PHYS 212 Spring 2014 Study Guide for Test #3     Chapters 25, 26, 27, and 28  
  
Test will consist of regular questions, problems, and derivations.  
  
**Chapter 25: Capacitors**  
Charge: http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c25/math127.gif Stored energy: http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c25/math134.gif  
Capacitance of a Parallel plate capacitor:   
 **Capacitors in Parallel and Series:**    
http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c25/math132.gif http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c25/math133.gif

**Chapter 26 & 27:** Current (i), current density (J), resistance (R), and power (P):

http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c26/math136.gif http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c26/math138.gif http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c26/math143.gif http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c26/math057.gif

Estimating the cost of electricity. Semiconductors and Superconductors.  
Ohm’s law: v = iR Power: http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c27/math039.gif http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c27/math159.gif http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c26/math144.gif

**Resistors in Series and in Parallel:**

http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c27/math160.gifhttp://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c27/math063.gif

Analyzing circuits using junction rule and loop rule.

**Chapter 28:**Electric force on a charge: Magnetic force on a moving charge: 

Net force on a moving charge in electric and magnetic fields:

Vector cross product:

Vector cross product: , where *θ* is the angle between the vectors.

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| A Charged Particle Circulating in a Magnetic Field: http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c28/math156.gif  **Magnetic Force on a Current-Carrying Wire** A straight wire carrying a current *i* in a uniform magnetic field experiences a sideways force: | |
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http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c28/math159.gif