

Overlapping- σ and π - bonds

1. Triple bond in ethyne is formed from
 - (a) Three sigma bonds
 - (b) Three pi bonds
 - (c) One sigma and two pi bonds
 - (d) Two sigma and one pi bond
2. The bond in the formation of fluorine molecule will be
 - (a) Due to PCl_5 overlapping
 - (b) Due to $s - p$ overlapping
 - (c) Due to $H_2O_2 > O_3 > O_2$ overlapping
 - (d) Due to hybridization
3. Which type of overlapping results the formation of a π bond
 - (a) Axial overlapping of $s - s$ orbitals
 - (b) Lateral overlapping of $p - p$ orbitals
 - (c) Axial overlapping of $p - p$ orbitals
 - (d) Axial overlapping of $s - p$ orbitals
4. The number and type of bonds between two carbon atoms in calcium carbide are
 - (a) One sigma, one pi
 - (b) One sigma, two pi
 - (c) Two sigma, one pi
 - (d) Two sigma, two pi
5. In a double bond connecting two atoms, there is a sharing of
 - (a) 2 electrons
 - (b) 1 electron
 - (c) 4 electrons
 - (d) All electrons
6. Strongest bond is
 - (a) $C - C$
 - (b) $C = C$
 - (c) $C \equiv C$
 - (d) All are equally strong
7. π bond is formed
 - (a) By overlapping of atomic orbitals on the axis of nuclei
 - (b) By mutual sharing of pi electron
 - (c) By sidewise overlapping of half filled p -orbitals
 - (d) By overlapping of s -orbitals with p -orbitals
8. The double bond between the two carbon atoms in ethylene consists of
 - (a) Two sigma bonds at right angles to each other
 - (b) One sigma bond and one pi bond
 - (c) Two pi bonds at right angles to each other
 - (d) Two pi bonds at an angle of 60° to each other



9. In the series ethane, ethylene and acetylene, the $C-H$ bond energy is
- The same in all the three compounds
 - Greatest in ethane
 - Greatest in ethylene
 - Greatest in acetylene
10. In a sigma bond
- Sidewise as well as end to end overlap of orbitals take place
 - Sidewise overlap of orbitals takes place
 - End to end overlap of orbitals takes place
 - None of the above
11. The number of sigma and pi bonds in 1-butene-3-yne are
- 5 sigma and 5 pi
 - 7 sigma and 3 pi
 - 8 sigma and 2 pi
 - 6 sigma and 4 pi
12. The most acidic compound among the following is
- CH_3CH_2OH
 - C_6H_5OH
 - CH_3COOH
 - $CH_3CH_2CH_2OH$
13. Which of the following is not correct
- A sigma bond is weaker than π bond
 - A sigma bond is stronger than π bond
 - A double bond is stronger than a single bond
 - A double bond is shorter than a single bond
14. Strongest bond formed, when atomic orbitals
- Maximum overlap
 - Minimum overlap
 - Overlapping not done
 - None of them
15. The $p-p$ orbital overlapping is present in the following molecule
- Hydrogen
 - Hydrogen bromide
 - Hydrogen chloride
 - Chlorine
16. In N_2 molecule, the atoms are bonded by
- One σ , Two π
 - One σ , One π
 - Two σ , One π
 - Three σ bonds





17. In which of following there exists a $p\pi - d\pi$ bonding
- (a) Diamond (b) Graphite
(c) Dimethyl amine (d) Trisilylamine
18. Number of bonds in SO_2
- (a) Two σ and two π
(b) Two σ and one π
(c) Two σ , two π and one lone pair
(d) None of these
19. Which of the following has $p\pi - d\pi$ bonding
- (a) NO_3^- (b) CO_3^{2-}
(c) BO_3^{3-} (d) SO_3^{2-}
20. Number of sigma bonds in P_4O_{10} is
- (a) 6 (b) 7
(c) 17 (d) 16

