

Preview Sheet for Test 2

Chapters 18 and 21 [and a little of 20]

Lectures from 2/13 through 3/3; Problem Sets 4 and 5

The test will be on Thursday, March 9, in Olin-Rice **150**, starting at 8:30 a.m. You will have 2 hours and 30 minutes to work on the exam.

Studying Strategies:

- Focus on your lecture notes and homework first, 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.
- It is important to understand concepts from lecture not covered explicitly in the homework problems. These will be covered by short answer and essay questions.
- If a topic was not covered in homework or in lecture, you are not responsible for it!

Test Format: 30 points based on calculations, and 70 points based on short answer and essay questions. Here's a preview of the instructions:

1. Write your name in the space above and on the backs of the other pages.
2. Your exam booklet should have **eight pages** total, with questions on Pages 2-6, formulas and constants on Page 7, and a periodic table on Page 8. Check to see you have eight 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 demonstrate your thought process in writing. You will be awarded credit only for clear, legible work.
5. You have **2 hours and 30 minutes** to work on this exam.

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

$$\Delta E = h\nu = h\frac{c}{\lambda} = hc\bar{\nu} \quad dP' = -\beta CP'dx \quad T = \frac{P}{P_0} \quad A = -\log T = \epsilon bC$$

$$F = kP_0 C \quad \frac{N^*}{N_0} = \frac{g^*}{g_0} e^{-\Delta E/kT} \quad y_{LOD} = \bar{y}_{blank} + 3s \quad y_{LOQ} = \bar{y}_{blank} + 10s$$

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

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

$$1 \text{ L} = 1000 \text{ mL} = 1000 \text{ cm}^3 \quad T(\text{K}) = T(^{\circ}\text{C}) + 273.15 \quad \ln a = (\log a) (\ln 10)$$

$$1 \text{ ppm} = 1 \text{ in } 10^6 \quad 1 \text{ ppb} = 1 \text{ in } 10^9 \quad 1 \text{ ppt} = 1 \text{ in } 10^{12}$$