

## Molecular orbital theory



9. Oxygen molecule is paramagnetic because

  - Bonding electrons are more than antibonding electrons
  - Contains unpaired electrons
  - Bonding electrons are less than antibonding electrons
  - Bonding electrons are equal to antibonding electrons

10. Which one is paramagnetic from the following

  - $O_2^-$
  - $NO$
  - Both (a) and (b)
  - $CN^-$

11. The bond order in  $CH_3Cl$  ion is

  - 1
  - 2
  - 2.5
  - 3

12. Out of the following which has smallest bond length

  - $O_2$
  - $O_2^+$
  - $O_2^-$
  - $O_2^{2-}$

13. Which of the following molecule is paramagnetic

  - Chlorine
  - Nitrogen
  - Oxygen
  - Hydrogen

14. Which molecule has the highest bond order

  - $N_2$
  - $Li_2$

15. The molecular electronic configuration of  $H_2^-$  ion is

  - $(\sigma 1s)^2$
  - $(\sigma 1s)^2(\sigma^* 1s)^2$
  - $NO$
  - $(\sigma 1s)^3$

16. The paramagnetic nature of oxygen molecule is best explained on the basis of

  - Valence bond theory
  - Resonance
  - Molecular orbital theory
  - Hybridization

17. In which case the bond length is minimum between carbon and nitrogen

  - $CH_3NH_2$
  - $C_6H_5CH = NOH$
  - $CH_3CONH_2$
  - $CH_3CN$

18. Which one of the following species is diamagnetic in nature

  - $He_2^+$
  - $H_2$
  - $H_2^+$
  - $H_2^-$



