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) Identify the oxidizing agent in the following reaction:

$$Cu \ + \ 4\,HNO_3 \ ---> \ NO_2 \ + \ Cu(NO_3)_2 \ + \ 2\,H_2O$$
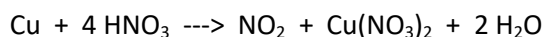
a) NO_2 b) Cu   c) $Cu(NO_3)_2$ d) HNO_3 e) H_2O

2. (3 pts) Which of the following atoms will have the shortest de Broglie wavelength? Assume all of these atoms are traveling at the same speed.

$$\lambda = \frac{h}{mv}$$

a) Ar **3**
b) Ne **2**
c) He **1**
d) All of these have the same de Broglie wavelength

3.   (3 pts) At what temperature will krypton (Kr) gas have an average speed (u_{av}) of 800 m/s?

a) 256526 K
b) 253 K
c) 789 K
d) 2532 K
e) 2531941 K

$$\frac{(800)^2 \times \pi M}{8 \times 8.31} = T$$

4. (3 pts) Calculate the density of fluorine gas at 29°C and 1.6 atm.

a) 7.85 g/L
b) 1.23 g/L
c) 2.45 g/L
d) 0.126 g/L
e) 12.8 g/L

C

$T = 29 + 273 = 302\ K$

$PV = nRT$

$\dfrac{1.6}{302 \times 0.08206} = n = 0.06456$

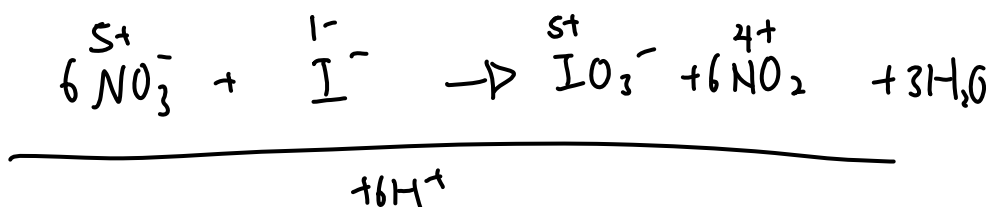$0.06456 \times 19 \times 2$

5. (4 pts) The following reaction is carried out in **acidic** solution: $NO_3^- + I^- \longrightarrow IO_3^- + NO_2$

What is the coefficient in front of H^+ when this reaction is balanced with lowest whole-number coefficients?

a) 3
b) 6
c) 4
d) 15
e) 12

B

$\overset{5+}{6\,NO_3^-} + \overset{1-}{I^-} \longrightarrow \overset{5+}{IO_3^-} + \overset{4+}{6\,NO_2} + 3H_2O$

$\underline{\hspace{8cm}}$

$+6H^+$

6. (4 pts) Into an empty container, 66 grams of SO_2 and 39 grams of O_2 are added. The following reaction then occurs at a constant temperature of 29°C and a constant volume of 10 L : $2\,SO_2\,(g) + O_2\,(g) \longrightarrow 2\,SO_3\,(g)$

$64\,g/mol \qquad 32\,g/mol$

After the reaction goes to completion, what will be the partial pressure of O_2?

$\dfrac{33}{32}\ SO_3$ produced

a) 0.00 atm
b) 3.02 atm
c) 0.46 atm
d) 2.56 atm
e) 1.74 atm

E

$1.03125\ SO_2$

$1.21875\ O_2$

$\dfrac{45}{64}\ O_2\ left$

$\dfrac{111}{64}\ mol$

$P = 4.298$

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

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