Category 1: specific Heat (you will have one problem in the test about the equation q=mcΔT

Practice problems for category 1: (**5 points**, 1 point = equation, 2 points = show work, 1 point = final answer, 1 point correct unit for the answer)

1. How much heat is absorbed by a 20.0 g granite boulder as energy from the sun causes its temperature to change from 10.0°C to 29.0°C? (Specific heat capacity of granite is 0.790 J/g.°C) (Ans: 300.2 J)

2. A 15.75 g piece of iron absorbs 1,086.75 joules of heat energy, and its temperature changes from 25° C to 175° C. Calculate the specific heat capacity of iron. (Ans: 0.46 J/g° C)

3. To what temperature will a 50.0 g piece of glass rise if it absorbs 5275 to joules of heat and its specific heat capacity is 0.5 J/g° C? The initial temperature of the glass was 20.0° C. (Ans: 231 ° C)

4. A mercury sample is heated from 25° C to 155° C, absorbing 455 joules of heat. If the specific heat capacity of mercury is 0.14 J/g° C, then what is the mass of the mercury sample? (25 g)

Category 2: Molarity problems (you will have one problem in the test from molarity pracice worksheet)

Practice problems for category 2: (**12 points**; detailes shared in class)

1. How many grams of Perchloric acid ($HClO_4$) will be required to make a 700 ml of 3.5 M solution? (Ans: 246.13 g $HClO_4$)

2. How much water will be required to make a 1.5 M solution of potassium dichromate ($K_2Cr_2O_7$) with a 29 g $K_2Cr_2O_7$ sample? a) answer in liters. b) answer in milliliters. (Ans: a) 0.066L, 66 ml)

Category 3: Equation of dissociation: (These problems are similar to the Chem quest problems 13. **6 points**)

Write the equation of dissociation for the following compounds.

a) HBr   b)SrI_2 c)HNO_3 d)$Fe(NO_3)_3$ e)$Al_2(SO_4)_3$

Category 4: Molarity of ions: If you had a 0.6 M solution, then calculate the molarity of the following ions for the compounds above. (These problems are similar to the Chem quest problems 16. **2 points**)

a) Br^- b) I^- c)H^+ d) NO_3^- e) both Al^{3+} and SO_4^{2-}