Date Planned : __ / __ / __	Daily Tutorial Sheet - 1	Expected Duration : 90 Min
Actual Date of Attempt : __ / __ / __	JEE Advanced (Archive)	Exact Duration :_____

1. State four major physical properties that can be used to distinguish between covalent and ionic compounds. Mention the distinguishing features in each case. **(1978)**

***2.** The compound which contains both ionic and covalent bonds is: **(1979)**

(A) NH_4Cl **(B)** $CsBr_3$ **(C)** KCN **(D)** SiO_2

3. Element X is strongly electropositive and element Y is strongly electronegative. Both are univalent. The compound formed would be: **(1980)**

(A) X^+Y^- **(B)** X^-Y^+ **(C)** $X - Y$ **(D)** $X \rightarrow Y$

***4.** Which of the following compound is covalent? **(1980)**

(A) SiO_2 **(B)** S_8 **(C)** CaC_2 **(D)** Na_2S

5. If a molecule MX_3 has zero dipole moment, the sigma bonding orbitals used by M (atomic number < 21) are: **(1981)**

(A) pure p **(B)** sp-hybridised **(C)** sp^2 -hybridised **(D)** sp^3 -hybridised

6. Pair of molecules which forms strongest intermolecular hydrogen bonds is _____, (SiH_4 and SiF_4 acetone and $CHCl_3$, formic acid and acetic acid) **(1981)**

7. The angle between two covalent bonds is maximum in _____ (CH_4, H_2O, CO_2) **(1981)**

8. _____ Hybrid orbitals of nitrogen atom are involved in the formation of ammonium ion. **(1982)**

9. The ion that is isoelectronic with CO is: **(1982)**

(A) CN^- **(B)** O_2^+ **(C)** O_2^- **(D)** N_2^+

10. Among the following, the linear molecule is: **(1982)**

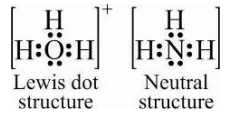
(A) CO_2 **(B)** NO_2 **(C)** SO_2 **(D)** ClO_2

11. There are _____ π bonds in a nitrogen molecule. **(1982)**

12. Which one among the following does not have the hydrogen bond? **(1983)**

(A) phenol **(B)** liquid NH_3 **(C)** water **(D)** HCl

13. Write the Lewis dot structural formula for each of the following. Give also, the formula of a neutral molecule, which has the same geometry and the same arrangement of the bonding electrons as in each of the following. An example is given below in the case of H_3O^+ and NH_3.



(i) O_2^{2-} **(ii)** CO_3^{2-} **(iii)** CN^- **(iv)** NCS^- **(1983)**

14. Carbon tetrachloride has no net dipole moment because of: **(1983)**

(A) Its planar structure

(B) its regular tetrahedral structure

(C) similar sizes of carbon and chlorine atoms

(D) similar electron affinities of carbon and chlorine

15. Linear overlapping of two atomic *p*-orbitals leads to a sigma bond. **(1983)**