

Green University of Bangladesh
Faculty of Science and Engineering
Department of Computer Science & Engineering
Program: B.Sc. Engg. in CSE
Third 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: 35 minutes

1. Find the value of "a" so that the following equation may represent pair of straight lines. 5

$$12x^2 - 10xy + 2y^2 + 11x - 5y + a = 0.$$

2. If the direction of axes is turned through an angle 45° then find the transformation of $3x^2 + 2xy + 3y^2 - 1 = 0$. 4

3. Find the angle between the following straight lines:

$$(x^2 + y^2)(\cos^2 \theta \sin^2 \alpha + \sin^2 \theta) = (x \tan \theta - y \sin \alpha)^2. \quad 6$$