Nepal College of Information Technology

**Unit Test**

Spring 2012

Program : BE ELX Time : 2 hrs

Semester : (II) FM : 70

Subject : Engineering Math-II PM : 35

* *Candidates are requested to give their answer as far as practicable in their own words.*
* *The figure in the margin indicates the full marks*
* ***Attempt ALL question***

1. a) Find the equation of the planes through the intersection of the planes 2x + 4y – z = 2 and 3x + y +7z = 9 and passing through (2, 3, 4). [7]

b) Define exact differential equation of first order and write the condition that an equation to be exact and check exactness condition of (1 + x2 ) dy + 2xy dx = 0.Solve if it is exact. [8]

2) Find the general solutions of following differential equations.

a) y" + y' – 2y =14 + 2x – 2x2 [7]

b) y" – 4y'+ 3y = 10 e-2x [7]

3) Solve:

a) y" – 4y' +4y = 0, y(0) = 3, y'(0) = 1 [8]

b) y" + y' – 2y = 0 , y(0) = 3, y'(0) = 0 [8]

4) a) State Bernouli's Equation and Solve

+ = [7]



b) Solve by the method of variable of parameters.

y' - y = x2 cos3x [8]



5) a) Find the equation of the plane through (1 , 1, 1 ) and parallel to the plane 3x – 4y + 5z = 0 [2]

b) Solve: y dx = (1 + ex ) dy [2]

c) Solve: 3y dx+ 2x dy = 0 [2]

d) Solve: y' – y = 3 [2]

e) Solve: y" – y = 0 , y(0) = 6 , y'(0) = -4 [2]

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