Shiksha Classes Bhandara

Subject : Chemistry **Topic : Chemical Bonding** **M.M. : 100**

Marking Scheme:

(i) Each question is allotted 4 (four) marks for each correct response.

(ii) ¼ (one fourth) marks will be deducted for indicating incorrect response of each question. No deduction from the total score will be made if no response is indicated for an item in the answer sheet.

Q.1 The shape of IF_5 is –
(A) pentagonal bipyramidal (B) square pyramidal
(C) octahedral (D) trigonal planar

Q.2 The hybridisation present in IF_3 is –
(A) sp^3d (B) sp^3
(C) sp^3d^2 (D) sp^3d^3

Q.3 The molecule having larges dipole moment among the following is –
(A) CHI_3 (B) CH_4
(C) $CHCl_3$ (D) CCl_4

Q.4 The correct sequence of hybridisation of methane, ethene and acetylene is –
(A) sp, sp^2, sp^3 (B) sp^2, sp^3, sp
(C) sp^3, sp^2, sp (D) sp^3, sp, sp^2

Q.5 Which of the following elements shows maximum valency
(A) Carbon (B) Barium
(C) Nitrogen (D) Sulphur

Q.6 Hybridisation present in ClF_3 is
(A) sp^2 (B) sp^3
(C) dsp^2 (D) sp^3d

Q.7 Electron deficient molecule is –
(A) CCl_4 (B) PCl_5
(C) BF_3 (D) SF_6

Q.8 The bond order of O_2^+ is the same as in –
(A) N_2^+ (B) CN^-
(C) CO (D) NO^+

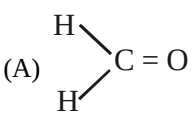
Q.9 The compound in which underlined carbon used only its sp^3 hybrid orbitals for bond formation is –
(A) $CH_3\underline{C}OOH$ (B) $CH_3\underline{C}ONH_2$
(C) $CH_3\underline{C}H_2COH$ (D) $CH_3\underline{C}H = CH_2$

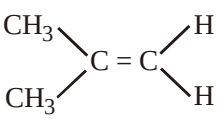
Q.10 C – C bond order in benzene is –
(A) 1 (B) 1
(C) between 1 and 2 (D) None of these

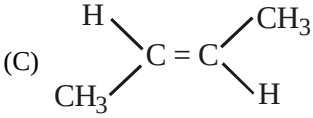
Q.11 Sequence of bond length of the following is
A. ethane B. ethene C. ethyne
(A) A > B > C (B) B > A > C
(C) C > B > A (D) C > A > B

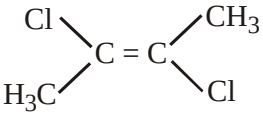
Q.12 Which type of bond is present in Xe molecule?
(A) Covalent (B) Ion-dipole
(C) Van der Waals' (D) Dipole-dipole

Q.13 Which has the highest dipole moment ?

(A) 

(B) 

(C) 

(D) 

Q.14 H – O – H bond angle in H_2O is 104.5° and not 109°28' because of –
(A) lone pair-lone pair repulsion
(B) lone pair-bond pair repulsion
(C) bond pair-bond pair repulsion
(D) high electronegativity of oxygen

Q.15 Which of the following does not have a coordinate bond –
(A) SO_2 (B) HNO_3
(C) H_2SO_3 (D) HNO_2

Q.16 In which of the following pairs, both molecules possess dipole moment ?
(A) CO_2, SO_2 (B) BCl_3, PCl_3
(C) H_2O, SO_2 (D) CO_2, CS_2

Q.17 Which one of the following molecules will form a linear polymeric structure due to hydrogen bonding ?
(A) NH_3 (B) H_2O
(C) HCl (D) HF

Q.18 Among the following the electron deficient compound is –
(A) BCl_3 (B) CCl_4
(C) PCl_5 (D) $BeCl_2$

Q.19 The relationship between the dissociation energy of N_2 and N_2^+ is –
(A) Dissociation energy of N_2^+>dissociation energy of N_2
(B) Dissociation energy of N_2= dissociation energy of N_2^+
(C) Dissociation energy of N_2> dissociation energy of N_2^+
(D) Dissociation energy of N_2 can either be lower or higher than the dissociation energy of N_2^+

Q.20 Cation and anion combines in a crystal to form following type of compound –
(A) ionic (B) metallic
(C) covalent (D) dipole-dipole

For Q.21-Q.25 :
The answer to each question is a NUMERICAL VALUE.

Q.21 The number of σ and π bonds present in $HC \equiv C - CH_2 - CH = CH_2$ are (10σ, Xπ). Find the value of X.

Q.22 The number of double bonds in gammexane is –

Q.23 Allyl isocyanide contains σ and π-bonds are (9σ, Xπ). Find the value of X.

Q.24 Value of x in potash alum, $K_2SO_4.Al_x(SO_4)_3.24H_2O$ is –

Q.25 The number of unpaired electrons in oxygen molecule is –