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1. Which of the following would have a permanent dipole moment ?

- (a)  $\text{BF}_3$
- (b)  $\text{SiF}_4$
- (c)  $\text{SF}_4$**
- (d)  $\text{XeF}_4$

2. In the case of alkali metals, the covalent character decreases in the order

- (a)  $\text{MCl} > \text{MI} > \text{MBr} > \text{MF}$
- (b)  $\text{MF} > \text{MCl} > \text{MBr} > \text{MI}$
- (c)  $\text{MF} > \text{MCl} > \text{MI} > \text{MBr}$
- (d)  $\text{MI} > \text{MBr} > \text{MCl} > \text{MF}$**

3. Which of the following two are isostructural?

- (a)  $\text{XeF}_2$ , and  $\text{IF}_2^-$**
- (b)  $\text{NH}_3$ , and  $\text{BF}_3$
- (c)  $\text{CO}_3^{2-}$ , and  $\text{SO}_3^{2-}$
- (d)  $\text{PCl}_5$ , and  $\text{ICl}_5$

4. Which one of the following species does not exist under normal conditions ?

- (a)  $\text{Be}^{+2}$
- (b)  $\text{Be}_2$**
- (c)  $\text{B}_2$
- (d)  $\text{Li}_2$

5. Which one of the following is not paramagnetic?

(a) NO

(b)  $N_2$

**(c) CO**

(d)  $O_2$

6. In a regular octahedral molecule,  $MX_6$  the number of X-M-X bonds at  $180^\circ$

is

**(a) 3**

(b) 2

(c) 6

(d) 4

7. The angular shape of ozone molecule ( $O_3$ ) consists of

(a) 1 sigma and 2 pi-bonds

(b) 2 sigma and 2 pi-bonds

(c) 1 sigma and 1 pi-bonds

**(d) 2 sigma and 1 pi-bonds**

8. Which of the following is not isostructural with  $SiCl_4$ ?

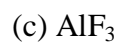
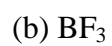
**(a)  $SCl_4$**

(b)  $SO_4^{2-}$

(c)  $PO_4^{3-}$

(d)  $NH_4^+$

9. In which of the following molecules are all the bonds not equal ?



10. The correct order of increasing bond angles in the following species is

