

### TEST 3 – COMPOUNDS

#### PART A MULTIPLE CHOICE – CIRCLE THE CORRECT ANSWER (1 POINT EACH)

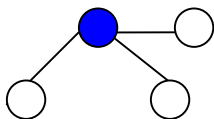
- Which of the following is *not* true of molecular compounds?
  - They have low conductivity when dissolved.
  - They have low melting points.
  - They have high boiling points.***
  - They are not easily malleable.
- Which of the following is true concerning ionic compounds?
  - They have low conductivity when dissolved.
  - They have low melting points.
  - They are made up of atoms.
  - They are not easily malleable.***
- A chemical bond exists
  - only between ions.
  - only between atoms.
  - only between metal atoms.
  - between ions or atoms (including metal ones).***
- Ionic bonds occur
  - when atoms share electrons.
  - when ions transfer electrons.***
  - only in water.
  - only in organic substances.
- The general formula for an alkane is
  - $C_nH_{2n+2}$ .***
  - $C_nH_{2n}$ .
  - $C_nH_{2n-n}$ .
  - $C_nH_n$ .

#### PART B FILL IN THE BLANK (1 POINT EACH)

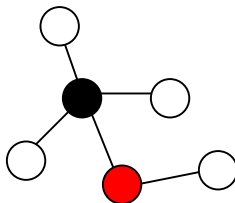
- A *covalent* bond is formed when atoms share electrons.
- An organic molecule that is found in beer is *alcohol*.
- When an organic molecule contains nitrogen, it is called a(n) *amine*.
- In metals, there is a(n) *flow* of electrons from atom to atom.
- The *chemical formula* identifies a compound using symbols and subscripts.

PART C APPLICATION – SHOW ALL WORK (2 POINTS EACH)

11. Write the formula for copper(II) chloride     *CuCl<sub>2</sub>*
12. Write the formula for potassium chloride     *KCl*
13. Write the formula for diphosphorus pentoxide     *P<sub>2</sub>O<sub>5</sub>*
14. Write the formula for hexane     *C<sub>6</sub>H<sub>14</sub>*
15. Give the name for Fe<sub>2</sub>O<sub>3</sub>     *iron(III) oxide*
16. Give the name for Li<sub>2</sub>S     *lithium sulfide*
17. Give the name for CO<sub>2</sub>     *carbon dioxide*
18. Give the name for CH<sub>3</sub>CH<sub>2</sub>CCCH<sub>3</sub>     *2-pentyne*
19. Draw a stick and ball molecule for ammonia, NH<sub>3</sub>, assuming all the bond angles for H-N-H are 109.5°



20. Draw a stick and ball molecule for methanol, assuming all the bond angles for H-C-H are 109.5° and the bond angle for C-O-H is 104.5°



PART D SHORT ANSWER (4 POINTS EACH)

21. List two properties of an ionic compound.  
    *Contains ionic bonds, conducts electricity when dissolved, high bp, high mp, not malleable.*
22. List two properties of a molecular compound.  
    *Contains covalent bonds, does not conduct electricity when dissolved, low bp, low mp, not malleable.*
23. What is an anion?  
    *A negatively charged ion found in an ionic compound or salt.*
24. What is unique about the charge on a transitional element in its cation form?  
    *A transitional element may have one or more cations each with a different positive charge.*
25. Which elements are found in organic molecules?  
    *Carbon and hydrogen, sometimes oxygen, nitrogen, phosphorus, or sulfur.*

→ STOP AND CHECK YOUR WORK