**FINAL EXAM PHYSICAL SCIENCE I**

1. Use the magnetic domain model to explain why a magnet sticks to a refrigerator door. (10points)

2. Find the equivalent resistance for the following circuit? What is the total current in the circuit? (10pts)

A diagram of a circuit for finding equivalent resistance

 

3. Discuss the major ideas of the Bohr Model of the atom? (10 points)

4. The net ionic equation for the reaction between aqueous nitric acid (HNO₃) and aqueous sodium hydroxide is \_\_\_\_\_\_\_\_\_\_?(10 points)

5. An escalator is used to move 20 passengers every minute from the first floor of a department store to the second. The second floor is located 5.20 meters above the first floor. The average passenger's mass is 54.9 kg. Determine the power requirement of the escalator in order to move this number of passengers in this amount of time. (10points)

6. A roller-coaster car is moving at 20.0 m/s along a straight horizontal track. What is its speed after climbing a 15.0 m hill? Neglect the effects of friction. (10points)

7. What is the mass in grams of 6.4 x1026 formula units of magnesium phosphate? (10 points)

8. Explain how an electric motor works. How does a stereo speaker use an electromagnet to produce sound? (5pts)

9. Both carbon monoxide, CO, and carbon dioxide, CO2, are products of the combustion of fossil fuels. Both of these gases also cause problems: CO is toxic and CO2 has been implicated in global climate change. What are the Lewis structures of these two molecules? (5 pts)

10. What is the hybridization on the internal oxygen atoms in HNO2

11. How many σ and π bonds are present in the molecule CO? (5 points)

12. Describe the three methods of heat transfer. (5 points)

13. Advertisements for a toy ball once stated that it would rebound to a height greater than the height from which it was dropped. Is this possible? Why or why not? (5 points)