CHEMICAL BONDS

TEST

Intra – molecular Forces 2

Date:

1. Which one of the elements forming a molecule with $_{17}Cl$ has tetrahedral structure?

   A) $_7N$ B) $_{15}P$ C) $_8O$ D) $_{14}Si$ E) $_{16}S$

2. X: $1s^2\ 2s^2\ 2p^2$ Y: $1s^2\ 2s^2\ 2p^5$

   What is the geometric structure of molecule that is formed between X and Y?

   A) Trigonal planar B) Linear C) Tetrahedral
   D) Pyramidal E) Bent

3. Which one of the following compounds contains double bond?

   A) CH_4 B) C_2H_5Cl C) $C_2H_2F_2$ D) C_3H_8 E) $C_3H_5Cl_3$

4. In which of the following compounds, is the molecule non-polar though it has polar covalent bonds? ($_6C$, $_1H$, $_9F$, $_4Be$, $_{15}P$, $_{17}Cl$, $_{16}S$)

   A) CHF_3 B) BeH_2 C) PCl_3 D) H_2S E) SCl_2

5. Which one of the following elements with their atomic numbers given below gives a linear molecular shape when they form compounds with hydrogen?

   A) $_{13}Al$ B) $_5B$ C) $_6C$ D) $_{16}S$ E) $_{12}Mg$

6. The following information is given for the properties of the molecule formed between X and $_{17}Cl$.

   I- The chemical formula of the molecule is XCl_2.
   II- The molecule as a whole is non-polar

   According to these information, what should be the atomic number of the element X?

   A) 5 B) 8 C) 12 D) 14 E) 15

7. Which one of the following is correct for the number of sigma and pi bonds in $C_2H_2Cl_2$?

   A) 3 s – 2 p B) 4 s – 1 p C) 2 s – 3 p
   D) 5 s – 1 p E) 3 s – 3 p

8. $_{12}X: 1s^2s^2p^63s^2$ $_{17}Y: 1s^2s^2p^63s^2p^5$

   When the element X forms a compound with the element Y, which one of the following statements will be correct?

   A) X gains electron B) Y loses electron
   C) X loses electron D) X_2Y compound is formed
   E) Electrons are shared between X and Y

9. The element X is located in 7A group. Which one of the following molecule may be broken line shaped? ($_1H$ - $_6C$ - $_7N$ - $_8O$)

   A) CX_4 B) NX_3 C) OX_2 D) X_2 E) HX

10. X: $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^1$ Y: $1s^2 2s^2 2p^6 3s^1$ K: $1s^2 2s^2 2p^6 3s^2$
    T: $1s^2 2s^2 2p_x^2 2p_y^2 2p_z^2$ Z: $1s^2 2s^2 2p^6 3s^2 3p_x^2 3p_y^2 3p_z^2$

    Electronic configuration of X, Y, Z, K and T atoms are given. Which atoms can combine to form a compound with which element?

    A) Y with T B) Y with K C) T with Z
    D) X with Y and T E) X with K and Y

11. Which one of the following structure of molecule contains 2 sigma and 2 pi bonds?

    A) S_2Cl_2 B) C_2H_6 C) CH_4 D) CO_2 E) NH_3

12. Which molecule contains 120^o angle between its bonds? ($_1H$, $_4Be$, $_6C$, $_7N$)

    A) HCl B) BeF_2 C) CH_4 D) BF_3 E) NH_3

13. What is the geometric shape that is formed between $_{16}S$ atom and $_{17}Cl$ atom?

    A) Triangle planar B) Linear C) Tetrahedral
    D) Triangle pyramid E) Broken line

14. I. CH_4 II. C_2H_4 III. CO_2

    Which one(s) of the given compounds above has (have) pi bond?

    A) I B) II – III C) I - II – III D) I – II E) I – III

15. I. O_2 and CO_2 II. CO_2 and C_2H_2 III. C_2H_4 and C_3H_6. Which one(s) of the molecule pairs above contain(s) the same pi bond?

    A) only I B) only II C) only III D) I – II E) II – III

16. Which one of the following compounds <u>doesn't</u> contain pi bond? ($_6C$, $_7N$, $_8O$, $_9F$)

    A) O_2 B) N_2 C) F_2 D) CO_2 E) C_2H_2

17. What would be the hybrid orbitals and the geometric shape of the compound formed between $_5B$ and $_8F$?

	<u>Geometric shape</u>	<u>Hybrid orbitals</u>
I.	Planar triangular	sp^3
II.	Tetrahedral	sp^2
III.	Planar triangular	sp
IV.	Pyramidal	sp^2
V.	Planar triangular	sp^2

18. Which one of the following shows polar property?

    A) CH_4 B) C_2H_4 C) CO_2 D) C_2H_2 E) CO

19. Given the compounds CO_2, CH_4, C_2H_6, C_2H_4 and C_2H_2 have covalent bond. Which ones of the compounds contain 2 pi bonds?

    A) CO_2 – CH_4 B) CO_2 – C_2H_6 C) C_2H_2 – C_2H_4
    D) CO_2 – C_2H_2 E) CO_2 – C_2H_4

20. Which one(s) of the following is(are) true for the compound formed between $_{19}X$ and $_8Y$?

    I. The compound has ionic bond.
    II. X loses electron
    III. The formula of the compound is X_2Y
    IV. Y loses electron

    A) I–IV B) III–IV C) I–II–III D) I–III–IV E) II–II–IV