Jagannath University, Dhaka
Department of CSE
Mid-Examination-2020
Course Code: CSER-2105, Math-III, Ordinary Differential Equations
Full Marks: 10 Time: 30 minutes

There are **Four** questions. Answer any **Three** of the questions.

1.	a)	What do you mean by order and degree of the differential equation (D. E.).	
	b)	Find the order and degree of the following D. E. (i) $\frac{dy}{dx}=\sqrt{\frac{1-x}{1-y}}$ (ii) $\left(\frac{dy}{dx}\right)^2+2y^2=5\left(\frac{dy}{dx}\right)+4y$	
2.		Form the D.E. of all parabolas whose axes are parallel to the axis of y.	
3.		Solve following differential equations: i) $x\frac{dy}{dx}-y=x\sqrt{x^2+y^2}$. ii) $(x^2+2xy-y^2)dx+(y^2+2xy-x^2)$.	
4.		Solve following Cauchy-Euler equations: $x^2\frac{d^2y}{dx^2}-3x\frac{dy}{dx}+4y=(x-1)^2$.	