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.

Before doing anything, fill in the following on your ParSCORE form:

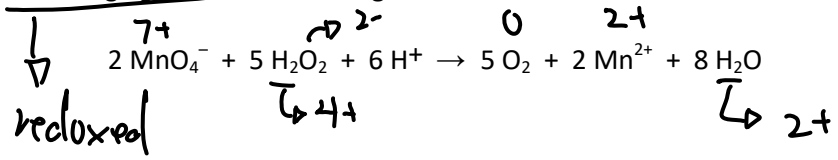
1) **Write your name**
2) Bubble in **FORM A**
3) **Bubble in your PERM** number (7 digits only—no extra numbers)

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 three 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) Determine the oxidizing agent in the following reaction:



a) MnO_4^-
b) H_2O_2
c) ~~H^+~~
d) ~~O_2~~
e) This is not a redox reaction

A

28 N_2 16

2. (3 pts) A mixture of gas contains 50 grams of nitrogen gas and 76 grams of methane (CH_4) gas. If the total pressure is 840 torr, what is the partial pressure of nitrogen gas?

a) 333 torr
b) 361 torr
c) 96 torr
d) 53 torr
e) 230 torr

$\frac{50}{28} \approx 2$ $\frac{76}{16} \approx 5$

$\frac{840}{7} \times 2 =$

E

3. (3 pts) Consider one-liter samples of CO_2 and H_2, both at 25°C and one atmosphere pressure. Which of the following statements must be true:

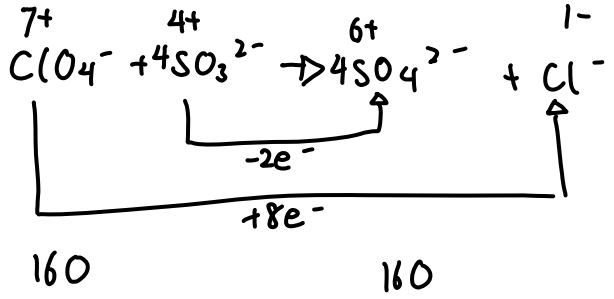
a) the CO_2 and H_2 molecules have the same average speed (u_{avg})
b) the average kinetic energy of the CO_2 molecules is greater than that of the H_2 molecules
c) the CO_2 molecules have a slower average speed (u_{avg}) than the H_2 molecules
d) the mass of one liter of CO_2 equals the mass of one liter of H_2
e) more than one of these statements are true

C

4. (4 pts) Determine the **SUM** of **ALL** coefficients when the following equation is balanced for **acidic** conditions. Be sure to include coefficients of 1 (if there are any).

$$ClO_4^- + SO_3^{2-} \rightarrow SO_4^{2-} + Cl^-$$

a) 8
b) 12
c) 6
d) 10
e) none of these



D

There are two more questions on the last page --->

5. (3 pts) Calculate the frequency of a photon with a wavelength of 519 nm.

a) $1.73\times10^{-15}\ s^{-1}$
b) $5.78\times10^{14}\ s^{-1}$
c) $1.56\times10^{11}\ s^{-1}$
d) $2.63\times10^{13}\ s^{-1}$
e) $3\times10^{8}\ s^{-1}$

$E = \frac{hc}{\lambda}$

$= hf$

$\frac{519\times10^{-9}}{h} = f$

B

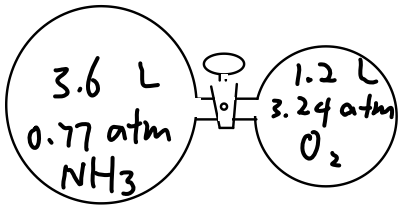
6. (4 pts) Consider the following apparatus consisting of two containers separated by a valve:

2.772 → 3.465 O_2 used

NH_3 $n(RT) = 3.6\times0.77$

O_2 $n(RT) = 1.2\times3.24$

3.888 0.4230$_2$ left



The container on the left side has a volume of 3.6 L and is filled with 0.77 atm of NH_3. The container on the right side has a volume of 1.2 L and is filled with 3.24 atm of O_2. The valve between the two containers is opened, and the following reaction happens:

0 0.423 2.772 4.158

$$4\ NH_3\ (g) + 5\ O_2\ (g) \rightarrow 4\ NO\ (g) + 6\ H_2O\ (g)$$

Calculate the partial pressure of NO gas after the reaction has gone to completion with 100% yield. Assume temperature is constant.

$7.353 = PV$

$P = 1.531875$

a) 0.58 atm
b) 1.01 atm
c) 0.81 atm
d) 4.05 atm
e) 0.77 atm

A

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

Note: Question 6 is based on book problem 5.73