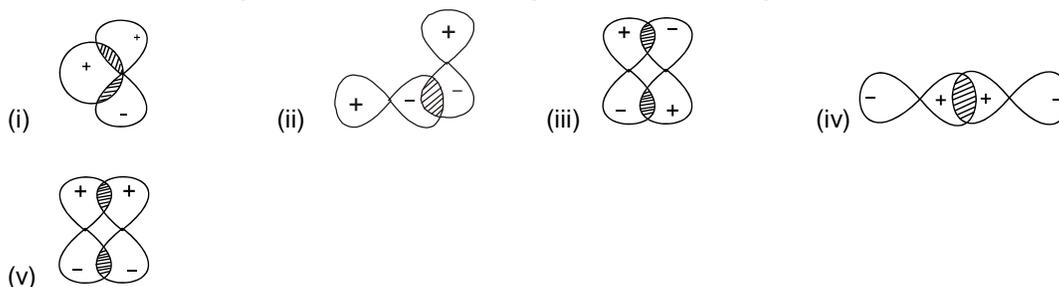


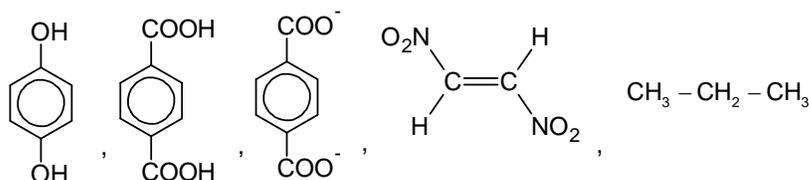
- Electron affinity depends on
(A) Atomic size (B) Nuclear charge
(C) Atomic number (D) Atomic size and nuclear charge both
- Which one of the following is an incorrect statement?
(A) The ionisation potential of nitrogen is greater than that of oxygen
(B) The electron affinity of fluorine is greater than that of chlorine
(C) The ionisation potential of beryllium is greater than that of boron
(D) The electronegativity of fluorine is greater than that of chlorine
- Which among the following factors is the most important in making fluorine the strongest oxidizing halogen
(A) Hydration enthalpy (B) Ionization enthalpy (C) Electron affinity (D) Bond dissociation energy
- The solubilities of carbonates decreases down the magnesium group due to a decrease in
(A) Lattice energies of solids (B) Hydration energies of cations
(C) Inter-ionic attraction (D) Entropy of solution formation
- The polarising ability of which one of the following is highest
(A) Small highly +ve ion (B) Large +ve ion (C) Small highly -ve ion (D) Large -ve ion
- Among Al_2O_3 , SiO_2 , P_2O_3 and SO_2 the correct order of acid strength is
(A) $Al_2O_3 < SiO_2 < SO_2 < P_2O_3$ (B) $SiO_2 < SO_2 < Al_2O_3 < P_2O_3$
(C) $SO_2 < P_2O_3 < SiO_2 < Al_2O_3$ (D) $Al_2O_3 < SiO_2 < P_2O_3 < SO_2$
- Which order is correct with reference to first ionisation potential
(A) B > Be (B) P > N (C) I > Br (D) Ca > Ba
- Which of the following element is weak oxidant
(A) Na^+ (B) Mg^{+2} (C) Al^{+3} (D) None of these
- The correct order of electron affinity for the different families is -
(A) Halogen > carbon > nitrogen > oxygen (B) Halogen > oxygen > nitrogen > carbon
(C) Halogen > nitrogen > carbon > oxygen (D) Halogen > oxygen > carbon > nitrogen
- In which case the energy released is the minimum in the process -
(A) $B \longrightarrow B^-$ (B) $C \longrightarrow C^-$ (C) $N \longrightarrow N^-$ (D) $O \longrightarrow O^-$
- Which is true about electronegativity -
(A) It is the tendency of an atom to attack the bond pair electrons
(B) An atom with one electron short of filled shell is more electronegative than with sparsely filled shells
(C) It decreases in a period from left to right
(D) It increases down in a group.
- According to Pauling if difference in electronegativities of two atoms is 2.1 then bond formed is -
(A) 50 Percent ionic and 50 percent covalent in character
(B) Purely ionic in character (C) Purely covalent in character
(D) 25 Percent ionic and 75 percent covalent in character
- Arrange the following hydrides in their increasing acid strength [CH_4 , H_2S , PH_3 and SiH_4] -
(A) $H_2S < PH_3 < SiH_4 < CH_4$ (B) $CH_4 < SH_4 < PH_3 < H_2S$
(C) $SiH_4 < CH_4 < PH_3 < H_2S$ (D) $CH_4 < H_2S < PH_3 < SiH_4$
- In the first and seventh group which property shows resemblance with the increase of atomic number :-
(A) Maximum valency increases (B) Oxidising power increases
(C) Electrons in the ultimate orbit (D) Atomic radius increases
- On the basis of MOT which is correct
(A) The bond order for C_2 molecule is two and both bonds are π -bonds
(B) The bond order for C_2 molecule is two with one σ bond and one π -bond
(C) The HOMO in this molecule are π type of antibonding m.o. containing total 4 electrons
(D) None of the above is correct

