GENERAL INFORMATION

Lecturer (and TAMU Mentor):   Dr. Wendy L. Keeney-Kennicutt   Sections 501 - 511, TR: 9:35 - 10:50 am in Room 100, HELD

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Office Hours: Mondays 3:30 pm - 9pm, Wednesdays 3:30pm - 6pm, by appointment and whenever you can catch me.

Review Sessions: Special Review of Chapter 1 and Math Basics: First Sunday Review
Sundays, General Review for Lecture, 2 pm, Rm 100 HELD
Weekly Lab Reviews: to be announced

Lecture Notes: Copies of my lecture notes and old exams are on our web page (www.chem.tamu.edu/class/fyp/).

BONUS OPPORTUNITY PROBLEMS (BOP's)

A total of 114 problems were carefully selected to complement the lectures. Additional practice problems, which are NOT to be handed in, are also provided. Answers to the even-numbered problems are in the textbook and worked out in the Solution Manual. The BOP's will be divided into four sets as we cover the material in class - the problems due will be announced in class. The first three sets will be due on the Thursday following each exam; the last set will be due on the last day of class. The BOP's may be turned in with a 10% penalty through the next Friday or whenever the makeup exam is. After that time, the BOP's will absolutely not be accepted without a medical excuse. Please use regular notebook paper with your name, course and section number, date, my name and set number on the first page, and print your name on all additional pages. The problems submitted must be the "original" (not a photo- or carbon copy). The problem sets will be returned to you at a later time. You may want to retain a copy of your work for future reference. You must show all work (messy is OK). You must hand in at least 70% to receive 1 BOP point and at least 90% to receive 2 BOP points. I encourage you to work the problems. You will find similar problems on the exams. I am available to answer any questions on BOP's during my office hours and review sessions. Answers to odd problems and additional problems are on the back of this sheet.

Chapter 1	[not for credit: 12, 14, 18, 20, 24, 28, 34, 38, 40, 44 and others]	
Chapter 2	18, 28, 34, 36, 39 (& explain), 42, 58, 62, 78, 90, 104	[not for credit: 14, 20, 30, 50, 54, 64, 72, 74 and others]
Chapter 3	10, 14, 22, 30, 40, 42, 43, 58, 62, 70,72, 80, 82, 94, 97	[not for credit: 8, 12, 18, 36, 44, 68, 76 and others]
Chapter 4	16, 34, 42, 56, 60, 66, 76, 94 (Consider $Ca(OH)_2$ as soluble), 96, 110 [not for credit: 28, 32, 44, 52, 58, 68, 92, 98, 114, 116 and others]	
Chapter 5	20, 22, 26, 30, 42, 56 (omit part (d)), 70, 72, 76, 80 (& (e) Cu, (f) Cr - tricky! Write the shorthand notation. Label diamagnetic or paramagnetic. Which one exhibits the highest degree of paramagnetism?), 96, 98, 100, 102 [not for credit: 18, 24, 28, 32, 44, 68, 74, 88 and others]	
Chapter 6	6, 10, 34 [not for credit: 8, 18, 30, 41, 48 and others] 100. Arrange the following atoms or ions in order of increasing diameter and explain why briefly. (a) Ca, Mg, Sr (c) P, Si, S, Al (e) H, H^+, H^- (b) S^{2-}, Ar, Cl^- (d) Fe, Fe^{2+}, Fe^{3+} (f) F, Br, Te^{2-}, Se 101. Give examples and explain the following trends in the first ionization energy (a) across each period (include "dips" at IIIA and VIA elements for Periods 2 and 3 - see textbook), and (b) descending a periodic group	
Chapter 7	8, 10, 14, 50, 62, 76 [not for credit: 6, 18, 24, 30, 36, 52, 56, 58, 68, 74 and others] 100. Draw Lewis dot formulae for the following. Which violate the octet rule? (worth 5 questions) Use the solution manual wisely, esp. the solutions to 36, 38, 56 and many in Chapter 8. (a) H_2O (c) HCN (e) PF_3 (g) BCl_3 (i) ICl_2^- (k) $AsCl_4^-$ (m) SeF_6 (o) XeF_4 (b) H_3O^+ (d) NH_3 (f) $BeCl_2$ (h) PH_4^+ (j) SeF_4 (l) ClF_3 (n) IO_4^-	
Chapter 8	52 (& Give total number of sigma and pi bonds), 78 [not for credit: 22, 24, 28, 32, 36, 42, 46, 48, 56, 78 and others] 100. Consider the species listed in Exercise 100 in Ch. 7: For the central atom, give the number of regions of high electron density, the number of lone pairs, hybridization, electronic geometry and ideal bond angle(s). Determine molecular or ionic geometry and polarity (worth 5 questions). Use the Solution Manual for help.	
Chapter 10	8, 26, 42, 50, 60, 78, 90, 92	[not for credit: 20, 24, 56, 58, 74, 88 and others]
Chapter 11	14, 28, 32, 42, 50, 56, 58, 66 (Hint: use normality), 82 100. Use the reaction in 60(b). What mass of Zn (in grams) will react with 75.0 mL of 0.100 N $NaNO_3$? [not for credit: 12, 38, 40, 54, 57, 60, 62, 64 and others]	
Chapter 12	16, 24, 30, 32, 44, 50, 56, 62, 66, 74, 82, 88, 112	[not for credit: 14, 22, 36, 42, 58, 100 and others]
Chapter 13	6, 10, 18, 24, 36, 48, 50, 68, 72, 78, 116	[not for credit: 22, 26, 34, 42, 74, 80, 106, 112, 118 and others]
Chapter 14	[not for credit: 28, 46, 48, 50, 66, 72]	

(Answers to even-numbered problems are in the textbook; solutions are given in the Solution Manual.)

Chapter 2 **39**. (a) no (b) yes (c) no (d) no

Chapter 3 **43.** 147 g S **97**. #4, (b)

Chapter 5 **80**. (a) paramagnetic (3 unpaired e⁻) (b) paramagnetic (2 unpaired e⁻) (c) paramagnetic (1 unpaired e⁻) (d) paramagnetic (2 unpaired e⁻)
(e) paramagnetic (1 unpaired e⁻) (f) paramagnetic (6 unpaired e⁻)

Chapter 6 **100**. for example, (a) Mg<Ca<Sr

Chapter 7 **100**. octet rule violaters: (f), (g), (i), (j), (k), (l), (m) and (o)

Chapter 11 **100**. 0.245 g Zn

REQUIRED ORGANIC NOMENCLATURE

Methane/CH_4

Ethane/C_2H_6

Propane/C_3H_8

Ethylene/C_2H_4 (Ethene)

Acetylene/C_2H_2 (Ethyne)

Benzene/C_6H_6

Methanol/CH_3OH

Ethanol/C_2H_5OH

Acetone/CH_3COCH_3

Formic Acid/HCOOH

Acetic Acid/CH_3COOH

Methylamine/CH_3NH_2

Dimethylamine/$(CH_3)_2NH$

Trimethylamine/$(CH_3)_3N$

Chloroform/$CHCl_3$ (Trichloromethane)

Carbon Tetrachloride/CCl_4 (Tetrachloromethane)

Note: CH_3 = H-C-