WU\_Chem101\_Practice worksheets

[Formula mass](WU_Chem101_Formula%20mass_Worksheet_4)

[Compound Naming](WU_Chem101_%20Compounds%20and%20Naming%20_Worksheet_5)

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WU\_Chem101\_Formula mass\_Worksheet\_4

|  |  |
| --- | --- |
| 1. | Ammonium sulfate, (NH4)2SO4, is a fertilizer widely used as a source of nitrogen. Calculate its molecular mass. |

|  |  |
| --- | --- |
| A. | 63.07 amu |

|  |  |
| --- | --- |
| B. | 114.l0 amu |

|  |  |
| --- | --- |
| C. | 118.13 amu |

|  |  |
| --- | --- |
| D. | 128.11 amu |

|  |  |  |
| --- | --- | --- |
| E. | | 132.13 amu |
| 2. | Sodium chromate is used to protect iron from corrosion and rusting. Determine its molecular mass. | |

|  |  |
| --- | --- |
| A. | 261.97 amu |

|  |  |
| --- | --- |
| B. | 238.98 amu |

|  |  |
| --- | --- |
| C. | 161.97 amu |

|  |  |
| --- | --- |
| D. | 138.98 amu |

|  |  |  |
| --- | --- | --- |
| E. | | 74.99 amu |
| 3. | Iodine pentafluoride reacts slowly with glass and violently with water. Determine its molecular mass. | |

|  |  |
| --- | --- |
| A. | 653.52 amu |

|  |  |
| --- | --- |
| B. | 259.89 amu |

|  |  |
| --- | --- |
| C. | 221.90 amu |

|  |  |
| --- | --- |
| D. | 202.90 amu |

|  |  |  |
| --- | --- | --- |
| E. | | 145.90 amu |
| 4. | Determine the molecular mass of iron (III) bromide hexahydrate, a substance used as a catalyst in organic reactions. | |

|  |  |
| --- | --- |
| A. | 403.65 amu |

|  |  |
| --- | --- |
| B. | 355.54 amu |

|  |  |
| --- | --- |
| C. | 317.61 amu |

|  |  |
| --- | --- |
| D. | 313.57 amu |

|  |  |
| --- | --- |
| E. | 295.56 amu |

|  |  |
| --- | --- |
| 5. | Calculate the molecular masses of the following: a. Cl2  b. H2O2 c. (NH4)2SO4 d. Ba(NO3)2 |

WU\_Chem101\_ Compounds and Naming \_Worksheet\_5

|  |  |
| --- | --- |
| 1. | Which of the following compounds is ionic? |

|  |  |
| --- | --- |
| A. | PF3 |

|  |  |
| --- | --- |
| B. | CS2 |

|  |  |
| --- | --- |
| C. | HCl |

|  |  |
| --- | --- |
| D. | SO2 |

|  |  |  |
| --- | --- | --- |
| E. | | MgCl2 |
| 2. | Which of the following compounds is covalent? | |

|  |  |
| --- | --- |
| A. | CaCl2 |

|  |  |
| --- | --- |
| B. | MgO |

|  |  |
| --- | --- |
| C. | Al2O3 |

|  |  |
| --- | --- |
| D. | Cs2S |

|  |  |  |
| --- | --- | --- |
| E. | | PCl3 |
| 3. | Sodium oxide combines violently with water. Which of the following gives the formula and  the bonding for sodium oxide? | |

|  |  |
| --- | --- |
| A. | NaO, ionic compound |

|  |  |
| --- | --- |
| B. | NaO, covalent compound |

|  |  |
| --- | --- |
| C. | Na2O, ionic compound |

|  |  |
| --- | --- |
| D. | Na2O, covalent compound |

|  |  |  |
| --- | --- | --- |
| E. | | Na2O2, ionic compound |
| 4. | Barium fluoride is used in embalming and in glass manufacturing. Which of the following gives the formula and bonding for barium fluoride? | |

|  |  |
| --- | --- |
| A. | BaF2, ionic compound |

|  |  |
| --- | --- |
| B. | BaF2, covalent compound |

|  |  |
| --- | --- |
| C. | BaF, ionic compound |

|  |  |
| --- | --- |
| D. | BaF, covalent compound |

|  |  |  |
| --- | --- | --- |
| E. | | Ba2F, ionic compound |
| 5. | The colorless substance, MgF2, is used in the ceramics and glass industry. What is its name? | |

|  |  |
| --- | --- |
| A. | magnesium difluoride |

|  |  |
| --- | --- |
| B. | magnesium fluoride |

|  |  |
| --- | --- |
| C. | magnesium(II) fluoride |

|  |  |
| --- | --- |
| D. | monomagnesium difluoride |

|  |  |  |
| --- | --- | --- |
| E. | | none of these choices is correct, since they are all misspelled |
| 6. | The compound, BaO, absorbs water and carbon dioxide readily and is used to dry gases and organic solvents. What is its name? | |