16. Which of the following is correct -
 (A) In the N_2F_2 molecule total electrons in hybrid orbitals are 10
 (B) In C_2H_4 the bond angle $\angle HCC < \text{bond angle } \angle HCH$
 (C) In solid state nitryl chloride (O_2NCl) will be consisting of NO^+ and OCl^- ions
 (D) The correct order of C – O bond length is $CO < CO_3^{2-} < CO_2$
17. Which of the following about SF_4 , SOF_4 , CH_2SF_4 and OCF_2 molecules is correct?
 (A) Equatorial FSF bond angle in SOF_4 will be less than that in SF_4 molecule
 (B) The two hydrogens, carbon, sulphur and two fluorines (of axial positions) in molecule CH_2SF_4 will be lying in the same plane
 (C) The bond angle FCO will be $< 120^\circ$ in molecule OCF_2
 (D) The axial FSF bond angle in $SF_4 = 180^\circ$
18. Which of the following is a wrong order with respect to the property mentioned against each -
 (A) $(NO)^- > (NO) > (NO)^+$ [bond length] (B) $H_2 > H_2^+ > He_2^+$ [bond energy]
 (C) $O_2^{2-} > O_2 > O_2^{+}$ [Paramagnetism] (D) $NO_2^+ > NO_2 > NO_2^-$ [bond angle]
19. Which of the following atomic orbital overlapping will result in bonding molecular orbital



- (A) All (B) (i) (ii) (iii) (C) (i) (iii) (v) (D) (ii) only
20. Which of the following resonating structures of N_2O is the most contributing structure?
 (A) $N \equiv N - O$ (B) $N - N \equiv O$ (C) $N = N - O$ (D) $N - N = O$
21. How many of the following molecules or ions have sp^3d hybridisation of their central atom?
 I_3^- , SbF_6^- , F_3^+ , ClO_3^- , XeO_2F_2 , XeO_6^{4-} , SF_4

22. How many of the following molecules have zero dipole moment



23. The number of sigma bonds in 1-butene-3-yne are
24. How many atoms from the following list will have their first ionisation energy more than that of Al?
 B, Mg, Na, Ar, Si, C, K, P
25. The first four ionization enthalpy values of an element are 191, 578, 872 and 5962 respectively. The number of valence electrons in the element is

KEY

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|-------|-------|-------|-------|-------|
| 1. D | 2. B | 3. D | 4. A | 5. A |
| 6. D | 7. D | 8. C | 9. D | 10. C |
| 11. A | 12. A | 13. B | 14. D | 15. A |
| 16. A | 17. B | 18. C | 19. B | 20. A |
| 21. 3 | 22. 3 | 23. 7 | 24. 6 | 25. 3 |