Preview Sheet for Test 2

Chapters 3, 5, 18, 21; very lightly through 20, 29
Lectures from 2/14 through 3/10; Problem Sets 4 and 5

The test will be on Thursday, March 17, in Olin-Rice 350, starting at 8:30 a.m. You will have 3 hours to work on the exam.

Studying Strategies:

- Focus on your lecture notes and homework first, then look at Experiment 2, then look at your textbook. (See the course web page for class overheads and homework keys.)
- Do extra problems at the ends of the chapters.
- Talk with Rob or e-mail me if you have any questions.
- If a topic was not covered in homework or in lecture, you are not responsible for it!

Test Format: 16 points based on true-false questions, 40 points based on mathematical questions, and 44 points based on short essay questions. Here's a preview of the instructions:

1. Write your name in the space above and on the backs of pages 2-7.
2. Your exam booklet should have **nine** pages total, with questions on pages 2-7, and a Student's *t* table, a periodic table, and other reference data on pages 8-9. Check to see you have nine pages now. If you do not, ask for another copy of the exam.
3. You may use programmable calculators, but chemical data should not be stored in them.
4. You should always justify your answers in writing, unless you are explicitly told not to do so. You will be awarded credit only for clear, legible work.
5. You have a maximum of **3 hours** to work on this exam.

Also note the formulas and constants you will be given on the exam:

$$\mu = \bar{x} \pm t s_x \qquad e_y = \sqrt{\left(\frac{\partial y}{\partial x_1}\right)^2 e_{x_1}^2 + \ldots + \left(\frac{\partial y}{\partial x_n}\right)^2 e_{x_n}^2} \qquad e_y = \sqrt{e_{x_1}^2 + e_{x_2}^2} \qquad \frac{e_y}{y} = \sqrt{\left(\frac{e_{x_1}}{x_1}\right)^2 + \left(\frac{e_{x_2}}{x_2}\right)^2}$$

$$\Delta E = h\nu = h\frac{c}{\lambda} = hc\bar{\upsilon} \qquad dP' = -\beta C P' dx \qquad T = \frac{P}{P_o} \qquad A = \text{-log } T = \varepsilon b C \qquad F = kP_o\, C$$

$$\frac{N^*}{N_o} = \frac{g^*}{g_o} e^{-\Delta E / kT} \qquad y_{LOD} = \bar{y}_{blank} + 3s \qquad y_{LOQ} = \bar{y}_{blank} + 10s \qquad x_{LOD} = \frac{3s}{m} \qquad x_{LOQ} = \frac{10s}{m}$$

$N_A = 6.022 \times 10^{23}$ particle mol^{-1} $h = 6.626 \times 10^{-34}$ J s particle^{-1} $c = 2.998 \times 10^{8}$ m s^{-1}

$k = 1.381 \times 10^{-23}$ J K^{-1} particle^{-1} 1 eV = 1.602×10^{-19} J particle^{-1} 1 nm = 10^{-9} m

1 L = 1000 mL = 1000 cm^3 T (K) = T(°C) + 273.15 ln a = (log a) (ln 10)