Mole Practice Test

1. What is the molar mass of NaCl?
   A. 58.44 g/mol
   B. 175.3 g/mol
   C. 2.00 g/mol
   D. 29.22 g/mol
   E. 28 g/mol

2. What is the molar mass of H_2S?
   A. 64.11 g/mol
   B. 34.08 g/mol
   C. 51 g/mol
   D. 17 g/mol
   E. 78.16 g/mol

3. Which gas has the lowest molar mass?
   A. Cl_2
   B. N_2
   C. Ne
   D. Br_2
   E. O_2

4. How many nitrogen atoms are indicated by the formula $Al(NO_3)_3$?
   A. 9
   B. 4
   C. 0
   D. 3
   E. 1

5. The total number of oxygen atoms indicated by the formula $Fe_2(CO_3)_3$ is
   A. 12
   B. 6
   C. 9
   D. 3
   E. 18

6. What is the molar mass of nitroglycerin, $C_3H_5(NO_3)_3$?
   A. 309 g/mol
   B. 165 g/mol
   C. 199 g/mol
   D. 227 g/mol
   E. None of the above

7. One mole of oxygen atoms represents
   A. 6.02×10^{23} atoms
   B. 16 atoms
   C. 32.0 g
   D. 1.00 g
   E. None of the above

8. Which represents the greatest mass?
   A. 1.0 mol Zn
   B. 1.0 mol Cu
   C. 1.0 mol Al
   D. 1.0 mol Fe
   E. all the same

9. One atom of calcium weighs
   A. 6.02×10^{23} amu
   B. 40.08 g
   C. 20 g
   D. 20 amu
   E. None of the above

10. A mole of oxygen molecules contains how many oxygen atoms?
   A. 1.204×10^{24}
   B. 3.01×10^{23}
   C. 16
   D. 6.02×10^{23}
   E. 32

11. Convert 48 g O_2 to mol O_2.
   A. 0.75 mol
   B. 3×10^{23} mol
   C. 1.5×10^{-23} mol
   D. 3.0 mol
   E. 1.5 mol

12. Calculate the number of molecules in 0.000108 g of gaseous oxygen.

13. Calculate the mass of 4.52 mol of silver.

14. Calculate the number of molecules of CH_4 in 48 g CH_4.

15. A 75.0-mL sample of Hg (density = 13.6 g/mL) contains how many atoms of Hg?

Answer Sheet

1. **A.** 58.44 g/mol
2. **B.** 34.08 g/mol
3. **C.** Ne
4. **D.** 3
5. **C.** 9
6. **D.** 227 g/mol
7. **A.** 6.02×10^{23} atoms
8. **A.** 1.0 mol Zn
9. **E.** None of the above
10. **A.** 1.204×10^{24}
11. **E.** 1.5 mol
12. 2.03×10^{18} molecules
13. 488 g
14. 1.8×10^{24} molecules
15. 3.06×10^{24} atoms

Standards Summary

CA 3.c	Students know one mole equals 6.02x10^(23) particles (atoms or molecules).
CA 3.d	Students know how to determine the molar mass of a molecule from its chemical formula and a table of atomic masses and how to convert the mass of a molecular substance to moles, number of particles, or volume of gas at standard temperature and pressure.