



CHEMISTRY

BOOKS - JEEVITH PUBLICATIONS

CHEMISTRY (KANNADA ENGLISH)

CHEMICAL BONDING AND
MOLECULAR STRUCTURE

One Mark Questions And Answers

1. What is chemical bonding ?



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2. Why do atoms combine?



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3. Name the types of chemical bonds.



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4. What is lewis symbols.



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5. What is octet rule?



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6. What is meant by octet structure?



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7. Why are rare gases are mono atomic?



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8. Give one molecule that does not obey octet rule.



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9. Define bond length.



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10. Define formal charge.



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11. Between $AlCl_3$ and AlF_3 which is covalent?



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12. Name the types of bonds present in ice?



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13. What is the type of hybridization exhibited by Boron in Boron trifluoride?



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14. What is H-C-H bond angle in methane ?



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15. How many sigma bonds are present in ethane ?



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16. What angles are associated with the following orbitals? sp , sp^2 and sp^3



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17. What is London forces?



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18. Mention the type of bond formed between the atoms having same electronegativity.



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19. Mention the type of bond formed between the atoms having different electronegativity.



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20. Who received noble price for the work on chemical bonds?



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21. What is an ionic bond ?



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22. Define vander waals radius.



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23. Among HF, HCl, HBr and HI which has highest ionic character?



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24. What do you mean by electrovalence?



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25. Give any two factors which favours ionic bond.



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26. Define lattice energy.



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27. Define bond order.



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28. What is meant by covalent bond ?



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29. What is covalency ?



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30. What is the covalency of CH_4 ?



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31. Who proposed concept of covalent bond ?



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32. What is the maximum covalency of chlorine?



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33. Who proposed valency bond theory ?



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34. Draw a diagram to show orbital overlap to form a s bond.



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35. Draw a diagram to show the orbital overlap to form p-bond.



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36. Draw diagram for sigma p-p overlapping.



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37. What is a sigma bond ?



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38. What is a bond ?



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39. How many sigma and pi bonds are present in an acetylene molecule ?



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40. How many pairs of electrons are involved in bond formation in case of nitrogen molecule.



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41. What is hybridization ?



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42. Mention the overlapping present in (a) H_2 ,
(b) Cl_2 , © HCl



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43. How many electrons are shared in a double bond between two atoms ?



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44. Which type of hybridization is called (a) tetrahedral (b) trigonal ?



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45. Give example for two linear molecule.



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46. Who proposed VSEPR theory ?



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47. What is the structure of ammonia & water molecule ?



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48. What is meant by non (homo) polar covalent bond ?



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49. What is meant by non hetero (polar) covalent bond?



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50. What is meant by hetero (polar) covalent bond?



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51. Give example for polar and non-polar molecule.



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52. Write the relationship between dipole movement and charge.



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53. Write Lewis dot symbol for Br.





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54. what is dipole moment



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55. Which among the following has zero dipole moment BF_3 , CH_3 , H_2O ?



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56. What is coordinate bond?



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57. What is the shape of BF_3 and NH_3



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58. Give one example of a compound containing ionic, covalent and coordinate bond.



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59. Which type of bond formed between NH_3 and BF_3 ?



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60. Who proposed the concept of co-ordinate bond ?



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61. What is hydrogen bond ?



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62. Name two types of hydrogen bonding.



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63. At what temperature water has maximum density ?



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64. How are formic acid molecules associated?



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65. Name the property by which the dissolution of an ionic solid in water is possible.



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66. What is Vander Waal's force ?



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67. Between O_2 and, O_2^+ which one has higher bond order?



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68. Write the resonance structure of CO_2 .



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69. Write the electronic configuration of Lithium molecule.



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70. What is the bond order of carbon molecule.



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71. What is the magnetic nature of oxygen molecule.



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72. Why "Ionic bond is formed between alkali metals and halogen" ?



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73. Ionic solids do not conduct electricity.



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74. Ionic compounds are insoluble in ether.



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75. p bond is weaker than s bond.



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76. Dipole moment of CO_2 is zero.



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77. Water molecule has bent structure even it undergoes sp^3 hybridization.



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78. Boiling point of water is very high.



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1. Give any two difference between σ and π bond.



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2. Write any two conditions for (factors favouring) covalent bond.



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3. Which type of overlapping result in the formation of (i) sigma bond (ii) pi bond.



