

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL/MAY 2026***Third Semester**Agricultural Engineering***UAIT24303 - SURVEYING AND LEVELLING***Regulations - 2024**Duration : 3 Hrs**Maximum: 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	What are the various types of adjustments are made in these compasses?	L1	1	2
2.	State the basic principles of surveying.	L2	1	2
3.	Compare simple levelling and differential levelling.	L2	2	2
4.	What is mean by Check Leveling.	L1	2	2
5.	List the different steps involved in making temporary adjustments to a theodolite.	L1	3	2
6.	Compare theodolite and tacheometer.	L2	3	2
7.	Describe how the least squares method is used in adjustment of survey measurements.	L2	4	2
8.	Write short note on triangulation in control surveying.	L1	4	2
9.	Define a Total Station.	L1	5	2
10.	Summarize the common errors in GPS measurements.	L2	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i A survey line of 500 m passes through uneven terrain with obstructions. Demonstrate how ranging is carried out and indicate whether direct or indirect ranging is more suitable.	L3	1	6
	ii The following bearings were observed while traversing with a compass. Mention which stations were affected by the local attraction and determine the corrected bearings.	L3	1	10

LINE	F.B	B.B
AB	45° 45'	226°10'
BC	96°55'	277° 5'
CD	29°45'	209°10'
DE	324° 48'	144° 48'

Or

b	Apply the basic principles of compass surveying to explain the different systems of bearings and demonstrate the methods of conversion between them with examples.	L3	1	16
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12.	a	The following staff readings were taken successively at a level, the instrument having been moved after the third, sixth, and eighth readings: 2.228; 1.716; 0.966; 2.190; 2.874; 1.362; 0.402; 1.982; 1.144; 2.564 meters. Enter the above readings in a page of a level book and calculate the R.L. of points if the first reading was taken with a staff held on a benchmark of 430.526 m, and apply the arithmetical check.	L3	2	16	
		Or				
	b	Compare fly leveling and check leveling with suitable sketches, and solve a numerical example where you compute the RL of a new station by both methods.	L3	2	16	
13.	a	i	Identify the possible sources of error while using a theodolite. How can they be eliminated?	L2	3	10
		ii	Distinguish between the line of collimation and the line of sight.	L2	3	6
		Or				
	b	Describe the procedure of tangential tacheometry and derive the expressions used for calculating horizontal distance and elevation difference from the observed vertical angles.	L2	3	16	
14.	a	Compare trilateration with triangulation in terms of accuracy, field procedure, and error distribution, and analyse which method is more suitable for large-scale mapping in modern surveying.	L4	4	16	
		Or				
	b	Analyze how traverse computations are performed and adjusted using Gale's table and describe the steps involved in a traverse survey.	L4	4	16	
15.	a	Describe the principle of EDM, its components, sources of error, and evaluate its role in long-distance precise measurements.	L2	5	16	
		Or				
	b	i	Explain the working principle of a digital theodolite and its advantages over a conventional theodolite.	L2	5	10
		ii	Explain in detail the system components and signal structure of GPS.	L2	5	6