|  |  |
| --- | --- |
| A. | barium oxide |

|  |  |
| --- | --- |
| B. | barium(II) oxide |

|  |  |
| --- | --- |
| C. | barium monoxide |

|  |  |
| --- | --- |
| D. | baric oxide |

|  |  |  |
| --- | --- | --- |
| E. | | barium peroxide |
| 7. | The substance, CaSe, is used in materials which are electron emitters. What is its name? | |

|  |  |
| --- | --- |
| A. | calcium monoselenide |

|  |  |
| --- | --- |
| B. | calcium(II) selenide |

|  |  |
| --- | --- |
| C. | calcium selenide |

|  |  |
| --- | --- |
| D. | calcium(I) selenide |

|  |  |  |
| --- | --- | --- |
| E. | | calcium(II) selenium |
| 8. | The substance, CoCl2, is useful as a humidity indicator because it changes from pale blue to pink as it gains water from moist air. What is its name? | |

|  |  |
| --- | --- |
| A. | cobalt dichloride |

|  |  |
| --- | --- |
| B. | cobalt(II) chloride |

|  |  |
| --- | --- |
| C. | cobalt chloride |

|  |  |
| --- | --- |
| D. | cobaltic chloride |

|  |  |  |
| --- | --- | --- |
| E. | | copper(II) chloride |
| 9. | A red glaze on porcelain can be produced by using MnSO4. What is its name? | |

|  |  |
| --- | --- |
| A. | manganese disulfate |

|  |  |
| --- | --- |
| B. | manganese(II) sulfate |

|  |  |
| --- | --- |
| C. | manganese(IV) sulfate |

|  |  |
| --- | --- |
| D. | manganese sulfate |

|  |  |  |
| --- | --- | --- |
| E. | | manganese(I) sulfate |
| 10. | The compound, (NH4)2S, can be used in analysis for trace amounts of metals present in a sample. What is its name? | |

|  |  |
| --- | --- |
| A. | ammonium sulfide |

|  |  |
| --- | --- |
| B. | diammonium sulfide |

|  |  |
| --- | --- |
| C. | ammonium sulfite |

|  |  |
| --- | --- |
| D. | ammonia(I) sulfite |

|  |  |  |
| --- | --- | --- |
| E. | | ammonium(I) sulfide |
| 11. | The substance, KClO3, is a strong oxidizer used in explosives, fireworks, and matches. What is its name? | |

|  |  |
| --- | --- |
| A. | potassium chlorite |

|  |  |
| --- | --- |
| B. | potassium chloride |

|  |  |
| --- | --- |
| C. | potassium(I) chlorite |

|  |  |
| --- | --- |
| D. | potassium(I) chlorate |

|  |  |  |
| --- | --- | --- |
| E. | | potassium chlorate |
| 12. | The compound, NaH2PO4, is present in many baking powders. What is its name? | |

|  |  |
| --- | --- |
| A. | sodium biphosphate |

|  |  |
| --- | --- |
| B. | sodium hydrogen phosphate |

|  |  |
| --- | --- |
| C. | sodium dihydrogen phosphate |

|  |  |
| --- | --- |
| D. | sodium hydrophosphate |

|  |  |  |
| --- | --- | --- |
| E. | | sodium dihydride phosphate |
| 13. | Zinc acetate is used in preserving wood and in manufacturing glazes for porcelain. What is its formula? | |

|  |  |
| --- | --- |
| A. | ZnAc2 |

|  |  |
| --- | --- |
| B. | ZnCH3COO |

|  |  |
| --- | --- |
| C. | Zn(CH3COO)2 |

|  |  |
| --- | --- |
| D. | Zn2CH3COO |

|  |  |  |
| --- | --- | --- |
| E. | | ZnCH3COCH3 |
| 14. | Silver chloride is used in photographic emulsions. What is its formula? | |

|  |  |
| --- | --- |
| A. | Ag2Cl3 |

|  |  |
| --- | --- |
| B. | Ag2Cl |

|  |  |
| --- | --- |
| C. | AgCl3 |

|  |  |
| --- | --- |
| D. | AgCl2 |

|  |  |  |
| --- | --- | --- |
| E. | | AgCl |
| 15. | Barium sulfate is used in manufacturing photographic paper. What is its formula? | |

|  |  |
| --- | --- |
| A. | BaSO4 |

|  |  |
| --- | --- |
| B. | Ba(SO4)2 |

|  |  |
| --- | --- |
| C. | Ba2SO4 |

|  |  |
| --- | --- |
| D. | Ba2(SO4)3 |

|  |  |  |
| --- | --- | --- |
| E. | | BaSO3 |
| 16. | Sodium peroxide is an oxidizer used to bleach animal and vegetable fibers. What is its formula? | |

|  |  |
| --- | --- |
| A. | NaO |

|  |  |
| --- | --- |
| B. | NaO2 |

|  |  |
| --- | --- |
| C. | Na2O2 |

|  |  |
| --- | --- |
| D. | Na2O |

|  |  |  |
| --- | --- | --- |
| E. | | NaH2O2 |
| 17. | What is the formula for magnesium sulfide? | |

