Chapter 2
Structure and Bonding

1. Which of the following will conduct electricity?
(A) Solid metallic Na
(B) Solid NaCl
(C) Aqueous NaCl
(D) Fused NaCl

2. On the basis of VSEPR theory, the molecule which has a linear structure are
(A) N_2O
(B) XeF_2
(C) SO_2
(D) CO_2

3. Which of the following molecules will have zero dipole moment?
(A) CO_2
(B) BF_3
(C) $SiCl_4$
(D) NH_3

4. Among the following the planar molecules are
(A) $PtCl_4^{2-}$
(B) $[CO_3]^{2-}$
(C) $[SO_4]^{2-}$
(D) PCl_3

5. Molecule that has two lone pair of electrons on the central atom (among the choices) are
(A) XeF_4
(B) PF_3
(C) ClF_3
(D) BF_3

6. Among B–H, C–H, N–H and Si–H bonds in BH_3, CH_4, NH_4, and SiH_4, respectively, the polarity of the bond which is shown CORRECTLY are
(A) $B^{\delta+} – H^{\delta-}$
(B) $C^{\delta-} – H^{\delta+}$
(C) $N^{\delta-} – H^{\delta+}$
(D) $Si^{\delta-} – H^{\delta+}$

7. Among the following pairs, the paramagnetic and diamagnetic species, respectively, are
(A) NO and CO
(B) O_2 and N_2
(C) O_2^+ and O_2^-
(D) N_2^+ and O_2^{2-}

8. The molecules having non-linear structure are
(A) SCl
(B) ClO_2^-
(C) XeF_2

(D) N_2O

9. Which of the following statements are CORRECT about the diborane molecule?
(A) B-H^t bond is a 2-centre-2-electron bond (H^t: terminal hydrogen)
(B) BH^bB bond is a 3-centre-2-electron bond (H^b: bridged hydrogen)
(C) The bond angle H^tBH^t is 122° (H^t: terminal hydrogen)
(D) The B-H^t bond distance is longer than B-H^b bond distance (H^t: terminal hydrogen, H^b: bridged hydrogen)

10. The electron-deficient molecules are
(A) B_2H_6
(B) N_2H_4
(C) AlH_3
(D) C_2H_6

Answer

1. **(A), (C), (D)**
2. **(A), (B), (D)**
3. **(A), (B), (C)**
4. **(A), (B)**
5. **(A), (C)**
6. **(A), (B), (C)**
7. **(A), (B), (D)**
8. **(A), (B)**
9. **(A), (B), (C)**
10. **(A), (C)**