PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)
II B.TECH I SEMESTER END REGULAR EXAMINATIONS, JAN - 2023
SURVEYING AND GEOMETRICS
(CE Branch)

Time: 3 hours   Max. Marks: 70

Answer all the questions from each UNIT (5X14=70M)

Q.No		Questions	Marks	CO	KL
		UNIT-I			
1.	a)	State the classification of surveying.	[7M]	1	2
	b)	Explain the terms Base line, Check line and Tie line in plane surveying	[7M]	1	2
		OR			
2.	a)	Explain the chaining on sloping ground by direct method.	[7M]	1	3
	b)	The following bearings were observed with a compass. Calculate the interior angles	[7M]	1	2

Line	AB	BC	CD	DE	EA
Fore bearing	$60^0 30'$	$122^0 00'$	$46^0 00'$	$205^0 30'$	$300^0 00'$

Q.No		Questions	Marks	CO	KL
		UNIT-II			
3.	a)	What are the temporary adjustments that you will perform at each setup of the levelling instrument explain them.	[7M]	2	2
	b)	The following perpendicular offsets were taken from a chain line to a hedge	[7M]	2	3

Chainage (m)	0	15	30	45	60	70	80	100	120	140
Offset (m)	5.80	7.30	10.40	14.45	13.95	10.50	9.10	8.90	6.10	5.30

Calculate the area between the survey line, the hedge and the end offsets by Simpson's rule.

Q.No		Questions	Marks	CO	KL
		OR			
4.	a)	The following are the consecutive readings taken on different points on a line 0.335, 1.345, 2.440, 3.495, 1.325, 2.345, 1.235 and 1.345 The first reading was taken on a bench mark with reduced level of 394.550 and the instrument was shifted after the fourth reading. Rule out a page of level book and work out the reduced levels of all points by height of instrument method.	[7M]	2	3
	b)	What are different types of errors that will occur in levelling?	[7M]	2	2
		UNIT-III			
5	a)	Explain the method of repetition to find the horizontal angle between two points in the field.	[7M]	3	3
	b)	To determine the elevation of the top of a flag staff, the following observations were made	[7M]	3	3

Instrument at station	Staff reading on bench mark	Angle of elevation	Reduced level of bench mark
A	1.265	$10^0 48'00''$	268.765
B	1.085	$7^0 12'00''$	268.765

The stations A, B and the flag staff are in the same vertical plane and the distance between the stations A and B is 50m

Q.No		Questions	Marks	CO	KL
		OR			
6	a)	Explain any one method for prolonging a given base line by using a theodolite.	[7M]	3	2
	b)	How will you find the reduced level of top of a tower using a theodolite when the base of the tower is inaccessible?	[7M]	3	3
		UNIT-IV			

7	a)	Why curves are required in a highway or railway alignment, what are their different forms, show them with a sketches.	[7M]	4	3
	b)	A simple circular curve is designated as a 4^0 curve on a 30 m arc, find the tangent distance, length of long chord, length of arc, apex distance, mid ordinate if the deflection angle is 36^0	[7M]	4	3
		OR			
8	a)	Define the term EDM and what is the principle of an EDM equipment?	[7M]	4	2
	b)	What are the advantages and applications of total station	[7M]	4	2
		UNIT-V			
9	a)	What are the basic principles of terrestrial photogrammetry?	[7M]	5	3
	b)	What is meant by ground control, what are the sub divisions in it, briefly explain them.	[7M]	5	2
		OR			
10	a)	What is meant by a stereoscopic plotting instrument and what are its component parts.	[7M]	5	2
	b)	What is the data required for the computation of the quantities for the flight plan.	[7M]	5	3

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