Nepal College of Information Technology

**Unit Test**

Spring 2013

Program : BE 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. If , evaluate . 7

**OR**

State Eulers theorem for homogeneous function of x, y and z with degree n. If 

b. Find the minimum value of f (x ,y, z) =  such that x + y + z = 3a2. 8

2. a. Define order and degree of ordinary differential equation. Solve the initial value problem:y’ + = x2 , y(1) = 0. 7

b. Solve : . 8

3. a. Obtain the equation of the plane which passes through the point (-1, 3, 2) and is perpendicular to each of two planes. x + 2y + 2z = 5 and 3x + 3y + 2z = 8. 7

b. Find the equation of the plane through and the line x = py+q = rz+s. 8

4. a. Solve the following initial value problem:  7

b. Solve the differential equation  8

5. Attempt all (2.5 \* 4 = 10)

a. Find if x3 + y3 = 3axy. Using partial derivative method.

b. Find the angle between following pair of planes: 2x + 3y + 5z = 0 and x- 2y+z =20

c. Show that (x2+xy2)dx + (x2y + y2)dy = 0 is exact.

d. Find I. F of the linear differential equation, 