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4. What is a Bond angle? Give example.



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5. What is bond energy? Give example.



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6. What is bond order ? Give example.



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7. Calculate the bond order of Helium.



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8. What is the significance of Lewis symbols.



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9. Explain the term "Hydration of Ions"



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10. Give example of for s-p overlapping.



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11. Give example for p-p s overlapping



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12. Why do C show 4 valency?



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13. Draw the sp^3 hybridized C.



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14. Draw the sp^2 hybridized C.



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15. Draw the sp hybridized C.



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16. Explain ionic bond in NaCl.



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17. Mention the condition favouring ionic bond formation.



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18. Mention any two characteristics of ionic compounds.



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19. Mention the factors favouring covalent bond.



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20. Mention the characteristic of covalent molecule.



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21. Explain an example for covalent bond.



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22. What do you mean by Co-ordinate Bond ?

Explain with example.





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23. HCl form polar bond.



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24. Ionic solids do not conduct.



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25. NH_3 polar but BF_3 non-polar.





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26. HF is liquid where as HCl, HBr Other hydrogen halide is liquid.



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27. O-Nitrophenol is more volatile than p-Nitrophenol (Or) boiling point of p-nitrophenol is greater than O-nitrophenol)



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28. Covalent compounds have low melting point.



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29. H_2O is liquid whereas H_2S is gas.



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30. C-Cl bond is polar but CH_4 is non polar.



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31. Density of water is maximum at $4^{\circ} C$.



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32. Water is polar in nature.



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33. Water has high boiling point.



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34. Ice floats on water or ice is lighter than water.



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35. CO_2 and C_2H_2 (acetylene) are non-polar.



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36. σ bond is stronger compare to p bond.



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37. Ethyl alcohol is an organic compound but still freely soluble in water explain.



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38. Explain covalent bond in carbon dioxide.



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39. Explain covalent in acetylene.



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40. Write the lewis dot structure for H_2 and oxygen molecule.



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41. Write the lewis dot structure of CO_3^{2-} molecule.



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42. Explain the polarity in H_2O molecule.



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43. Explain the polarity of Borontrifluoride molecule.



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44. Write the formation of sigma covalent bond diagrammatically.



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45. Write the formation of pi bond (π) diagrammatically.



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46. Write the energy level diagram of hydrogen molecule.



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47. Draw energy level diagram for $He - 2$ molecule. Calculate its bond order.



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48. Give two difference between bonding molecular orbital and antibonding molecular orbital.



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49. Write the resonance structures of ozone.



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50. Write the resonance structure of CO_3^{2-}



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51. Explain resonance concept.



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52. Write the energy level diagram of lithium molecule.



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1. Explain the formation of Ionic bond in NaCl.



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2. Write the Born-Haber cycle for NaCl.



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3. Explain Born-Haber cycle for the formation of 1 mole of sodium chloride crystal.





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4. Define hybridization ? Explain the hybridization in Methane molecule.



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5. Explain SP^2 hybridisation in ethene molecule.



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6. Explain sp^2 hybridization BF_3 molecule.



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7. Explain sp hybridisation with an example.



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8. Write any three main features of the VSEPR theory.



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9. Based on VSEPR theory explain the structure of ammonia.



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10. Based on VSEPR theory explain the structure of water.



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11. What are polar and Non Polar covalent bond explain with example.



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12. Define dipole moment ? Comment on structure & dipole moment of CO_2 , BF_3



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13. Define Hydrogen Bond ? Explain its type with example.



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14. Explain Valence Bond Theory.



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15. Salient features of Molecules Orbital Theory (MOT)



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16. Calculate the formal charge on each oxygen atom in ozone.



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17. discuss the limitation of octet rule.



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18. Compare the polarity nature of NH_3 and NF_3 .



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19. Discuss Fajan's rules ?



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20. Based on VSEPR theory explain the structure of methane.



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21. Explain sp^3d^2 hybridization SF_6 molecule.



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22. Explain sp^3d hybridization PCl_5 molecule.



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23. Write the salient features of hybridisation.

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24. Explain the type of hybridization.



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25. Explain the formation of molecule orbital
by LCAO method.

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26. Mention the conditions for combination of atomic orbitals.

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27. Draw the energy level diagram of carbon molecule. Calculate its bond order also.

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28. Write the energy level diagram of oxygen molecule.



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