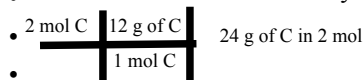1 ☐ **Lecture 1 Notes**
  - Explain, describe, or demonstrate how ratios may be used in unit conversions. How do you construct a problem to eliminate units?
  - •
  - •   Ratios such as how many blank are in a blank2 can be used to change from unit to unit.
  - • 2 mol C | 12 g of C   24 g of C in 2 mol
  - • | 1 mol C
  - What is Avogadro's number? _____ 6.033 x 10^23 _____
  - What is the amu? _____ Atomic mass unit _____
  - What is the unit associated with Avogadro's number? _____ Units per mole
  - •

2 ☐ **Lecture 1 Notes**
  - Atoms in a Molecule:
    - How many moles of each atom are present in one mole of $Al_2(SO_4)_3$?
      - •   2 moles of Al
      - •   3 moles of S
      - •   12 moles of O

      - •
  - When balancing equations, what two items must be checked at the end?
    - •   All atoms that go in come out (equal amounts on both sides)
    - •   Cumulative charge for reactants=products

3 ☐ **Q1-1: How many moles of Ca are present in 134 g of Ca? (Ca has a mass of 40.078 grams per mole)**
  A) 1.50e22 mol Ca   134/40.078
  B) 3.34 mol Ca
  C) 2.41 mol Ca
  D) 5370 mol Ca

4 ☐ **Q1-2: 0.35 mole of CH_4 has __ mol C atoms, __ mol H atoms, __ mol total atoms?**
  A) 1, 4, 5
  B) 0.35, 0.35, 0.70   .35 x 1 atoms C
  C) 0.35, 1.40, 1.75   .35 x 4 atoms H4
  D) 0.35, 1.40, 0.35   .35 x 5 atoms CH4

5 ☐ **Q1-3: 1 mole of O_3 has how many MOLECULES and how many OXYGEN ATOMS?**
  A) 1 molecule and 3 atoms
  B) 6.0e23 molecules and 1.8e24 atoms
  C) 6.0e23 molecules and 3 atoms   6.022 x 10^23 x 1 molecule
  D) 1 molecule and 1.8e24 atoms   6.022 x 10^23 x 3 atoms

6 ☐ **Q1-4: 0.567 moles of Na$_2$CO$_3$ weighs how much?**

A) 60.1 grams
B) 186.9 grams
C) 47.1 grams   .567*atomic mass (106)
D) 146.4 grams