Time: 3 hours **SUBJECT – CHEMISTRY (NEET|IIT-JEE)** Marks: 50

(Chemical Bonding & Molecular Structure)

NAME OF STUDENT:-_____ DATE:- ..../...../.....

❖ **INSTRUCTION:- ATTEMT ALL QUESTION.**

Q1. Which of the following pairs of compounds is isoelectronic and isostructural? [2017]

(a) TeI_2, XeF_2 (b) IBr_2^-, XeF_2 (c) IF_3, XeF_2 (d) $BeCl_2$, XeF_2

Q2. The species, having bond angles of 120^o is: [2017]

(a) ClF_3 (b) NCl_3 (c) BCl_3 (d) PH_3

Q3. In the structure of ClF_3, the number of lone pairs of electrons on central atom 'Cl' is . [2018]

(a) one (b) two (c) four (d) three

Q4. Which one is the electron deficient compound? [2002]

(a) ICl (b) NH_3 (c) BCl_3 (d) PCl_3

Q5. PCl_5 exist, but NCL_5 does not exist because

(a) Nitrogen has no vacant 2-*d* orbital (b) NCL_5 is unstable

(C) N-atom is much smaller than p (d) Nitrogen is highly inert

Q6. Among the following species identify the isostructural pairs.
NF_3, NO_3^- , BF_3 H_3O^+ , HN_3

(a) [NF_3, NO_3^-] and [$BF_3H_3O^+$]

(b) [NF_3, HN_3] and [NO_3^- BF_3]

(C) [NF_3, H_3O^+] and [NO_3^-, BF_3]

(d) [NF_3, H_3O^+] and [HN_3, BF_3]

Q7. Number of bonds in SO_2

(a) Two σ and two π

(b) Two σ and one π

(C) Two σ, two π and one lone pair

(d) None of these

Q8. In an octahedral structure, the pair of *d* orbitals involved in d^2sp^3 hybridization is.

(a) d_{x^2}, d_{xz} **(b) d_{xy}, d_{yz}** **(c) $d_{x^2-y^2}, d_{z^2}$** **(d) $d_{xz}, d_{x^2-y^2}$**

Q9. Among the compounds, BF_3, NCL_3, H_2S, and $BeCl_2$, identify the ones in which the central atom has the same type of hybridisation

(a) BF_3 and NCL_3

(b) H_2S and $BeCl_2$

(C) NCl_3 and H_2S

(d) NCl_3 and $BeCl_2$

Q10. The molecule of CO_2 has 180^o bond angle. It can be explained on the basis of.

(a) sp^3 hybridisation

(b) sp^2 hybridisation

(C) *sp* hybridisation

(d) d^2sp3 hybridization