]	[6]
2. B	*Sate the different types of error in measurements using Total station. Also discuss how to eliminate them.*	[CO1]	[5]

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Name of the Examinations: B.E. CIVIL ENGINEERING SECOND YEAR SECOND SEMESTER - 2025

Subject : SURVEYING II **Full Marks : 100**

PART - III **35 marks for Part-III**

Instructions : Use Separate Answer scripts for each part.

		Marks
1	Two straights meeting at an intersection angle of 55° are to be connected by a compound curve consisting of arcs of radius 200 and 350 m. The chainage of intersection point is 1000 m. The arc of radius 200m curves out of the straight at a chainage of 880m. Calculate the rear and forward tangent length and the central angle of constituent arcs of the compound curves. Enter the setting out data of the curve by using full chord length of 30m.	14
2	A transition curve is to be inserted between a tangent and the circular curve in connection with the construction of a highway. The following data are provided for setting out of the curve. i. Deflection Angle = 64°36' ii. Maximum speed of the vehicle= 87 Kmph iii. Centrifugal Ratio= 0.25 iv. Chainage of the Vertex= 2424 m v. Maximum rate of change in radial acceleration= 0.3 m/sec^3 Calculate: i) Radius of the circular curve ii) Length of the transition curve iii) Shift of the circular curve iv) Total tangent length	8
3	State the requirements of ideal transition curves.	5
4	Discuss the method of transference of levels underground through deep shafts during tunnelling.	8