



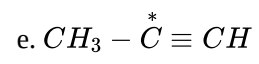
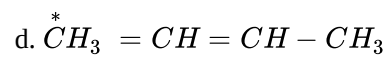
CHEMICAL BONDING

Class 11 - Chemistry

Time Allowed: 1 hour and 30 minutes

Maximum Marks: 45

1. Why ethyl alcohol is completely miscible with water? [1]
2. The H - S - H bond angle in H₂S is 93.2° whereas the H - O - H bond angle in H₂O is 104.5°, why? [1]
3. What type of bond is formed when atoms have high difference of electronegativity? [1]
4. What is the valence bond approach for the formation of a covalent bond? [1]
5. Define bond order. [1]
6. How many σ and π - bonds are present in C₂H₄ (ethene)? [1]
7. Define a chemical bond. [1]
8. Why are bonding molecular orbitals more stable than antibonding molecular orbitals? [1]
9. Predict the geometry of XeF₄ molecule. [1]
10. Why is dipole moment of CO₂, BF₃, CCl₄ is zero? [1]
11. The dipole moment of a molecule AB is 0.54 D and the bond distance is 1.41 Å . Calculate the fractional charge δ on A and B atom in AB molecule (electronic charge, e = 4.8 × 10⁻¹⁰ esu. [3]
12. Write the significance/applications of dipole moment. [3]
13. What are the main postulates of valence shell Electron pair repulsion (VSEPR) theory? [3]
14. Explain with the help of suitable example polar covalent bond. [3]
15. Discuss the hybridisation of Be in gaseous state and solid state. [3]
16. Write the Lewis structure of the nitrite ion, NO₂⁻. [5]
17.
 - i. What factors the formation of the ionic bond. Explain with examples. [5]
 - ii. Arrange the following in increasing order of ionic character and also give the reason.
NaCl, CaCl₂, MgCl₂, MgO. [5]
18. Discuss the orbital structures of the following molecules on the basis of hybridization. [5]
 - i. BH₃
 - ii. C₂H₂
 - iii. BeF₂
19.
 - i. Discuss the concept of hybridisation. What are its different types in a C-atom? [5]
 - ii. What is the types of hybridisation of carbon atoms marked with star?
 - a. $\overset{*}{C}H_2 = CH - \overset{O}{\parallel} C^* - O - H$
 - b. $CH_3 - \overset{*}{C}H_2 - OH$
 - c. $CH_3 - CH_2 - \overset{O}{\parallel} C^* - H$



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