

Review Sheet – Electrostatics

1. Read chapters 16, 17
2. **Terms to know:** neutral, positive ion, negative ion, grounding, leakage, polar, conduction, induction, electroscope, coulomb, point charge, inverse square law, Millikan's Oil Drop experiment, uniform electric field, two parallel plates, alpha particle, electric potential energy.
3. **Define:**
  - a) *electric field*
  - b) *electric field strength*
  - d) *electric potential*
  - e) *electronvolt*
  - c) *capacitance*
4. **State:** The Law of Conservation of Electric Charge
5. **State:** Coulomb's Law
6. What is an "elementary charge?"
7. What is the only particle normally transferred when an object is charged?
8. a) State the two units for electric charge.
  - b) State the value of the charge on an electron using both units stated in part (a).
  - c) State the value of the charge on a proton using both units stated in part (a).
  - d) State the value of the mass of an electron and a proton.
9. When an object is charged by conduction, what charge does it acquire *compared to charging rod??*
10. When an object is charged by induction, what charge does it acquire *compared to charging rod?*

11. How is a conductor different from an insulator?
  
12. a) A neg. charged rod repels a 2nd object. What can you conclude about the object?  
  
b) A neg. charged rod attracts a 2nd object. What can you conclude about the 2nd object?  
\*think!
  
13. Explain what is meant when an object is said to be “polar.”
  
14. What is the general rule for determining the final charge on each object when two or more charged objects are touched together?
  
15. Explain the following statement: “Electric charge is quantized.”
  
16. Predict what will happen to the leaves of an electroscope when a negatively charged rod is brought near a
  - a) neutral electroscope
  
  - b) positively charged electroscope
  
  - c) negatively charged electroscope
  
17. How many elementary charges are in one coulomb of charge?
  
18. How can you determine if a particular value of charge is possible for an object?
  
19. Compare and contrast the electric force with the gravitational force.
  
20. How does the electrostatic force between two charges change if
  - a) the distance between them is doubled?
  
  - b) one charge is doubled?
  
  - c) both charges are doubled?
  
  - d) the distance between them is halved?



For each quantity below, state symbol, unit, formula(s), and (vector/scalar)				
Quantity	Symbol	Unit	Formula(s)	Type
Electric field strength (intensity)		2 sets of units		
Electric force				
Electric potential energy		2 sets of units		
Electric potential (potential difference, voltage)		2 sets of units		
Capacitance		2 sets of units		