DATE: NAME: CLASS:

ANSWER KEY	Chapter 1 Test Answer Key	BLM 1.3.1A

Answers to Multiple-Choice Questions

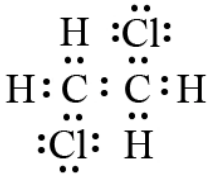
1. b
2. a
3. d
4. c
5. d
6. c
7. d
8. c
9. b
10. b
11. a
12. d
13. b
14. c
15. a
16. b
17. a
18. a
19. d
20. a

Answers to Written Response Questions

21. a) An ionic bond forms when the atoms of the metallic element lose electrons and the atoms of the non-metallic element gain electrons. Each ion attains the same electron configuration as a noble gas. There is no change in the nucleus. The ion does not turn into a noble gas.

    b) When elements combine they gain or lose electrons so that each ion has the same electron configuration as a noble gas.

22. a) Lewis structure representing a molecule of 1,2-dichloroethane



b) Determine the difference in electronegativity (ΔEN) for each bond.

Bonds are classified based on ΔEN.
For $\Delta EN = 0$, the bond is pure covalent.

For ΔEN between 0 and 0.5, the bond is slightly polar covalent.

For ΔEN between 0.5 and 1.7, the bond is polar covalent.

C—Cl $\Delta EN = 3.2 - 2.6 = 0.6$. This is a polar covalent bond.

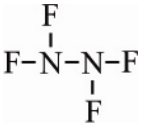
C—C $\Delta EN = 2.6 - 2.6 = 0.0$. This is a non-polar covalent bond.

C—H $\Delta EN = 2.6 - 2.2 = 0.4$. This is a slightly polar covalent bond.

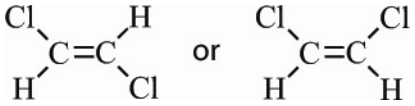
c) $\delta+$ $\delta-$
C—Cl

C is less electronegative than Cl and will therefore attract the shared pair of electrons less strongly.

23. a) Structural formula for N_2F_4



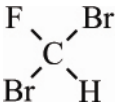
b) Structural formula for $C_2H_2Cl_2$



c) Structural formula for S_2

S=S

d) Structural formula for $CHBr_2F$

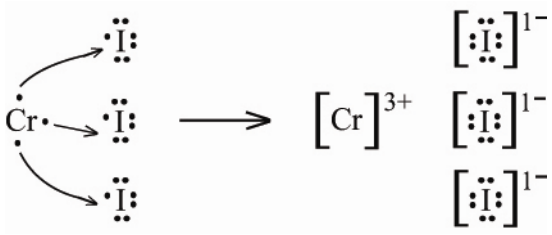


24. Sn-C $\Delta EN = 2.6 - 2.0 = 0.6$
Sn-P $\Delta EN = 2.2 - 2.0 = 0.4$
Sn-I $\Delta EN = 2.7 - 2.0 = 0.7$

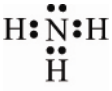
Therefore, in order increasing difference in electronegativity: Sn - P< Sn – C < Sn - I

25. Copper has an atomic number of 29. There are 29 protons in the nucleus regardless of whether this is copper atom or copper ion. For Cu^{1+}, there are 28 electrons attracted to the 29 protons in the nucleus; for Cu^{2+}, there are 27 electrons attracted to the 29 protons in the nucleus. Cu^{1+} is larger because there is less attraction per electron in this ion.

26. Electron dot diagrams that show how the ionic compound chromium(III) iodide will form from its elements



27. a) The Lewis structure is not correct.



b) The structural formula is not correct.