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| Questions from Competitive examinations   1. The Correct decreasing order of ionic character is 2. BeS>Li2S>LiCl>NaCl>KF 3. LiCl>NaCl>KF> BeS>Li2S> 4. NaCl > LiCl > KF > BeS>Li2S 5. KF> LiCl>NaCl> BeS>Li2S 6. If distance between H-atom number 1 and 2 is x, what will be the distance between H atoms numbered 1 and 3? 7. X 8. 2x 9. 3x 10. 4x 11. Which of the following has highest net dipole moment? 12. CO2 13. BF3 14. NH3 15. NF3 16. Which of the following is the correct order of increasing polarity? 17. P-H > C-Cl > H-O 18. O-H> C-Cl > P-H 19. C-Cl> P-H> H-O 20. None of these 21. NF3 is pyramidal while BF3 is triangular planar due to 22. N is sp2 hybridized while B is sp3 hybridized 23. N is sp3 hybridized while B is sp2 hybridized 24. N has 4 electron pairs while B has 3 electron pairs 25. Both b and c are correct 26. In which of the following pair of compounds, the first one has smaller bond angle: 27. CO2 , BF3 28. CH4, NH3 29. H2O, H2S 30. SiF4, C2H2 31. State the hybridization of C atoms numbered 1, 2 and 3   H≡C-CH2-CH2-C(OH)=O  1 2 3   1. sp, sp3, sp2 2. sp3, sp2, sp 3. sp3, sp, sp2 4. none of these 5. Which of the following is incorrectly matched 6. H3O+, sp3 pyramidal 7. XeF2, sp3d2 linear 8. XeF4, sp3d2 square planar 9. NH3, sp3 pyramidal 10. Which of the following is correct regarding properties indicated 11. H2+ = H2- (bond order) 12. H2+ = H2- (stability) 13. H2+ = H2- (no. of antibonding electrons) 14. H2+ = H2- (no. of bonding electrons) 15. Energy required to dissociate 4 g of gaseous hydrogen into free gaseous atoms is 208 Kcal at 25oC the bond energy of H-H bond will be 16. 104 Kcal 17. 10.4 Kcal 18. 20.8 Kcal 19. 41.6 Kcal 20. Calculate the % of ionic character of a bond having length 0.92 Å and 1.91 D as its observed dipole moment 21. 43.25 22. 86.5 23. 8.65 24. 43.5 25. Which of the following is the strongest bond?   a)F-F  b) F-Cl  c) F-Br  d) Cl-Br   1. Hybridization of Sulphur in SF4 is: 2. sp3 3. sp3d 4. dsp2 5. sp3d2 6. The basicity of the lone pair on nitrogen atom of NF3 7. Is equal to that on the nitrogen atom on NH3 8. Is greater than that on the nitrogen atom of NH3 9. Is less than that on the nitrogen of NH3 10. None of these 11. The p-p overlapping is present in which of the following molecules 12. Hydrogen 13. Hydrogen Bromide 14. Hydrogen Chloride 15. Chlorine 16. The dipole moment of CHCl3 is 1.05D whereas the dipole moment of CCl4 is zero. This is because of 17. Square planar structure 18. Linear structure 19. Tetrahedral structure 20. Octahedral structure 21. Intramolecular hydrogen bonding is present in 22. p-hydoxybenzoic acid 23. glycolic acid 24. paracetamol 25. o-hydroxybenzoic acid 26. Which of the following is isoelectronic with sodium ion? 27. Magnesium ion 28. Calcium ion 29. Rubidium ion 30. Potassium ion 31. If the bond lengths of C≡C, C≡N are x and y Å respectively, N≡N bond length is given by: 32. X+2y 33. X-2y/2 34. X+y 35. 2y-x 36. Which among the following have bent structure? 37. H2O 38. Cl2O 39. F2O 40. Li2O 41. Most polar bond among the following is 42. C-F 43. N-F 44. O-F 45. F-F   More Questions  Question 1 |
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In allene (C3H4), the type(s) of hybridisation of the carbon atoms is (are) **[IIT JEE 2012]**

|  |  |  |
| --- | --- | --- |
| A | sp and sp3 | |
| B | sp and sp2 | |
| C | Only sp2 | |
| D | sp2 and sp3 | |
|  |  | |
| 2 | |

