

Preview Sheet for Test 2

Chapters 18 and 21 [and a little of 5 and 20]
Lectures from 2/16 through 3/6; Problem Sets 4 and 5

The test will be on Thursday, March 12, in Olin-Rice **350**, starting at 9:00 a.m. (You have the option of starting at 8:00 a.m.—ask me if you are interested.) You will have 2 hours to work on the exam.

Studying Strategies:

- Focus on your lecture notes and homework first, then look at your textbook.
- You are still responsible for calibration and systematic and random error ideas covered on Test 1; they are relevant to Unit 2.
- 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 the essay questions.
- If a topic was not covered in homework or in lecture, you are not responsible for it!

Test Format: 40 points based on calculations, and 60 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 the other pages.
2. Your exam booklet should have **seven pages** total, with questions on pages 2-6, and formulas constants, and a periodic table on p. 7. Check to see you have seven 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. You will be awarded credit only for clear, legible work.
5. You have a maximum of **2 hours** to work on this exam.

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

$$y_{LOD} = \bar{y}_{blank} + 3s \quad y_{LOQ} = \bar{y}_{blank} + 10s \quad x_{LOD} = \frac{3s}{m} \quad x_{LOQ} = \frac{10s}{m}$$

$$\Delta E = h\nu = h\frac{c}{\lambda} = hc\bar{\nu} \quad dP' = -\beta CP'dx \quad T = \frac{P}{P_o}$$

$$A = -\log T = \epsilon bC \quad \frac{N^*}{N_o} = \frac{g^*}{g_o} e^{-\Delta E/kT}$$

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

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

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

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