

Physical Science, 353 Semester II Exam Review

Your semester one exam is scheduled for Friday June 6, 2008 from 9:45 am to 10:45 am. It is your responsibility to check the posted schedules to determine in what room your section will be taking this exam and to be there on time ready to take the exam. Read the school policy for making up this exam if you are absent. There are severe penalties for an unexcused absence from this exam or failing to make prompt arrangements for a make up. Do not miss this exam!

This exam will cover material from chapters 6, 7, 11, & 12. A periodic table will be supplied with the exam, and you will be able to use a calculator. You can expect to see a variety of questions including fill in, multiple choice, matching, and short answer questions. There are graphs, data, and diagrams you will need to interpret. The points listed below are intended to give you some idea of the most important points you should concentrate on as you prepare for this exam. It is not intended to be a complete or comprehensive list of every point covered on the semester exam. **You should also use your chapter tests, chapter syllabi, and homework assignments as a study guide.** Don't forget your lab work. Information from these labs will be incorporated in to the semester exam.

Chapter 6: Chemical Bonds.

- Understand the role of valence electrons in ionic bonding
- Understand how ionic bonds form
- Be able to create dot diagrams
- Know the properties that can be explained by ionic bonds for ionic compounds
- Demonstrate understanding of how to write chemical formulas
- Understand how covalent bonds form
- Know what a polar covalent bond is and how it affects molecule behavior
- Know how to properly name chemical compounds
- Understand what a polyatomic ion is and how it behaves in reactions
- Understand how metallic bonds form
- Understand the behavior of electrons in metallic bonds
- Know what an alloy is and how properties of alloys can vary

Chapter 7: Chemical Reactions.

- Understand the concept of conservation of mass and how it relates to chemical reactions
- Be able to balance chemical formulas properly
- Understand the difference between products and reactants
- Understand moles and molar mass. Be able to demonstrate how to use these concepts along with chemical formulas to find how much of a reactant becomes a product, etc.
- Be able to identify and balance various types of reactions including: synthesis, decomposition, single replacement, double replacement, and combustion reactions.

- Understand how oxidation reduction reactions occur
- Demonstrate an understanding of chemical energy in reactions. Understand the importance of endothermic versus exothermic reactions and how they differ.
- Understand how each of the factors discussed in the chapter can affect reaction rates
- Know what a reversible reaction is and how it relates to equilibrium. Be able to explain how a system can be in equilibrium and what happens if it is shifted out of equilibrium

Chapter 11: Motion

- Understand the importance of frame of reference when determining motion
- Be able to explain the difference between a distance and a displacement.
- Understand what a vector is and how we add vectors together to find a resultant vector
- Know the difference between average speed and average velocity. Be able to find each.
- Understand how to plot distance-time to obtain information about speed.
- Be able to add velocities together
- Understand what instantaneous speed is.
- Know what acceleration is and how it affects speed and direction
- Be able to calculate acceleration from velocities
- Understand how to plot speed-time to obtain information about acceleration.
- Understand what instantaneous acceleration is.
- Be able to understand the concept of free fall and constant acceleration

Chapter 12: Forces and Motion

- Understand what a force is and how it affects the motion of objects
- Know the four types of friction introduced
- Be able to make the connection between gravity, air resistance, and terminal velocity.
- Understand the behavior of projectiles.
- Appreciate the historical groundwork on which Newton formulated his Law of motion
- Be able to identify and explain each of Newton's three Laws of Motion
- Understand what inertia is and how it relates to mass and forces.
- Understand the difference between weight and mass
- Know what momentum is.
- Be able to solve collision problems using conservation of momentum
- Understand the universal forces
- Know the difference between the strong and weak nuclear forces
- Be able to explain how centripetal forces keep objects in orbit or any circular path.