The sp3d2 hybridization of central atom of a molecule would lead to **[West Bengal JEE 2011]**

|  |  |
| --- | --- |
| A | square planar geometry |
| B | Tetrahedral geometry |
| C | Trigonal bipyramidal geometry |
| D | Octahedral geometry |

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| Question 3 |

Hybridization of C2 and C3 of

H3C – CH = C = CH – CH3 are **[West Bengal JEE 2011]**

|  |  |
| --- | --- |
| A | sp, Sp3 |
| B | sp2, Sp |
| C | sp2, sp2 |
| D | sp, sp |
| Question 4 | | |

Which one of the following is paramagnetic? **[West Bengal JEE 2011]**

|  |  |
| --- | --- |
| A | N2 |
| B | NO |
| C | CO |
| D | O3 |

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| Question 5 |

Among the following the maximum covalent character is shown by the compound **[AIEEE 2011]**

|  |  |
| --- | --- |
| A | MgCl2 |
| B | FeCl2 |
| C | SnCl2 |
| D | AlCl3 |
| Question 6 | | |

The hybridization of orbitals of N atom in NO3–, NO2+ and NH4+ are respectively **[AIEEE 2011]**

|  |  |
| --- | --- |
| A | sp2, sp3, sp |
| B | sp, sp2, sp3 |
| C | sp2, sp, sp3 |
| D | sp, sp3, sp2 |

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| Question 7 |

The number of types of bonds between two carbon atoms in calcium carbide is **[AIEEE 2011]**

|  |  |  |
| --- | --- | --- |
| A | Two sigma, two pi | |
| B | One sigma, two pi | |
| C | One sigma, one pi | |
| D | Two sigma, one pi | |
| Question 8 | |

The structure of IF7 is **[AIEEE 2011]**

|  |  |
| --- | --- |
| A | Pentagonal bipyramid |
| B | Square pyramid |
| C | Trigonal bipyramid |
| D | Octahedral |

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| Question 9 |

Which of the following has maximum number of lone pairs associated with Xe? **[AIEEE 2011]**

|  |  |
| --- | --- |
| A | XeF2 |
| B | XeO3 |
| C | XeF4 |
| D | XeF6 |
| Question 10 | | |

Peroxide ion \_\_\_\_\_\_[.](http://www.questionpapers.net.in/chemistry_questions.html)

a) is diamagnetic.

b) has five completely filled antibonding molecular orbitals.

c) is isoelectronic with neon.

d) has bond order one.

10. Which one of these is correct? **[Karnataka CET 2010]**

|  |  |
| --- | --- |
| A | a), b) and d) |
| B | d) and c) |
| C | a) and d) |
| D | a), b) and c) |

|  |
| --- |
| Question 11 |

Malleability and ductility of metals can be accounted due to **[Karnataka CET 2008]**

|  |  |  |
| --- | --- | --- |
| A | the presence of electrostatic force | |
| B | the crystalline structure in metal | |
| C | the capacity of layers of metal ions to slide over the other | |
| D | the interaction of electrons with metal ions in the lattice | |
| Question 12 | |

The maximum number of hydrogen bonds that a molecule of water can have is **[Karnataka CET 2008]**

|  |  |
| --- | --- |
| A | 1 |
| B | 2 |
| C | 3 |
| D | 4 |

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| Question 13 |

During the formation of a chemical bond **[Karnataka CET 2007]**

|  |  |  |
| --- | --- | --- |
| A | energy decreases | |
| B | energy increases | |
| C | energy of the system does not change | |
| D | electron-electron repulsion becomes more than the nucleus-electron attraction | |
| Question 14 | |

Which of the following species contains three bond pairs and one lone pair around the central atom? **[CBSE AIPMT 2012]**

|  |  |
| --- | --- |
| A | NH2- |
| B | PCl3 |
| C | H2O |
| D | BF3 |

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| Question 15 |

Which one of the following pairs is isostructural (i.e. having the same shape and hybridization)? **[CBSE AIPMT 2012]**

|  |  |
| --- | --- |
| A | [NF3 and BF3] |
| B | BF4- and NH4+ |
| C | [BCl3 and BrCl3]4 |
| D | [NH3 and NO3- |