

**Worksheet 5.4 Unit 5 Covalent Test Review**

**Section A** Determine if there is an ionic (metal/nonmetal or polyatomic) or a covalent (nonmetal/nonmetal) bond. Then name the compound or molecule according to the rules.

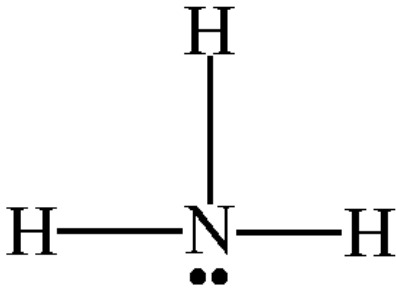
1. KOH ionic, potassium(K) is metal and hydroxide(OH) is polyatomic, potassium hydroxide
2. KCl ionic, potassium(K) is metal, potassium chloride
3. FeCl<sub>3</sub> ionic, iron(Fe) is a metal, iron (III) chloride
4. CO<sub>2</sub> covalent, carbon and oxygen both nonmetals, carbon dioxide
5. NH<sub>4</sub>NO<sub>3</sub> ionic, ammonium (NH<sub>4</sub>) and nitrate (NO<sub>3</sub>) are polyatomic, ammonium nitrate
6. Fe<sub>2</sub>O<sub>3</sub> ionic, iron(Fe) is metal, iron (III) oxide
7. FeCO<sub>3</sub> ionic, iron(Fe) is metal and carbonate (CO<sub>3</sub>) is polyatomic, iron (II) carbonate
8. SO<sub>3</sub> covalent, both sulfur and oxygen are nonmetals, sulfur trioxide
9. Na<sub>2</sub>SO<sub>3</sub> ionic, sodium (Na) is metal and sulfite (SO<sub>3</sub>) is polyatomic, sodium sulfite
10. Al(OH)<sub>3</sub> ionic, aluminum is metal and hydroxide(OH) is polyatomic, aluminum hydroxide

**Section B** Determine if there is an ionic (metal/nonmetal or polyatomic) or a covalent (nonmetal/nonmetal) bond. Then write the formula the compound or molecule according to the rules.

11. sodium hydroxide ionic Na<sup>1+</sup> OH<sup>1-</sup> NaOH
12. lithium sulfate ionic Li<sup>1+</sup> SO<sub>4</sub><sup>2-</sup> Li<sub>2</sub>SO<sub>4</sub>
13. carbon monoxide covalent CO
14. potassium permanganate ionic K<sup>1+</sup> MnO<sub>4</sub><sup>1-</sup> KMnO<sub>4</sub>
15. iron (II) oxide ionic Fe<sup>2+</sup> O<sup>2-</sup> FeO
16. diphosphorus pentoxide covalent P<sub>2</sub>O<sub>5</sub>
17. magnesium phosphate ionic Mg<sup>2+</sup> PO<sub>4</sub><sup>3-</sup> Mg<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>
18. nitrogen dioxide covalent NO<sub>2</sub>
19. tin (II) bromide ionic Sn<sup>2+</sup> Br<sup>1-</sup> SnBr<sub>2</sub>
20. aluminum nitride ionic Al<sup>3+</sup> N<sup>3-</sup> AlN

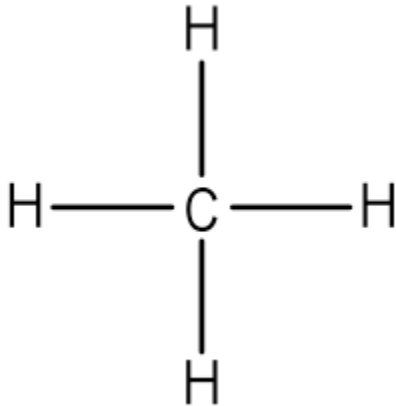
**Section C** Draw the lewis structure for each compound. Then determine molecular geometry of each lewis structure.

21.  $\text{NH}_3$



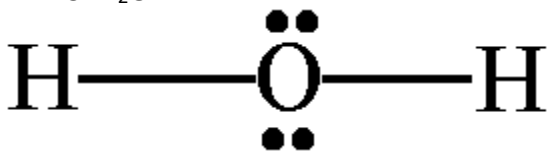
On the central atom nitrogen, there are one lone pair and three pairs of shared electrons, trigonal pyramidal

22.  $\text{CH}_4$



On the central atom carbon, there are four pairs of share electrons, tetrahedral

23.  $\text{H}_2\text{O}$



On the central atom, there are two lone pairs and two pairs of shared electrons, bent