Pre-Lab: Electric Fields

Choose the best answer. (10 pts total)

In the Electric Fields lab, we will map equipotential lines for a particular distribution of conductors/insulators then sketch a set of lines perpendicular to the equipotential lines representing the lines of force. A conductor is an object that conducts electricity and allows charges to flow freely. An insulator does not allow charges to flow freely in or on it.

1. The lab manual compares the force a charged particle experiences, to that of _____.
   a. an object in a gravitational field  
   b. centripetal force  
   c. a magnet

2. Near a charged conductor, equipotential lines are _____ to the conductor's surface.
   a. perpendicular  
   b. parallel  
   c. Not enough information to say.

3. Equipotential lines bend around _____ but bend toward _____.
   a. charges, lines of force  
   b. insulators, charges  
   c. lines of force, conductors  
   d. conductors, insulators  
   e. insulators, conductors  
   f. conductors, charges

4. When do equipotential lines intersect?
   a. Never  
   b. around conductors  
   c. around insulators  
   d. at the electrodes

5. The outline of a conductor is an equipotential line because _____.
   a. it is negatively charged  
   b. it has the same electric potential throughout it  
   c. it has the same charge distribution throughout it  
   d. The outline of a conductor is NOT an equipotential line.

6. Lines of force start from the negative charges and stop at the positive charges.
   a. True  
   b. False

7. Lines of force are _____ perpendicular to equipotential lines.
   a. always  
   b. sometimes  
   c. never

8. It is possible for lines of force to cross one another near a conductor.
   a. True  
   b. False

9. What indicates the relative strength of the electric field?
   a. length of lines of force  
   b. density of equipotential lines  
   c. density of lines of force  
   d. length of equipotential lines

10. The arrows on the lines of force show the direction of the net force on a ____ charge.
    a. positive  
    b. negative  
    c. neutral