

CHEM 200/202

Professor Theresa Carlson
Office: GMCS-213B

All emails are to be sent to:
chem200@sdsu.edu

My office hours will be held on zoom via MSLC
on **Wednesday from 8:00 am to 10:00**
am or by appointment

UPCOMING IMPORTANT DATES

- Pre-Assignment: Qualitative Analysis **Sunday, February 12th at 11:59 pm**
- Achieve Extra Credit: Laboratory Skills **Sunday, February 12th at 11:59 pm**
- Qualitative Analysis Prelab due **Sunday, February 12th at 11:59 pm**
- Volumetric Lab Report due **Sunday, February 12th at 11:59 pm**
- Chapter 1-4 Chapter Problem Sets in OWL Lecture due **Thursday, February 9th at 11:59 pm (Start Now)**
- Chapter 1-4 Chapter Assessments in OWL Lecture is **Thursday, February 9th at 11:59 pm (Start Now)**; 2 chances, no time limit
- Exam 1 starts at **3 pm Friday, February 10th and will close on Saturday, February 11th at 3pm** in OWL Lecture; Chapters 1-4. You have 24hrs. *Only 2 hrs once you start; be sure to give yourself a full 2 hr time slot.*

SUPPLEMENTAL INSTRUCTION (SI)

- Study sessions lead by former CHEM 200/202 students that excelled in the previous semesters class.
- Occur 15+ times a week.
- Free to access, no reporting to faculty.

THE MATH AND SCIENCE LEARNING CENTER (MSLC)

Students are encouraged to make use of The Mathematics and Statistics Learning Center (MSLC) for free STEM tutoring, located in the Love Library, Room 328. For a full list of courses tutored, please visit the MSLC website: <https://mlc.sdsu.edu/>.

The MSLC is supported by your student success fee. We strongly encourage you to use this wonderful, free resource. Some students believe that they shouldn't need to ask for help, but research has shown that the average grade for students who attend the MLC is almost one full grade higher than those who don't seek such support.

NAME THESE POLYATOMIC IONS

- HCO_3^-
- H_2PO_4^-
- SO_3^{2-}
- ClO_3^-

DILUTIONS CALCULATIONS

- Solutions often need to be **diluted** to obtain the **desired concentration**, from a higher concentration stock solution.
- Calculations for dilutions require us to determine the total **number of moles** involved in the dilution.
- $M_1V_1 = \# \text{ of moles} = M_2V_2$

DILUTION

After **25.0** mL of **12.00** M HCl is diluted to **200.0** mL, 10.0 mL of this solution is then diluted a second time to **200.0** mL. Calculate the molarity after the second dilution.

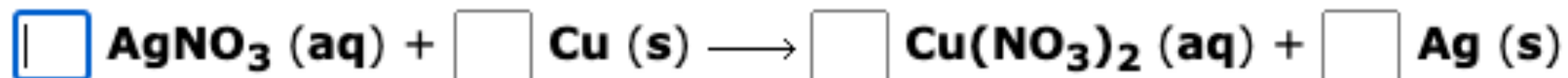
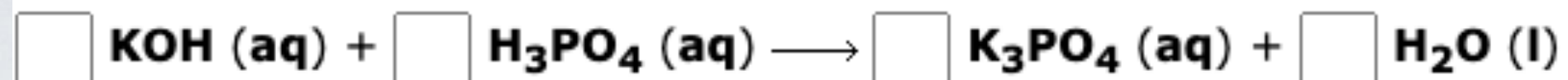
- ☐ **1.50** M
- ☐ **2.40** M
- ☐ **7.50×10^{-2}** M
- ☐ **4.80** M
- ☐ **3.00×10^{-2}** M

MASS PERCENTAGE

When a **7.85**-mg sample of a compound containing carbon is burned completely, **16.9** mg of carbon dioxide is produced. What is the mass percentage of carbon in the compound?

- ☐ **65.4%**
- ☐ **46.4%**
- ☐ **92.3%**
- ☐ **58.8%**
- ☐ **29.4%**

BALANCE EQUATION & NET IONIC EQUATION



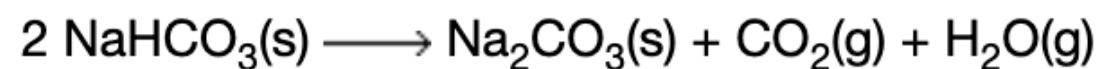
REDOX REACTIONS

In the reaction $2\text{Cs(s)} + \text{Cl}_2\text{(g)} \rightarrow 2\text{CsCl(s)}$, Cl_2 is:

- ☐ the oxidizing agent.
- ☐ oxidized.
- ☐ the reducing agent.
- ☐ the electron donor.
- ☐ Two of these choices are correct.

PERCENT YIELD

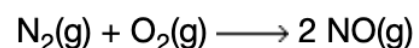
The decomposition of **3.30** g NaHCO_3 yields **1.02** g Na_2CO_3 . What is the percent yield of this reaction?



- ☐ **15.5 %**
- ☐ **31.0 %**
- ☐ **63.1 %**
- ☐ **49.0 %**
- ☐ **100 %**

LIMITING REAGENT

Nitric oxide, NO, is formed in the air by lightning during thunderstorms. It has been estimated that 36 trillion grams of nitrogen are fixed annually as a result of this electrical phenomenon. The equation is:



Suppose **40.0** g of air, which contains **30.2** g of nitrogen and **9.8** g of oxygen, is converted to nitric oxide until one of the gases is used up. Of the two gases, what would be left?

- ☐ **11.9** g oxygen
- ☐ **18.3** g nitrogen
- ☐ **4.9** g oxygen
- ☐ **21.7** g nitrogen
- ☐ Both gases would be completely consumed.

MOLECULAR FORMULA

The elemental analysis of an unknown compound is **49.3 % C**, **6.85 % H**, and **43.8 % O**. The molar mass of this compound is **146 g/mol**. Determine the molecular formula of this compound.

- ☐ A. $\text{C}_7\text{H}_{14}\text{O}_3$
- ☐ B. $\text{C}_6\text{H}_{10}\text{O}_4$
- ☐ C. $\text{C}_4\text{H}_{10}\text{O}_4$
- ☐ D. $\text{C}_2\text{H}_4\text{O}_2$
- ☐ E. $\text{C}_2\text{H}_5\text{O}_2$