91. In which of the following ionization processes, the bond order has increased and the magnetic behaviour has changed ?

(1) $N_2 \rightarrow N_2^+$ (2) $C_2 \rightarrow C_2^+$ (3) $NO \rightarrow NO^+$ (4) $O_2 \rightarrow O_2^+$

92. Hydrogen fluoride is a liquid unlike other hydrogen halides because:

(1) HF molecules associate due to hydrogen bonding

(2) F_2 is highly reactive

(3) HF is the weakest acid of all hydrogen halides

(4) Fluorine atom is the smallest of all halogens

93. The types of bonds present in $CuSO_4 \cdot 5H_2O$ are only

(1) Electrovalent and covalent

(2) Electrovalent and co-ordinate

(3) Electrovalent, covalent and co- ordinate covalent

(4) Covalent and co-ordinate covalent

94.. Which of the following has a bond order of 1.75?

(1) ClO_3^- (2) ClO_4^- (3) NO_3^- (4) CO_3^{2-}

95. The AsF_5 molecule is trigonal bipyramidal. The hybrid orbitals used by the As atoms for bonding are

(1) $d_{x^2-y^2}, dz^2, s, p_x - p_y$ (2) $d_{xy}, s, p_x, p_y, d_{z^2}$

(3) $s, p_x, p_y, p_z, d_{z^2}$ (4) $d_{x^2-y^2}, s, p_x, p_y$

96. In which of the following pairs of molecules/ions, the central atom has sp^2-hybridization?

(1) NO_2 *and* NH_3 (2) NH_2^- *and* H_2O

(3) BF_3 *and* NO_2^- (4) BF_3 *and* NH_2^-

97. The bond angle in PH_3 is:

(1) Much lesser than NH_3 (2)Equal to that in NH_3

(3)Much greater than in NH_3 (4)Slightly more than in NH_3

98. The maximum number of $90°$ angles between bond pair-bond pair of electrons is observed in

(1) XeF_4 (2) SF_4 (3) ClF_3 (4) SF_6

99. Among the following species, identify the pair having same bond order CN^-, O_2^-, NO^+, CN^+

(1) CN^- and O_2^- (2) O_2^- and NO^+ (3) CN^- and NO^+ (4) CN^- and CN^+

100. The molecule which has the highest bond order is

(1) C_2 (2) N_2 (3) B_2 (4) O_2