REG.NO.: 25MJL0086

VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF ADVANCED SCIENCES
CONTINUOUS ASSESSMENT TEST - I
FALL SEMESTER 2025-2026

SLOT: A2+TA2+TAA2

Programme Name & Branch	: Integrated M.Sc.
Course Code and Course Name	: TMAT101L & Mathematics
Faculty Name(s)	: Dr. Anuradha D and Gulzar Ali J
Class Number(s)	: VL2025260107314, VL2025260107315
Date of Examination	: 17-08-2025
Exam Duration	: 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions
- M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes (Type the CO statements covered in this question paper. Use the CO number as per the syllabus copy)
  1. Solve a system of linear equations by matrix method
  2. Apply the techniques of differentiation to find maxima and minima, and techniques of integration to evaluate areas and volumes of revolution.

Q. No	Question	M	CO	BL
1.	Solve the system of equations by using matrix inversion method $x + 2y + 3z = 14$ $2x - y + z = 3$ $3x + y + 2z = 11$	10	CO1	BL3
2.	Find the rank of a matrix $A = \begin{bmatrix} 4 & -2 & 3 \\ 1 & 2 & 3 \\ 0 & 5 & -1 \end{bmatrix}$	10	CO1	BL3
3.	Solve the system of equations by Cramer's rule method $2x - 4y + 3z = 3$ $3x + 3y + 2z = 15$ $5x - 2y + 2z = 7$	10	CO1	BL3
4.	a) Find the derivative of $y = \frac{3x+x^4}{2x^2+1}$	5	CO2	BL3
	b) Find the derivative of $y = (x^3 - 4x + 5)\tan x$	5		
5.	Find the Taylor's series expansion of the function $f(x) = x^3 + 7x^2 + 6x - 6$ at $x = -1$ up to third degree	10	CO2	BL3

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