**PHYS 202 … Practice Problems … Electric Potential Part B Answers**

**Electric Potential and Potential Energy … “Thinking” problems**

**Part 1** … Charged conducting objects

1. A solid conducting sphere has a radius of 4.23 cm and a net electric change of 3.92 C. The charges are stationary.

   2. 8.33 x 105 V
   3. 0
   4. 8.33 x 105 V
2. 2.72 x 10-10 C
3. 4.19 x 10-10 C
4. -2.72 x 10-10 C
5. -4.19 x 10-10 C

**Part 2** … Conservation of energy

1. A proton is shot directly toward a large conducting sphere that has a net charge of 2.84 nC and a radius of 1.92 mm (very large compared to the proton). The proton is initially 35.9 cm from the sphere and has 582 eV of kinetic energy.
   1. NO
   2. Not applicable
   3. 3.72 cm
2. An electron is shot directly toward a large conducting sphere that has a net charge of 6.47 C and a radius of 3.45 mm (very large compared to the electron). The electron is initially 24.1 cm from the sphere and has 39.2 eV of kinetic energy.
   1. YES
   2. 1.66 x 107 eV
   3. Not applicable
3. An infinitely long conducting cylinder has a radius of 0.359 cm and a linear charge density of 4.58 x 10 – 7 C/m. A proton is placed 5.63 cm from the center of the cylinder (perpendicular distance) and released from rest.

Assume nothing else acts on the cylinder.

* 1. Away
  2. 3120 eV
  3. Toward & 5070 eV