CHANDIGARH ENGINEERING COLLEGE CGC LANDRAN
Building Careers. Transforming lives.

CHANDIGARH ENGINEERING COLLEGE-CGC
Department of Applied Sciences

Assignment No. 2 **Max. Marks: 30**

Subject and Subject code: Mathematics – II / BTAM--201-23

Semester 2nd **(CSE/IT/AI-DS/AI-ML/IOT/DS/ECE/ME)**

[redacted]

Course Outcomes:
Students will be able to:

CO1	determine the existence and uniqueness of the solution of system of linear equations using matrix algebra
CO2	relate the concepts of Basis and Dimension of a vector space in linear transformation.
CO3	utilize the acquired knowledge of eigen values and eigen vectors to diagonalize the matrix.
CO4	solve ODE using different methods
CO5	apply the concepts of ODE in RLC circuit, deflection of beams, simple harmonic motion, simple population demodel, orthogonal trajectories of a given family of curves.
CO6	solve Partial Differential Equations using Lagrange's and Charpit's method

Bloom's Taxonomy Levels

L1 – Remembering, L2 – Understanding, L3 – Applying, L4 – Analysing, L5 – Evaluating, L6 - Creating

	Assignment related to COs	Bloom's Taxonomy Level	Relevance to CO No.
	SECTION - A (2Marks Each)		
Q1.	Define Clairaut's equation and write its solution.	**L-1**	**CO-4**
Q2.	Solve: $ye^{xy}dx + (xe^{xy} + 2y)dy = 0$	**L-3**	**CO-4**
Q3.	Solve: $\frac{d^2y}{dx^2} + y = \sec x$	**L-3**	**CO-4**

Q4.	Define linear homogeneous partial differential equation of order n.	**L-1**	**CO-6**
Q5.	Find the particular integral of the differential equation: $\left(4D_x^2 - 4D_xD_y + D_y^2\right)z = 16\log(x+2y)$	**L-2**	**CO-6**
	SECTION – B (4 Marks Each)		
Q6.	The initial value problem governing the current $'i'$ flowing in series R.L. circuit when a voltage V(t)=t is applied is given by $$iR + L\left(\frac{di}{dt}\right) = t; t \geq 0; i(0) = 0$$ where, R, L are constants. Find the current $i(t)$ at time t.	**L-4**	**CO-5**
Q7.	Solve: $\frac{d^3y}{dx^3} + 2\ \frac{d^2y}{dx^2} + \frac{dy}{dx} = x^2e^x + \sin^2 x$	**L-5**	**CO-4**
Q8.	Apply the method of variation of parameters to solve: $$\frac{d^2y}{dx^2} - y = \frac{2}{1+e^x}$$	**L-3**	**CO-4**
Q9.	Form the partial differential equation by eliminating arbitrary functions from: $f(x+y-z, xyz) = 0$	**L-6**	**CO-6**
Q10.	Solve the differential equation: $$\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial x \partial y} - 6\frac{\partial^2 z}{\partial y^2} = \cos(3x+y)$$	**L-5**	**CO-6**