REG.NO.: [illegible]0043

VIT

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

SCHOOL OF ADVANCED SCIENCES
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2024-2025

SLOT: B2 + TB2 + TBB[illegible]

Programme Name & Branch	:	B.Tech. - Common
Course Code and Course Name	:	BMAT100N – Mathematics
Faculty Name(s)	:	Dr. Kaspar S
Class Number(s)	:	8690
Date of Examination	:	14-08-2024
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
  - CO2 - Apply the techniques of differentiation to find maxima and minima, and techniques of integration to evaluate areas and volumes
  - CO3 - Understand the concept of ordinary differential equations, and first and second order linear differential equations
  - CO4 - Have a clear understanding of analytic geometry and vector algebra

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Q. No	Question	M	CO	BL
1.	Find the Taylors series of the function $f(x)=\log(1+x)$ about the point $x=1$. Also deduce its Maclaurin's series.	10	2	1
2.	a) Using integration by parts evaluate: $\int e^{ax}\sin bx\,dx$ [5] b) Find the area of a circle $x^2+y^2=r^2$ using integration. [5]	10	3	3
3.	Using partial fractions evaluate $I=\int\frac{5x-3}{(x-2)(x-3)}dx$	10	3	2
4.	Solve: $\frac{dy}{dx}+\frac{3x^2}{1+x^3}y=\frac{1+x^2}{1+x^3}$	10	4	1
5.	Solve: $(D^2+16)y=\sin 4x+4$	10	4	2

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