

Study Guide: Static and Dynamic Electricity

Your test is on Friday December 11, 2015

Note: This study guide contains information seen in class, as well as page #s from your textbook where you could find this content. **You should focus on the questions in bold to ensure that you are prepared for your test.**

1 WHAT IS ELECTRICITY?

- **How is an electric charge formed? Negatively charged vs. Positively charged particles?**
- Charging an object consists in creating an imbalance in the electrical charge of that object (p. 142).
- **What is the difference between conductors and insulators? Could you identify these types of materials in different scenarios?**
- **How do charges react to one another? Like charges? Opposite charges?**

2 STATIC ELECTRICITY

- Static electricity describes all the phenomena related to electrical charges at rest (p. 145).
- An object can be charged in various ways: by friction, by conduction or by induction (p. 146). **Can you identify these three methods of charging in different scenarios? (Look back to your quiz)**
- **For each of these methods of charging:**
 - **What is the charge of the objects initially?**
 - **Is there contact between the objects?**
 - **What are the final charges of these objects?**

3 DYNAMIC ELECTRICITY

- **What is it? What is electric current?**
- **Current intensity** is the number of charges that flow past a given point in an electrical circuit every second (p. 151).
- **The potential difference** is the amount of energy transferred between two points in an electrical circuit (p. 152).
- **Electrical resistance** is the ability of a material to hinder the flow of electric current (p. 153). What are the factors that increase electrical resistance and how does this affect current intensity?
- **Ohm's law** states that, for a given resistance, the potential difference in an electrical circuit is directly proportional to the current intensity (p. 154).
- **Electrical Power:** can you use $P = VI$ to solve different problems involving power, voltage and current intensity.
- **Can you use the different formulas seen in class to solve problems?**

- **What is the difference between series and parallel circuits? Can you draw and recognize circuit diagrams?**
 - **Can you interpret circuit diagrams and find the missing values, V, I or R, in order to solve a problem?**
 - **Could you create and interpret graphs that relate the different variables seen when studying electric circuits (V, I, R)**
- Remember that all units can be presented in milli- and kilo- units as well. Be prepared to do unit conversions.