

# PChem I (Chem 313), Fall 2008 -Guide for the 1st exam<sup>1</sup>

- **Date and Time:** Oct. 6, 1:35 - 2:55 pm

- **Distribution of questions**

## I. Questions asking information, concept, or derivation (100 pts)

Similar types as those in Quiz #1

Need to understand lecture notes

## II. Problems adapted from the following samples (100 pts)

(Modification or simplification can be made.)

1. All the Examples in Chapters 1- 4 of the textbook.
2. Exercises - 1.10(b), 1.19(b), 2.4(b), 2.16(b), 2.23(b),  
3.4(b), 3.7(b), 3.19(b), 4.1(b), 4.5(b)
3. Problems - 1.7, 1.11, 2.5, 2.7, 2.19, 2.23, 2.25, 2.29,  
3.1, 3.5, 3.7, 3.23(a), 3.25, 3.27, 4.3, 4.13

- **Equations to remember**

**Chapter 1:** (1.2a), (1.4), (1.8), (1.17)

**Chapter 2:** (2.2), (2.3), (2.4), (2.15), (2.18), (2.22), (2.27)

**Chapter 3:** (3.1), (3.3a), (3.3b), (3.10), (3.12), (3.16), (3.29), (3.30), (3.43), (3.49)

**Chapter 4:** (4.1), (4.2), (4.5), (4.6)

- **Definitions, laws, or concepts to remember**

SATP, STP, standard state

Boyle temperature, critical temperature, critical point, compression factor

The zeroth, first, second, and third laws of thermodynamics

Heat capacity, Enthalpy, Entropy, Helmholtz Free Energy, Gibbs Free Energy

Molar heat capacity, molar volume, chemical potential, molar entropy

Hess's law, Kirchhoff's law, Clausius inequality, Carnot cycle

First order phase transition, Second order phase transition

- **Equations or laws to understand**

van der Waals equation, Joule-Thompson effect, Maxwell relations,

Gibbs-Helmholtz equation, Clapeyron equation, Clausius-Clapeyron equation

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<sup>1</sup>Posted on Sep. 28th, 2008