Department of **Mathematics and Natural Sciences**

PHY112 - Principles of Physics II

Assignment 1

Total marks: 25

Instructions:

1. Please write your name, ID and section on your script.
2. This assignment comprises of 3 questions. The points of each question is mentioned in the particular question.
3. Please read the questions very carefully.

Question 1

Positive charge of 7.81 pC is spread uni-formly along a thin nonconducting ring of radius 14.5 cm. What are the

(a) magnitude and (b) direction of the electric field produced at point P, at a height of 6.00 cm from the center of the ring. 6

(c) If we consider the same amount of charge is spread uniformly in a disk of the same radius, what will be the electric field at a height of 6 cm from the center of the disk and the charge density 6

(d) If we imagine a infinite sheet of plane with the same amount of charge in it and the electric field is same as the electric field found from (c) what will be its charge density? 3

Question 2

A dipole of charge 5C and -5C and the distance between them is 10 cm. find:

(a) Find the electric field of the dipole at a distance 6 m from the center of the dipole. 4

(b) What would be the electric field just at the mid point 3

(c) If the value of electric field from option (b) is the same for the electric field for a infinite sheet (infinite plane) what would be the surface charge density 3