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.