

Green University of Bangladesh
Faculty of Science and Engineering
Department of Computer Science & Engineering
Program: B.Sc. Engg. in CSE
Second Class Test, Fall 2021
MAT 103: Ordinary and Partial Differential Equations and
Co-ordinate Geometry
Section: DB; Shift: Day; Batch ID: 212

Full Marks: 15

Time: 30 minutes

1. Form partial differential equation by eliminating arbitrary constant A and p from the following equation: 4

$$z = Ae^{-p^2t} \cos px$$

2. Show that $z = f(x - ct) + g(x + ct)$ is the general solution of 3

$$\frac{\partial^2 z}{\partial t^2} - c^2 \frac{\partial^2 z}{\partial x^2} = 0, \text{ where } c \text{ is a wave constant.}$$

3. Solve the following differential equation by using Lagrange's method: 8

- i. $yzp + zxq = xy$
- ii. $y^2p - xyq = x(z - 2y)$