Multiple Choice (1 point each)

1. The electric field inside an uncharged metal ball is zero. If the ball is negatively charged then the electric field inside the metal ball is
   A) greater than zero.
   B) less than zero.
   C) zero.
   D) cannot be determined from the information given.

2. For charged parallel plates, where does a proton have the lowest electric potential energy?
   A) near the positive plate
   B) near the negative plate
   C) midway between the plates

3. When moving an electrical charge from one point to another in the presence of an electrical field, which quantity depends on the size of the charge that is moved?
   A) the electric field.
   B) the work done.
   C) the potential difference.
   D) the distance moved.

4. The equipotential surfaces are
   A) always parallel to the direction of the electric field.
   B) always perpendicular to the direction of the electric field.
   C) always of zero potentials.
   D) always of zero electric field.

5. The electron volt (eV) is a unit of
   A) charge.
   B) electric potential.
   C) electric potential difference.
   D) energy.

Problem (5 points)

1. A uniform electric field with a magnitude of 5000 N/C points in the positive x direction. Find the change in electric potential energy when a +12-µC charge is moved 10 cm in (a) the positive x direction, (b) the negative x direction, and (c) in the positive y direction.
   Similar to problem # 20-9
   (a) -6 mJ.
   (b) +6 mJ.
   (c) 0