

Department of Economics

Central Univesity of Tamil Nadu

Thiruvarur, Tamil Nadu, India

# Mathematical Methods - Ill (ECON 203)

Internal Test - Il

(Answer any six questions) 6 x 30 marks

1. Find the solution for the differential equation

(2xy— sinx)dx + (x 2 — cosy)dy = O.

1. Given that Yl(x) = x and Y2(x) x1 are two linearly independent solutions of the differential equation:

+ —y = x with x # 0,

Find the particular integral and general solution.

1. Solve the differential equation:

d2y

# 4y = sin hx + 4x

where sin hx = and — ex log 4

2

1. SOI\/e (D 2 — 6D + = + 2e 2x .
2. Find the general solution of the equation (x 2 + 1)y"—2y = 0, given the particular solution Yl(x) = x 2 + 1.
3. Solve by changing independent variable of the equation

d2 y dy x— 4x 3 y = 8x 3 (sinx 2 ). dx 2 dx

1. Solve by changing independent variable of the equation

d2y dy (I x2)2 dx

1. Solve by methods of operational factors of the equation

(xD 2 — (x + + = x 3

Page 2