

General Chemistry
Mr. MacGillivray
Test Review: Chapters 5 & 9

1. Decide whether each of the following compounds is ionic or molecular (covalent). Mark it as either "I" or "M".
 - a. potassium sulfide
 - b. aluminum bromide
 - c. calcium acetate
 - d. calcium carbonate
 - e. iron (II) permanganate
 - f. sodium dichromate
 - g. xenon tetrafluoride
 - h. oxygen difluoride
 - i. sulfur trioxide
 - j. tetraphosphorus pentoxide
2. Write the formula for each of the above compounds.
3. Decide whether each of the following compounds is ionic or molecular (covalent).
 - a. LiBr
 - b. AgNO₃
 - c. (NH₄)₂SO₄
 - d. PbSO₄
 - e. NH₄C₂H₃O₂
 - f. PBr₃
 - g. SO₂
 - h. N₂O₃
 - i. NO
4. Name each of the above compounds.

5. The practical difference between atomic mass and molar mass is that atomic mass is expressed in units of _____, whereas molar mass is expressed in these units: _____. Both masses have the same numerical value, though.

6. The number of apples in a dozen is _____. The number of donuts in a dozen is _____.

7. The number of atoms in a mole is _____. The number of molecules in a mole is _____.

8. What is the mass of a mole of carbon? What is the mass of a mole of carbon monoxide? What is the mass of a mole of carbon dioxide?
9. Which is bigger, 18.2 g of NH_3 or 1 mol NH_3 ?
10. Which is bigger, 4.387×10^{19} atoms of Fe or 2 moles of Fe?
11. Convert 54.7 g of NH_3 (ammonia) to moles of ammonia.
12. Convert 54.7 g of NH_3 to molecules of ammonia.
13. Convert 1.60×10^3 molecules of ammonia to moles of ammonia.
14. What is the mass of 1.60×10^3 molecules of ammonia?
15. What is the % composition, by mass, of barium nitrate, $\text{Ba}(\text{NO}_3)_2$?
16. A compound is found by chemical analysis to consist of 32.38% sodium, 22.65% sulfur, and 44.99% oxygen. Find its empirical formula.
17. The empirical formula for a compound is found to be P_2O_5 . Further experimentation shows that the molar mass of the compound is 283.89 g/mol. Find the molecular formula of this compound.