Bahria University, Islamabad Campus

Department of Computer Science

Midterm Examination

Class/Section: BSCS-4A, 4B

(Spring 2021 Semester)

Paper Type: Descriptive

Course:	**Differential Equations**	Date: 22-05-2021
Course Code:	GSC-210	Time: Session -III
Faculty's Name:	Prof. Dr. M. Ramzan	Max Marks: 20
Time Allowed:	90 Mins	Total Pages: 1

INSTRUCTIONS:

I. **All questions are compulsory.**
II. **All questions carry equal marks.**
III. **There is a total of five questions.**

Student's Name: _____Enroll No:_____
(USE CAPITAL LETTERS)

Q. No. 1: Eliminate the arbitrary constants and formulate the differential equations from the following relations.

$$Ax^2 + By^2 = 1. \qquad (4)$$

Q. No. 2: Find the following differential equation

$$2x + 6yy' = \left(\frac{x^2 + 3y^2}{y}\right)y' \qquad (4)$$

Q. No. 3: Solve the differential equation:

$$y' = y - xy^3e^{-2x} \qquad (4)$$

Q. No. 4: Solve the following equation:

$$(2xy + y - \tan y)dx + (x^2 - x\tan^2 y + \sec^2 y)dy = 0 \qquad (4)$$

Q. No. 5: The population of a town grows at a rate proportional to the population at any time. Its initial population of 5 Million increases by 15% in 10 years. What will be the population in 30 years? (4)