AHSANULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
Department of Arts and Sciences
Program: B.Sc. in CSE
Quiz#03, Fall 2020

Year: 1ˢᵗ   **Course No: MATH 1219**

Semester: 2ⁿᵈ   **Course Name: Mathematics II**

Time: 30(Thirty) Minutes   **Full marks: 30**

Instructions:

i)	Write down Student ID, Course number, and put your signature on **top** of every single page of the answer script (A4 white paper).	
ii)	Write down page number at the **bottom** of every page of the answer script.	
iii)	Divide (Last digit of your ID) by 2, you will get a remainder which will be your SET code.	
iv)	If you see **ID** inside a question you have to use Last 3 digits of your **ID**	
v)	Before uploading rename the PDF file as **SET_NO_StudentID_QuizNo** e.g. SET_1_190104200_Quiz3.pdf	
vi)	Upload the scan copy of your answer script in PDF format at the respective site of the course at **google classroom** using institutional email within the allocated time. Uploading clear and readable scan copy is your responsibility and must be covered the full page of your answer script.	

SET 0
(last digit of your ID is 0, 2, 4, 6, 8)

1.	**Solve**: $(i)\ xy - \dfrac{dy}{dx} = y^3 e^{-x^2},\ (ii)\left(2xy^4 e^y + 2xy^3 + y\right)dx + \left(x^2 y^4 e^y - x^2 y^2 - 3x\right)dy = 0.$	[10
2.	**Solve**: $(i)\ y'' + 4y' - 2y = 2x^2 - 3x,\ (ii)\ y'' + y' - 6y = \sin IDx.$	[10]
3.	(a) **Solve** the IVP $y'' + y' - 12y = IDe^{-4x}$ with $y(0) = 0$ and $y'(0) = 0.$	[05]
	(b) Express a partial differential equation from the equation $z = e^{IDx + ay}\ \phi\left(IDx - ay\right)$ Hence classify the obtained partial differential equation.	[05]

1.	(a) **Solve** : $(i)\ \dfrac{d\,y}{d\,x} + y = x\,y^{3}$, $(ii)\left(2y+3xy^{2}\right)dx+\left(x+2x^{2}y\right)dy=0.$	**[10]**
2.	(a) **Solve** $(i)\ 2y''+3y'-2y=14x^{2}-4x,\ (ii)\,y''+y'-6y=\cos IDx.$	**[10]**
3.	(a) **Solve** the IVP $y''+5y'+6y=IDe^{-2x}$ with $y(0)=0$ and $y'(0)=0.$	**[05]**
	(b)) Express a partial differential equation from the equation $z=\psi(IDx-iy)+\varphi(IDx+iy)$ where $i^{2}=-1.$ Hence classify the obtained partial differential equation, and find one of a solution of it	**[05]**