PRERNA EDUCATION
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Chapter 4: Chemical Bonding and Molecular Structure

Assignment 1

Class 11

PRERNA EDUCATION

DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : CHEMISTRY**
Date : **DPP No. : 1**

Topic :- Chemical Bonding and Molecular Structure

1. The true statements from the following are
   1.PH_5 and $BiCl_5$ do not exist
   2.$p\pi - d\pi$ bond is present in SO_2
   3.Electrons travel at the speed of light
   4.SeF_4 and CH_4 have same shape
   5.I_3^+ has bent geometry
   a) 1,3 b) 1,2,5 c) 1,3,5 d) 1,2,4

2. 1,3-butadiene has:
   a) 6σ and 2π-bonds b) 2σ and 2π-bonds c) 9σ and 2π-bonds d) 6σ and 2π-bonds

3. The bond between atoms of two elements of atomic number 37 and 53 is:
   a) Covalent b) Ionic c) Coordinate d) Metallic

4. In methane the bond angle is
   a) 180° b) 90° c) 109° d) 120°

5. One would expect the elemental form of Cs at room temperature to be:
   a) A network solid b) A metallic solid c) Non-polar liquid d) An ionic liquid

6. Which of the following is false?
   a) Glycerol has strong hydrogen bonding
   b) Glycol is a poisonous alcohols
   c) Waxes are esters of higher alcohols with higher acids

d) Alkyl halides have higher b.p. than corresponding alcohols

7. Ionic radii are:

a) $\propto \frac{1}{\text{effective nuclear charge}}$

b) $\propto \frac{1}{(\text{effective nuclear charge})^2}$

c) $\propto$ effective nuclear charge

d) $\propto (\text{effective nuclear charge})^2$

8. Which of the following statements is incorrect?

a) He_2 does not exist because its bond order is zero

b) O_2, O_2^- and O_2^+ are all paramagnetic

c) Any two atomic orbitals can combine to form two molecular orbitals

d) $\pi(2p_x)$ and $\pi(2p_y)$are degenerate molecular orbitals

9. Which of the following pairs will from the most stable ionic bond?

a) Na and Cl b) Mg and F c) Li and F d) Na and F

10. Among NaF, NaCl NaBr and NaI, the NaF has highest melting point because:

a) It has maximum ionic character

b) It has minimum ionic character

c) It has associated molecules

d) It has least molecular weight

11. The planar structure of BF_3 can be explained by the fact that BF_3 is

a) sp hybridized b) sp^2 hybridised c) sp^3 hybridised d) $sp^3\ d$ hybridized

12. The correct order of bond order value among the following is

(i) NO^- (ii) NO^+

(iii)NO (iv) NO^{2+}

(v) NO^{2-}

a) (i) < (iv) < (iii) < (ii) < (v)

b) (iv) = (ii) < (i) < (v) < (iii)

c) (v) < (i) < (iv) = (iii) < (ii)

d) (ii) < (iii) < (iv) < (i) < (v)

13. The bond between chlorine and bromine in $BrCl_3$ is:

a) Ionic

b) Non-polar

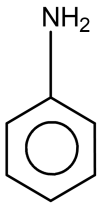
c) Polar with negative end on Br^-

d) Polar with negative end on Cl^-

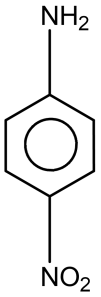
14. Which of the following has regular tetrahedral shape?

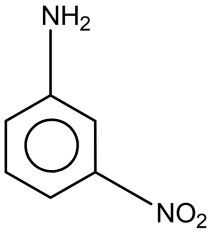
a) $[Ni(CN)_4]^{2-}$ b) SF_4 c) $[BF_4]^-$ d) XeF_4

15. Which of the following will have large dipole moment?

a) 

b) 

c) 

d) 

16. PCl_5 exists but NCl_5 does not because:

a) Nitrogen has no vacant $2d$-orbitals

b) NCl_5 is unstable

c) Nitrogen atom is much smaller than phosphorus

d) Nitrogen is highly mert

17. In which of the following pairs the two species are not isostructural?

a) PCl_4^+ and $SiCl_4$ b) PF_5 and BrF_5 c) AlF_6^{3-} and SF_6 d) CO_3^{2-} and NO_3^-

18. The molecule having a pyramidal shape out of the following is

a) CO_2 b) BF_3 c) SF_4 d) NH_3

19. If Na^+ ion is larger than Mg^{2+} ion and S^{2-} is larger than Cl^- ion, which of the following will be stable soluble in water?

a) Sodium chloride b) Sodium sulphide c) Magnesium chloride d) Magnesium sulphide

20. An atom of an element A has three electrons in its outermost orbit and that of B has six electrons in its outermost orbit. The formula of the compound between these two will be

a) A_3B_6 b) A_2B_3 c) A_3B_2 d) A_2B