

Name: _____
130 points
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Test 2
Chemistry 121AD
November 6, 1998

SHOW ALL CALCULATIONS FOR FULL CREDIT

Multiple Choice Questions: Circle the single best answer. No penalty for guessing.

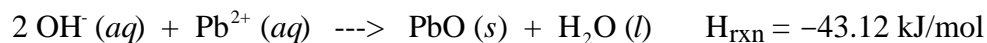
- How many significant figures will result when you perform the following math (5 points):
$$8.22 \times (6.212 - 7.22) / 9.225$$

A) 1 B) 2 C) 3 D) 4 E) 5
- What is the chemical symbol for the atom or ion with 45 protons, 60 neutrons and 42 electrons? (5 points)
A) ^{105}Rh B) ^{105}Nd C) $^{60}\text{Rh}^{3+}$ D) $^{105}\text{Rh}^{3+}$ E) $^{105}\text{Nd}^{3+}$
- How many moles of carbon are found in 12.0 mole of butadiene (C_4H_6)? (5 points)
A) 3.00 mol B) 4.00 mol C) 24.0 mol D) 48.0 mol E) 1.20×10^2 mol
- Which of the following is a weak base? (5 points)
A) NaOH B) $\text{HC}_2\text{H}_3\text{O}_2$ C) NH_3 D) HCl E) $\text{Ba}(\text{OH})_2$
- How much heat is required to melt 45.0 g of ice at 0°C ? (5 points, the specific heat for water is $\text{C} = 4.184 \text{ J/g}^\circ\text{C}$, the heat of fusion of water is 6008 J/mol)
A) 6.01 kJ B) 188 J C) 18.8 kJ D) 271 kJ E) 15.0 kJ
- Which of the following orbitals has the lowest energy? (5 points)
A) 2s B) 2p C) 3d D) 4f E) 6p
- Write the complete (no noble gas abbreviations) electron configurations for B^{2+} , Ca, and I^- . (15 points)

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13. Given the reaction below, calculate (in kJ) the amount of heat that will be released when 2.31 L of 0.130 M NaOH reacts with 1.22 L of 0.330 M $\text{Pb}(\text{NO}_3)_2$. Assuming that the solutions have a density of 1.00 g/mL and the same heat capacity as pure water (4.184 J / g K), calculate the temperature change of the resulting solution, assuming both solutions were 300.0 K initially. (20 points)



14. Balance the following two equations and write out the final net ionic equations for each. (10 points)

