Using Practice Quizzes Effectively

This practice quiz contains **actual questions** that have been asked on one of my quizzes in a previous quarter. This can be a useful studying tool if used properly.

Important notes about the practice quiz:

- This practice quiz should not be the only studying tool you are using, because **the practice quizzes only show a small subset of the possible questions that could be tested**.
- **Work the recommended book problems** to make sure that you fully understand all of the concepts that might be on the actual quiz.
    - You need to be able to **explain why every step is done** in solving all of the recommended book problems (**without looking at the solutions**). Do not memorize the answers – this will not work.
    - Work problems multiple times to build skill and efficiency (but do not memorize).
- **The actual quiz will contain questions that differ from the practice quizzes. They are not necessarily any easier or harder; they are just different.**
    - It would be pointless to give a quiz with the exact same questions as the practice, because it would mean the quiz is testing your memorization skills instead of your actual understanding of the material.
    - **To prepare for this, make sure you understand how to do all of the recommended book problems as discussed above.**

What this practice quiz is intended to do:

- Help you diagnose general areas of strength/weakness and determine what you need to spend more time studying before the quiz
- Allow you to check if you are answering questions quickly enough to complete the actual quiz within the time limit
- Give you an idea of the general format of a multiple-choice quiz

While taking the quiz:

- Take this with a **25 minute time limit**, including the time it would take you to fill out a parscore
- **Do not use any outside notes or help**
- Do not look at any of the answers until you have completed the entire quiz

After you complete the quiz, check your answers against the key. For any problems you miss:

- Go through the worked-out solutions to see how to answer each question correctly
- **Make sure you understand why every step is done** in solving the problems you miss
- **Rework book problems** that are related to the questions you missed. This will help to strengthen your understanding of the topic. Without this, you will not gain a full understanding of the topic and risk missing similar questions on the actual quiz.

Instructions: No hats or hoods allowed. No books or notes allowed. No sharing of calculators. Cell phones, iPods, headsets/headphones, and any other electronic devices must be turned off and put away.

There are a total of two pages (6 questions) on the quiz. **Not every question is worth the same number of points**--point values are indicated for each question.

You may work out the problems and write your answers on this quiz; however, you must completely fill in the appropriate bubble(s) on your ParSCORE form. Turn in the ParSCORE form only. **Only the answers indicated on your ParSCORE will be graded**, so please be very careful bubbling in your ParSCORE. No credit will be awarded for an incorrectly-bubbled answer. The correct answers to the quiz will be posted on our course web page.

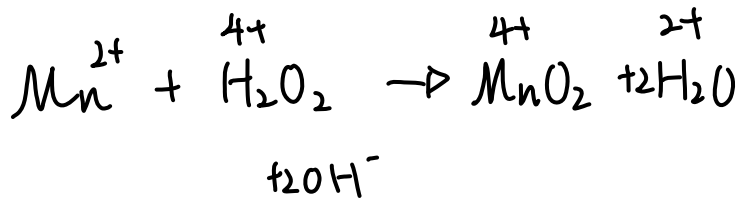1. (3 pts) Which of the following is the highest in energy?

a) Blue light (λ = 450 nm)
b) Red light (λ = 650 nm)
c) Yellow light (λ = 550 nm)

A

2. (3 pts) Consider the following reaction occurring in **basic** solution: $Mn^{2+} + H_2O_2 \longrightarrow MnO_2 + H_2O$

    Determine the **SUM** of **ALL** coefficients when the equation is properly balanced. Include coefficients of 1.

a) 4
b) 5
c) 6
d) 7
e) 9

D

$$\overset{2+}{Mn} + \overset{4+}{H_2O_2} \longrightarrow \overset{4+}{MnO_2} + \overset{2+}{2H_2O}$$

$$+2OH^-$$

3.   (3 pts) Increasing the <u>temperature of a gas</u> at constant pressure will _____ the <u>density</u> of the gas.

a) decrease
b) increase
c) not change

A

$$V = kT$$

4. (3 pts) A gas sample at 27°C has a pressure of 0.969 atm. If the flask is heated to 81°C at constant volume, what is the pressure of the gas?
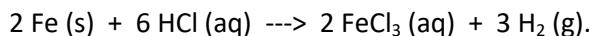
a) 0.821 atm
b) 1.58 atm
c) 1.14 atm
d) 2.91 atm
e) 3.45 atm

$$\frac{P_1}{T_1} = \frac{P_2}{T_2}$$

C $P_2 = 1.14$

5. (4 pts) Iron is reacted with excess HCl according to the following equation:

$$2\ Fe\ (s)\ +\ 6\ HCl\ (aq)\ \text{--->}\ 2\ FeCl_3\ (aq)\ +\ 3\ H_2\ (g).$$

If 430 mL of H_2 gas is collected over water at 747 torr total pressure and 25°C, how many grams of iron reacted? The vapor pressure of water at 25°C is 23.8 torr.

a) 473 g
b) 0.965 g
c) 0.935 g
d) 0.644 g
e) 0.623 g

E

$$747 - 238 = 723.2\ torr$$

$$\frac{\left(\frac{723.2}{760}\right) \frac{430}{1000}}{0.08206 \times (25+273)} = n$$

$$PV = nRT$$

$$n = 0.01673\ mol$$

$$0.01728\ mol$$

6. (4 pts) The energy required to remove electrons from the surface of a metal is 229 kJ/mol. If the metal is exposed to light of an unknown wavelength, and each ejected electron has a kinetic energy of 7.6×10^{-19} J, then what is the wavelength of the light?

a) 2.6×10^{-7} m
b) 8.7×10^{-31} m
c) 5.2×10^{-7} m
d) 4.6×10^{-31} m
e) 1.7×10^{-7} m

$$\frac{hc}{\lambda} = \frac{229 \times 10^3}{6.02 \times 10^{23}} + 7.6 \times 10^{-19}$$

$$\lambda = 1.743 \times 10^{-7}$$

E

Answers: 1) A   2) D   3) A   4) C   5) E   6) E

For more practice, work the assigned problems from the textbook! Lists of problems and solutions are on Gauchospace.