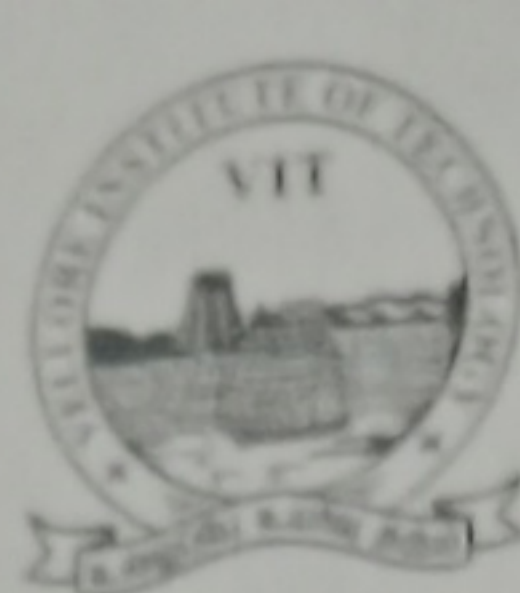




SCHOOL OF ADVANCED SCIENCES
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2025-2026

SLOT: D1+TD1

Programme Name & Branch : M.Sc. (Int.) Computational Statistics and Data Analytics
Course Code and Course Name : MAT1024 - Real Analysis and Applications
Faculty Name(s) : Dr. Priya Singh
Class Number(s) : VL2025260101118
Date of Examination :
Exam Duration : 90 minutes

Maximum Marks: 50

General instruction(s):

- Answer All Questions

Q. No	Question	M	CO	BL
1.	Find limit of $f(x)$: $f(x) = \frac{3e^{-14x} - e^{18x}}{e^{-x} - 2e^{20x} - e^{-9x}}$ a) when $x \rightarrow \infty$ b) when $x \rightarrow -\infty$	10	C04	BL 3
2.	The graph of $f(x)$ is given below. Based on this graph check the continuity at $x = -8, x = -2, x = 6$, and $x = 10$. Mention the type of discontinuity if any. 	10	CO 4	BL 2
3.	Check the continuity of $f(w)$ for the following points:	10	CO 4	BL 3



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	$f(w) = \begin{cases} 3w, & w < 0 \\ 0, & w = 0 \\ w + 6, & 0 < w < 8 \\ 14, & w = 8 \\ 22 - w, & w > 8 \end{cases}$ a) $w = 0$ b) $w = 8$			
4.	Use the definition of the derivative to find the derivative of $f(w) = \frac{4}{\sqrt{3w-4}}$	10	CO 5	BL 3
5.	Find the absolute extrema and the point at which they occur for the following function: $h(w) = 2w^3(w+2)^5 \text{ on } \left[-\frac{5}{2}, \frac{1}{2}\right]$	10	CO 5	BL 3
