

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Third Semester

Agricultural Engineering

CE3351–Surveying and Levelling

(Common to Civil Engineering)

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	Differentiate whole circle bearing and reduced bearing.	L2	1	2
2.	Calculate the reduced bearing values for the whole circle bearings 150° and 270°.	L4	1	2
3.	Define temporary and arbitrary bench mark.	L1	2	2
4.	What is Parallax? How it can be Eliminated?	L4	2	2
5.	What is the need of providing lens?	L2	3	2
6.	Define closing error.	L2	3	2
7.	What is meant by satellite station?	L1	4	2
8.	List the correction applied to the length of baseline.	L1	4	2
9.	What is the application of total station surveying?	L2	5	2
10.	Give the importance of selective availability in GPS.	L2	5	2

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

Q.No	Questions	BLT	CO	Marks																		
11. a	On a closed compass traverse survey PQRST, following are the observation made with a suspicion of local attraction.	L4	1	16																		
<table><tr><td>Line</td><td>F.B</td><td>B.B</td></tr><tr><td>PQ</td><td>147°</td><td>326°45'</td></tr><tr><td>QR</td><td>74° 30'</td><td>253° 00'</td></tr><tr><td>RS</td><td>41° 30'</td><td>222° 45'</td></tr><tr><td>ST</td><td>312° 15'</td><td>132° 45'</td></tr><tr><td>TP</td><td>219° 15'</td><td>39° 15'</td></tr></table>					Line	F.B	B.B	PQ	147°	326°45'	QR	74° 30'	253° 00'	RS	41° 30'	222° 45'	ST	312° 15'	132° 45'	TP	219° 15'	39° 15'
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Identify the station affected with local attraction.

Or

- | | | | | |
|---|---|----|---|----|
| b | Enumerate the different sources of error in chain surveying?
Distinguish between cumulative and compensative errors. | L4 | 1 | 16 |
|---|---|----|---|----|

12.	a	Following are the successive staff readings taken in a levelling continuously on sloping ground at common interval of 25 m. 0.605, 1.235, 1.860, 2.575, 0.735, 1.130, 1.955, 2.875, 0.875, 1.825, 2.720. Reduced level of the first point is 160.00 m. Rule out a level book page and enter the above readings. Calculate the reduced levels of the points and also the gradient of the line joining the first point and last point.	L3	2	16
		Or			
	b	Explain in detail about: i. Curvature and refraction ii. Reciprocal leveling	L3	2	16
13.	a	Explain the temporary and permanent adjustment of theodolite.	L3	3	16
		Or			
	b	The tachometer was set up at a station A and the readings on a Vertically held staff at B were 2.255, 2.605 and 2.955, the line of sight being at an inclination of $+8^{\circ} 24'$. Another observation on the Vertically held staff at B.M gave the readings 1.640, 1.920 and 2.200, the inclination of the line of sight being $+1^{\circ} 6'$. Calculate the horizontal distance between A and B, the elevation of B if the R.L of B.M is 418.685 m. The constant of the instruments was 100 and 0.3.	L3	3	16
14.	a	Examine the most probable values of the angles A, B, C from the following observations at a station P. A = $38^{\circ} 25' 20''$ Weight 1 B = $32^{\circ} 36' 12''$ Weight 1 A+B = $71^{\circ} 01' 29''$ Weight 2 A+B+C = $119^{\circ} 10' 43''$ Weight 1 B+C = $80^{\circ} 45' 28''$ Weight 2	L4	4	16
		Or			
	b	Discover in detail the adjustment of closed traverse in Gales table.	L3	4	16
15.	a	Explain the principles and classification of EDM.	L3	5	16
		Or			
	b	Explain in detail about: i. Satellite constellation ii. Data processing in GPS	L3	5	16