Name _____

PHY2049C, Practice Quiz 2

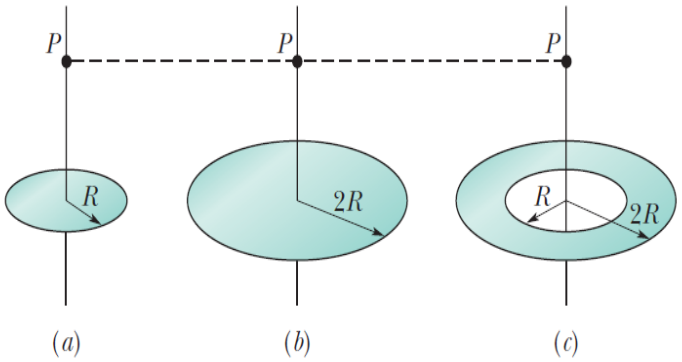
A- Read all the quiz once, or twice, before beginning to write. Make sure to comprehend all questions and start with those you feel most confident.
B – Be clear and concise. There are no extra points for being verbose or writing extra.
C –Only use the white pages that I will provide. You have 50 minutes to answer the quiz.

Problem 1

At first, the ratio of the number of teachers to the number of students in a school is 2 : 25. Then two teachers quit, and the ratio becomes 3:50. What was the initial number of students

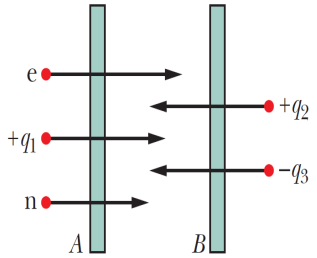
Problem 2 (Halladay, Resnik, Walker)

The figure shows two disks and a flat ring, each with the same uniform charge Q. Rank the objects according to the magnitude of the electric field they create at points P (which are at the same vertical heights), greatest first.



Problem 3

In the figure, an electron e travels through a small hole in plate A and then toward plate B.A uniform electric field in the region between the plates then slows the electron without deflecting it. (a) What is the direction of the field? (b) Four other particles similarly travel through small holes in either plate A or plate B and then into the region between the plates. Three have charges q1, -q2, and q3. The fourth (labeled n) is a neutron,which is electrically neutral. Does the speed of each of those four other particles increase, decrease, or remain the same in the region between the plates?



Problem 4

What is the force on a uniformly positive-charged bar that lies perpendicular to a uniformly negative-charged disk, and with one end touching the disk? Express this in terms of the length of the bar (L), the radius of the disk (R), the linear density of the bar (λ) and the surface charge density of the disk (σ).