

- A) de Broglie B) Heisenberg
- C) Bohr D) Heisenberg
9. As atomic size increases, ionisation potential.....
- A) Increases B) Decreases
- C) First increases and decreases D) Remains constant
10. Born – Haber cycle is used to calculate
- A) Lattice Energy B) Electron affinity
- C) Heat of Formation D) All of the above
11. Non-directional bond is
- A) Covalent B) Polar
- C) Non polar D) Ionic
12. Which of the following molecule has a zero dipole moment?
- A) HF B) CHCl_3
- C) H_2O D) CO_2
13. The number of units of charge on an ion is its Valency.
- A) co B) electro
- C) co-ordinate D) combination
14. Which of the following compound is soluble in polar solvent ?
- A) HF B) NaCl
- C) CO_2 D) KI
15. The bond moment of a bond is the dipole moment of a Molecule.
- A) Triatomic B) Homonuclear diatomic
- C) Heteronuclear diatomic D) Polynuclear
16. Which of the following has largest dipole moment ?
- A) CO_2 B) CCl_4
- C) CHCl_3 D) CH_4
17. sp hybrid orbitals are disposed.
- A) Trigonal B) Diagonally
- C) Irregularly D) Periodically
18. In BeCl_2 beryllium is valent
- A) Mono B) Tri
- C) Di D) Zero
19. The structure of SF_6 is
- A) Octahedral B) Tetrahedral
- C) Pentagonal Bipyramidal D) Trigonal bipyramidal

31.is the polar solvent.
 A) KBr B) NaCl C) KCl D) All of these
32. Ionic compounds have.....
 A) High melting points B) Low boiling points C) High boiling points D) Both a & c.
33. The amount of energy required to remove an electron completely from an isolated gaseous atom is known as.....
 A) Ionisation energy B) Ionisation potential C) Ionisation enthalpy D) All of the above.
34. Born haber cycle is used for to calculate the
 A) Lattice energy B) Electron affinity C) Ionisation energy D) Both a & b
35. Which of the following molecule has a zero dipole moment?
 A) HF B) CHCl_3 C) H_2O D) CCl_4
36. The dipole moment of symmetrical molecule will be.....
 A) less than zero B) greater than zero C) equal to zero D) equal to one
37. Fajans' rules are applicable to account covalent character of.....
 A) covalent compounds B) ionic compounds C) metallic compounds D) Network solids
38. Geometry of molecule depends upon type of.....
 A) Hybridisation B) Ionisation energy C) Electron affinity D) Both b & c
39. Increase in percent 's' character in hybrid orbital.....the stability of the system.
 A) Decrease B) Increase C) Constant D) none of these
40. As in beryllium number of unpaired electrons in its valence shell is.....
 A) 0 B) 1 C) 2 D) 3
41. In PCl_5 , P is.....valent.
 A) Tri B) Tetra C) Penta D) Hexa
42. According to Lewis, a covalent bond is formed by.....
 A) Pairing of electrons B) overlapping of atomic orbital's C) sharing of proton pair D) sharing of an electron pair.
43. Which of the following has sp^3 hybridisation?

44. Which of the following property is not of ionic compound?

- A) Solubility in water B) High melting and boiling points C) Electrical conductivity in solid state D) Electrical conductivity in molten state

45. Carbon monoxide is iso-electronic to

- A) O_2 B) N_2 C) NO D) C_2

46. The structure of SF_6 is

- A) Octahedral B) tetrahedral C) pentagonal bipyramidal D) trigonal bipyramidal.

47. The stability of molecule with increase in bond order.

- A) decrease B) remains same C) increases D) First increases then decrease

48. when $l = 0$, the orbital will be

- A) p B) s C) d D) f

49. In BMOs electron density between two bonded atoms is

- A) minimum B) maximum C) equal D) nil

50. atomic radiusalong the group in the P. T.

- A) decrease B) remains same C) increases D) First increases then decrease

Q. 2 Long Answer type questions

1. Explain the all quantum numbers.
2. Explain the factors affecting stability of half filled and completely filled orbitals.
3. Explain chemical properties s block elements.
4. Explain brief Born-Haber cycle.
5. Explain the fajans' rule to the polarising power of cation & anion.
6. Name the energy terms involved in ionic bond formation and explain them.
7. What is hybridization? Explain need of hybridisation with suitable example.
8. Explain linear , trigonal planer , tetrahedral, pentagonal bipyramidal , octahedral hybridisation with suitable example.
9. What is an energy level sequence ? explain the energy level sequence when $n= 1$ & $n = 2$.
10. Draw & explain the MOT of N_2 & O_2 molecule

Q. 3. Short Answer type questions

1. Who has extended Einstein concept of light ?
2. What is the general electronic configuration of s, p, d, f block elements?
3. According to Bohr's theory of hydrogen atom which state does not absorb or emit energy?
4. What will be the spin of electrons to pair in an orbital?
5. Formation of ionic bond.
6. Energies of in ionic bond formation.
7. Application of Fajans rules.
8. Percent ionic character of a covalent bond.
9. Explain the types of molecular orbitals.
10. Give the characteristics of ABMOs/ BMOs.
11. Explain the conditions for successful overlap.
12. Write a short note on VBT
13. All the P-Cl bonds in PCl_5 are not equivalent. Explain it.
14. Define explain terms. A) chemical bond B) covalent bond C) hybridisation D) ionic bond
15. Draw & explain the MOT of CO molecule.
16. Explain Dipole moment
17. Explain polarizing power and polarisability.
18. Born – Haber cycle for NaCl.
19. When $l=2$, which orbital will form?
20. What will be the spin of electrons to pair in an orbital?