|  |  |
| --- | --- |
| A. | MgS |

|  |  |
| --- | --- |
| B. | MgS2 |

|  |  |
| --- | --- |
| C. | Mg2S |

|  |  |
| --- | --- |
| D. | Mg2S3 |

|  |  |  |
| --- | --- | --- |
| E. | | MgSO4 |
| 18. | Ferric oxide is used as a pigment in metal polishing. Which of the following is its formula? | |

|  |  |
| --- | --- |
| A. | FeO |

|  |  |
| --- | --- |
| B. | Fe2O |

|  |  |
| --- | --- |
| C. | FeO3 |

|  |  |
| --- | --- |
| D. | Fe2O5 |

|  |  |  |
| --- | --- | --- |
| E. | | Fe2O3 |
| 19 | Potassium permanganate is a strong oxidizer that reacts explosively with easily oxidized materials. What is its formula? | |

|  |  |
| --- | --- |
| A. | KMnO3 |

|  |  |
| --- | --- |
| B. | KMnO4 |

|  |  |
| --- | --- |
| C. | K2MnO4 |

|  |  |
| --- | --- |
| D. | K(MnO4)2 |

|  |  |  |
| --- | --- | --- |
| E. | | K2Mn2O7 |
| 20 | Calcium hydroxide is used in mortar, plaster and cement. What is its formula? | |

|  |  |
| --- | --- |
| A. | CaOH |

|  |  |
| --- | --- |
| B. | CaOH2 |

|  |  |
| --- | --- |
| C. | Ca2OH |

|  |  |
| --- | --- |
| D. | Ca(OH)2 |

|  |  |  |
| --- | --- | --- |
| E. | | CaHO2 |
| 21. | Which one of the following formulas of ionic compounds is the least likely to be correct? | |

|  |  |
| --- | --- |
| A. | NH4Cl |

|  |  |
| --- | --- |
| B. | Ba(OH)2 |

|  |  |
| --- | --- |
| C. | Na2SO4 |

|  |  |
| --- | --- |
| D. | Ca2NO3 |

|  |  |  |
| --- | --- | --- |
| E. | | Cu(CN)2 |
| 22. | Which one of the following formulas of ionic compounds is the least likely to be correct? | |

|  |  |
| --- | --- |
| A. | CaCl2 |

|  |  |
| --- | --- |
| B. | NaSO4 |

|  |  |
| --- | --- |
| C. | MgCO3 |

|  |  |
| --- | --- |
| D. | KF |

|  |  |  |
| --- | --- | --- |
| E. | | Cu(NO3)2 |
| 23. | What is the name of PCl3? | |

|  |  |
| --- | --- |
| A. | phosphorus chloride |

|  |  |
| --- | --- |
| B. | phosphoric chloride |

|  |  |
| --- | --- |
| C. | phosphorus trichlorate |

|  |  |
| --- | --- |
| D. | trichlorophosphide |

|  |  |  |
| --- | --- | --- |
| E. | | phosphorus trichloride |
| 24. | The compound, P4S10, is used in the manufacture of safety matches. What is its name? | |

|  |  |
| --- | --- |
| A. | phosphorus sulfide |

|  |  |
| --- | --- |
| B. | phosphoric sulfide |

|  |  |
| --- | --- |
| C. | phosphorus decasulfide |

|  |  |
| --- | --- |
| D. | tetraphosphorus decasulfide |

|  |  |  |
| --- | --- | --- |
| E. | | phosphorus sulfide |
| 25. | What is the name of IF7? | |

|  |  |
| --- | --- |
| A. | iodine fluoride |

|  |  |
| --- | --- |
| B. | iodic fluoride |

|  |  |
| --- | --- |
| C. | iodine heptafluoride |

|  |  |
| --- | --- |
| D. | heptafluoroiodide |

|  |  |  |
| --- | --- | --- |
| E. | | heptafluorine iodide |
| 26. | What is the name of P4Se3? | |

|  |  |
| --- | --- |
| A. | phosphorus selenide |

|  |  |
| --- | --- |
| B. | phosphorus triselenide |

|  |  |
| --- | --- |
| C. | tetraphosphorus selenide |

|  |  |
| --- | --- |
| D. | phosphoric selenide |

|  |  |  |
| --- | --- | --- |
| E. | | tetraphosphorus triselenide |
| 27. | Chlorine dioxide is a strong oxidizer that is used for bleaching flour and textiles and for purification of water. What is its formula? | |

|  |  |
| --- | --- |
| A. | (ClO)2 |

|  |  |
| --- | --- |
| B. | Cl2O |

|  |  |
| --- | --- |
| C. | Cl2O2 |

|  |  |
| --- | --- |
| D. | Cl2O4 |

|  |  |
| --- | --- |
| E. | ClO2 |

WU\_Chem101\_Atomic structure\_Worksheet\_6

|  |  |
| --- | --- |
| 1. | Fill in the blank spaces and write out all the symbols in the left hand column in full, in the form  Picture (i.e., include the appropriate values of *Z* and *A* as well as the correct symbol X).  Symbol # protons # neutrons # electrons  … 17 18 …  Au … 118 …  … … 20 20 |