

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 two pages (6 questions) on the quiz. **All questions are equal in point value.**

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. Which of the following statements is/are true, according to the naming conventions discussed in class and in the textbook?

- a) The formula of hydrosulfuric acid is H_2SO_4 ← Sulfuric acid
 b) The name of FeO is iron oxide Iron (II) Oxide
 c) Both (a) and (b) are true
 d) Neither (a) nor (b) are true

D

2. How many oxygen atoms are there in a 23.5 gram sample of calcium phosphate?

- a) 1.8×10^{23}
 b) 4.6×10^{23}
 c) 1.0×10^{23}
 d) 3.6×10^{23}
 e) 4.2×10^{23}

D

$$\begin{aligned} & \text{Ca}_3(\text{PO}_4)_2 \\ & 40 \times 3 + 2(31 + 16 \times 4) \\ & = 120 + 190 \\ & = 310 \text{ g/mol} \end{aligned}$$

$$4.56 \times 10^{22} \times 8$$

3. Which of the following statements is/are true about the ion ${}^7_4\text{Be}^{2+}$

- a) It contains more electrons than protons ☒
 b) It contains more neutrons than electrons ☒
 c) It contains more neutrons than protons ☒
 d) More than one of these is true
 e) None of these are true

$$\begin{aligned} 7 - 4 &= 3n \\ 4p \\ 2e^- \end{aligned}$$

B

4. Consider the following reaction: $2W + X \rightarrow 3Y + Z$

If 3.0 moles of W react with 2.0 moles of X to actually produce 2.0 moles of Y, what is the percent yield?

- a) 40%
- b) 33%
- c) 44%
- d) 100%
- e) 67%

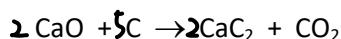
$$\frac{3}{2} = 1.5 \quad 1.5 < 2, \text{ W limiting}$$

$$\frac{3}{2} \times 3 = 4.5 \text{ mole Y}$$

$$\frac{2}{4.5} = 44\%$$

C

5. Determine the SUM of ALL coefficients when the following equation is balanced with lowest-whole number coefficients. Be sure to include coefficients of one (if there are any).



- a) 10
- b) 9
- c) 8
- d) 7
- e) none of these

A

6. Identify the limiting reactant when 400 g of $\overset{17}{\text{NH}_3}$, 600 g of $\overset{32}{\text{O}_2}$, and 250 g of $\overset{16}{\text{CH}_4}$ react according to the following equation: $2 \text{NH}_3 + 3 \text{O}_2 + 2 \text{CH}_4 \rightarrow 2 \text{HCN} + 6 \text{H}_2\text{O}$

$$23.5 \text{ mol} \quad 15.625 \text{ mol}$$

$$18.75 \text{ mol}$$

- a) NH_3
- b) CH_4
- c) HCN
- d) H_2O
- e) O_2

$$\frac{23.5}{2} = 11.75$$

$$\frac{18.75}{3} = 6.25$$

$$\frac{15.625}{2} = 7.81$$

E

Answers:

1) D

2) D

3) B

4) C

5) A

6) E