**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**PHY2049C, Quiz 4**

**A- Read all the quiz once, or twice, before beginning to write. Make sure to comprehend all questions and start with those you fell 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.**

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**Problem 1**

Figure 1 shows a rectangular solid conductor of edge lengths *L*, 2*L*, and 3*L*.A potential difference *V* is to be applied uniformly between pairs of opposite faces of the conductor as in Figure 2 (The potential difference is applied between the entire face on one side and the entire face on the other side.) First *V* is applied between the left–right faces, then between the top–bottom faces, and then between the front–back faces. Rank those pairs, greatest first, according to the following (within the conductor): (a) the magnitude of the electric field, (b) the current density, (c) the current.

A rectangular object with text

AI-generated content may be incorrect.

Figure 1

**A close-up of a vent

AI-generated content may be incorrect.**

Figure 2: Potential difference is applied across an entire face

A white paper with black lines and symbols

Description automatically generated

**Problem 2**

What’s the power through the resistance 2in the circuit (the battery on the right is 15 V)

**Problem 3**

On Day 1, there were 490 kids in two groups. Group A consistent only of boys, and B only of girls. There were 2 and a half more girls than boys. On Day 2, more girls joined group B and more boys joined group A. For each 4 boys in group A, 32 boys joined group A. The total number of girls resulted in 1/3 that of boys. Express the number of girls that joined group B in terms of a fraction of the boys that joined group A on Day 2.