Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Moles

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. How do you find formula mass?
a. look on the periodic table
b. add the masses of each atom in the compound
c. multiply the wavelength times the frequency
d. weigh it on a scale

____ 2. What is the unit that mass is measured in?
a. grams
b. miles
c. moles
d. particles

____ 3. How many atoms are present in 179.0 g of iridium?
a. 5.606×10^{23} atoms
b. 6.464×10^{23} atoms
c. 1.078×10^{26} atoms
d. 1.157×10^{26} atoms

____ 4. Which of these is about 2 moles?
a. 2.0 liters (dm^3) of H_2
b. 4.0 grams of H_2
c. 2.0×10^{23} molecules of H_2
d. 4.0 kilograms of H_2

____ 5. Helium is a noble gas which is very unreactive and highly stable. Approximately how many helium atoms would be found in 2.00 moles of helium gas?
a. 1.20×10^{24} atoms
b. 6.02×10^{23} atoms
c. 3.01×10^{24} atoms
d. 1.81×10^{24} atoms

____ 6. What is the mass in grams of one mole of sulfur dioxide (SO_2)?
a. 48.1 g
b. 64.1 g
c. 80.1 g
d. 96.1 g

____ 7. How many moles of bromine gas (Br_2) are in 37.7 grams?
a. 0.236
b. 0.472
c. 3.01×10^3
d. 79.9
e. none of the above

____ 8. How many molecules are in 0.500 mole of N_2O_5?
a. 1.20×10^{23} molecules
b. 3.01×10^{23} molecules
c. 6.02×10^{23} molecules
d. 3.01×10^{24} molecules

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____ 9. Students are given two samples of material. The first sample contains 1 mole of iron (Fe), and the second sample contains 1 mole of lithium (Li). Which of the following statements best describes how these samples compare to one another.
a. Sample 1 contains more atoms than sample 2.
b. Sample 2 has a greater mass than sample 1.
c. Both samples have the same mass when placed on a scale.
d. Each sample contains the same number of atoms.

____ 10. What is the mass in grams of one mole of sulfur dioxide (SO_2)?
a. 48.1 g
b. 64.1 g
c. 80.1 g
d. 96.1 g

____ 11. The number of molecules in 48.0 grams of oxygen gas (O_2) is —
a. 1.81×10^{24}
b. 1.20×10^{24}
c. 9.03×10^{23}
d. 6.02×10^{23}

____ 12. Which of the following represents Avagadro's number?
a. 6.02×10^{23}
b. 3.14
c. Atomic mass
d. Atomic number

____ 13. Which of the following are not formula units?
a. atoms
b. ions
c. nucleus
d. molecules

____ 14. One mole of boron has a mass of _____ g.
a. 9.012
b. 6.022×10^{23}
c. 5
d. 10.811
e. none of the above

____ 15. What is the mass of one mole of CO_2?
a. 24 g
b. 28 g
c. 44 g
d. 56 g

Short Answer

16. _____ $\times 10^{24}$ **atoms of gold**

What coefficient would complete the statement shown above for a sample of gold which contains 5.00 moles of gold? Record and bubble your answer to three significant figures in the grid on the back of your answer document.

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17. What is the mass in grams of one mole of sulfur dioxide (SO_2)? Record and bubble your answer to the nearest tenth of a gram in the grid on the back of your answer document.