

Class : XI<sup>th</sup>  
Date :

Subject : CHEMISTRY  
DPP No. : 5

## Topic :- Chemical Bonding and Molecular Structure

- In which of the following molecules are all the bonds not equal?  
a)  $\text{AlF}_3$                       b)  $\text{NF}_3$                       c)  $\text{ClF}_3$                       d)  $\text{BF}_3$
- Which of the following compound is covalent?  
a)  $\text{H}_2$                       b)  $\text{KCl}$                       c)  $\text{Na}_2\text{S}$                       d)  $\text{CaO}$
- Which of the following molecular species has unpaired electron (s)?  
a)  $\text{N}_2$                       b)  $\text{F}_2$                       c)  $\text{O}_2^-$                       d)  $\text{O}_2^{2-}$
- The correct order of bond angles is:  
a)  $\text{PF}_3 < \text{PCl}_3 < \text{PBr}_3 < \text{PI}_3$   
b)  $\text{PF}_3 < \text{PBr}_3 < \text{PCl}_3 < \text{PI}_3$   
c)  $\text{PI}_3 < \text{PBr}_3 < \text{PCl}_3 < \text{PF}_3$   
d)  $\text{PF}_3 > \text{PCl}_3 < \text{PBr}_3 < \text{PI}_3$
- If the bond length and dipole moment of a diatomic molecule are 1.25 Å and 1.0 D respectively, what is the per cent ionic character of the bond?  
a) 10.66                      b) 12.33                      c) 16.66                      d) 19.33
- The molecule which does not exhibit dipole moment is  
a)  $\text{NH}_3$                       b)  $\text{CHCl}_3$                       c)  $\text{H}_2\text{O}$                       d)  $\text{CCl}_4$
- $\text{N}_2$  accept electron and convert into  $\text{N}_2^-$ , where this electron goes?  
a) Antibonding  $\pi$ -molecular orbital  
b) Bonding  $\pi$ -molecular orbital  
c)  $\sigma$ -bonding molecular orbital  
d)  $\sigma$ -antibonding molecular orbital
- The correct order of radii is:  
a)  $\text{N} < \text{Be} < \text{B}$                       b)  $\text{F}^- < \text{O}^{2-} < \text{N}^{3-}$                       c)  $\text{Na} < \text{Li} < \text{K}$                       d)  $\text{Fe}^{3+} < \text{Fe}^{2+} < \text{Fe}^{4+}$
- The bond order is maximum in:

- a)  $H_2$                       b)  $H_2^+$                       c)  $He_2$                       d)  $He_2^+$
10. Which of the following atoms has minimum covalent radius?  
 a) Si                      b) N                      c) C                      d) B
11. The screening effect of *d*-electrons is:  
 a) Equal to the *p*-electrons  
 b) Much more than *p*-electrons  
 c) Same as *f*-electrons  
 d) Less than *p*-electrons
12. Which of the following statement is wrong?  
 a) The stability of hydrides increase from  $NH_3$  to  $BiH_3$  in group 15 of the periodic table.  
 b) Nitrogen cannot form  $d\pi - p\pi$  bond.  
 c) Single N—N bond is weaker than the single P—P bond.  
 d)  $N_2O_4$  has two resonance structure
13. The molecule having permanent dipole moment is:  
 a)  $SF_4$                       b)  $XeF_4$                       c)  $SiF_4$                       d)  $BF_3$
14. Unusually high boiling point of water is result of  
 a) Intermolecular hydrogen bonding                      b) Intramolecular hydrogen bonding  
 c) Both intra and inter molecular hydrogen bonding                      d) High specific heat
15. Which of the following is least ionic?  
 a)  $CaF_2$                       b)  $CaBr_2$                       c)  $CaI_2$                       d)  $CaCl_2$
16. What bond order does  $O_2^{2-}$  have?  
 a) 1                      b) 2                      c) 3                      d) 1/3
17. A compound contains *X*, *Y* and *Z* atoms. The oxidation states of *X*, *Y* and *Z* are +2, +2 and -2 respectively. The possible formula of the compound is  
 a)  $XYZ_2$                       b)  $Y_2(XZ_3)_2$                       c)  $X_3(Y_4Z)_2$                       d)  $X_3(YZ_4)_3$
18. Which one of the following is a non-polar molecule?  
 a)  $CCl_4$                       b)  $CHCl_3$                       c)  $CH_2Cl_2$                       d)  $CH_3Cl$
19. Which one of the following has the regular tetrahedral structure?  
 (Atomic numbers B = 5, S = 16, Ni = 28, Xe = 54)  
 a)  $SF_4$                       b)  $SF_4$                       c)  $BF_4^-$                       d)  $[Ni(CN)_3]^{2-}$

20. If the dipole moment of toluene and nitro-benzene are 0.43 D and 3.93 D, then what is the expected dipole moment of *p*-nitro toluene?
- a) 3.50 D                      b) 2.18 D                      c) 4.36 D                      d) 5.30 D

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