University of Information Technology & Sciences (UITS)

Faculty of Science and Engineering

Department of CSE

Math CT

Course Title: Ordinary and Partial Differential Equation

Course Code: MATH 0541121

Marks: 10

CT

(Answer any **two** out of **three** questions)

1	Show that $\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + 4y = -8\,sin2x$ is a solution of the differential, $f(x) = 3e^{2x} - 2xe^{2x} - cos2x.$	[5]
2	Solve the following differential equation by variable separation method, $(x-4)\,y^4\,dx - x^3(y^2-3)\,dy = 0.$	[5]
3.	Find the differential equation by homogeneous method, $\left(y + \sqrt{x^2+y^2}\right)dx - x\,dy = 0,\ y(1) = 0.$	[5]

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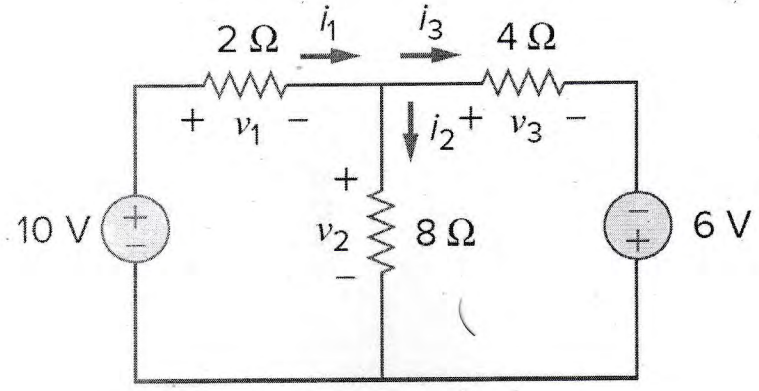
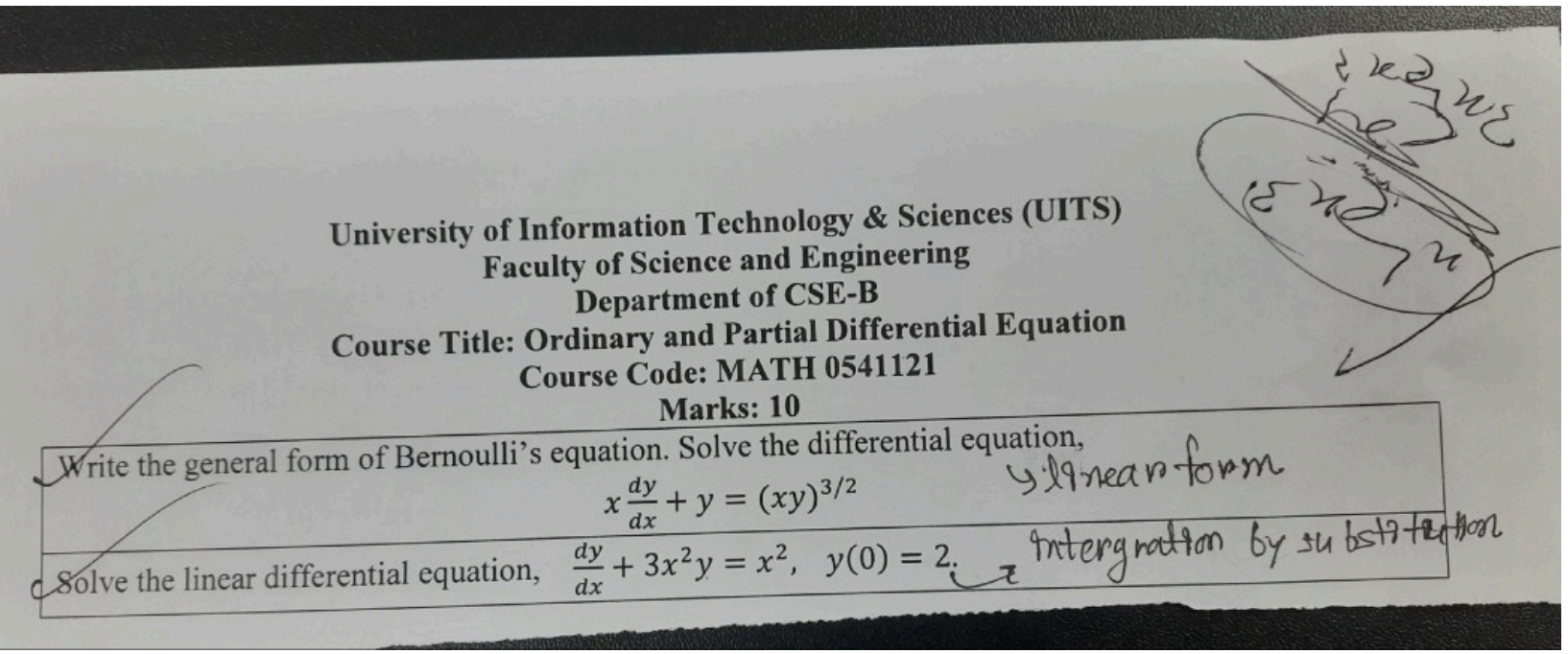
CT-2 **Autumn- 2024**

Course: Fundamental of Electrical Engineering (EEE 0713121) **Date: 25/9/2024**

Marks: 10 **Time: 20 minutes**

1. Find the currents and voltages in the circuit shown in the following figure. **[10]**





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Write the general form of Bernoulli's equation. Solve the differential equation,

$$x\frac{dy}{dx} + y = (xy)^{3/2}$$

Solve the linear differential equation, $\frac{dy}{dx} + 3x^2y = x^2, \quad y(0) = 2.$

Math CT