VIT

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

Continuous Assessment Test I - Feb 2024

Programme :	B.Tech.	Semester :	Weekend Intra 2023-24
Course :	Differential Equations and Transforms	Code :	BMAT102L
		Slot :	X11+X12+X21+Z21
Faculty :	Dr. Sankarsan Tarai	Class ID :	CH2023240503686
Time :	90 Minutes	Max.Marks :	50

Answer all the Questions

1. (a) Solve $y'' - 3y' - 4y = 0$, $y(0) = 1$, $y'(0) = 0$. [5]

   (b) Find the particular solution of the equations $[D^2 + 6D + 9]y = \frac{e^{-3x}}{x^3}$. [7]

   (c) Solve $[D^2 - 5D + 6]y = e^{3x} + sinx$ [8]

2. Solve $[(2x+3)^2D^2 + 5(2x+3)D - 3]y = x^2 + x + 1$. [10]

3. Solve $(y+z)p + (z+x)q = x + y$. [10]

4. (a) Construct the PDE by eliminating the arbitrary function f from [5]

$$z - x - y = f(xy).$$

   (b) Find the complete integral of $p^3 + q^3 = 27z$. [5]