

Topic :- Chemical Bonding and Molecular Structure

- 2 (a)
Geometry is explained by taking an account of single bonds only. However, presence of double bond may distort bond angles, e.g., HCHO has sp^2 -hybridization but angle H—C—H is 116° and angle H—C—O is 122° due to double bond. In BF_3 (sp^2 -hybridization) each angle is of 120° .
- 3 (d)
The shape of carbon dioxide is linear because it has sp hybridisation and bond angle 180° .
 $O = C = O$
- 4 (a)
Addition of electrons to an atom results an increase in its size.
- 5 (d)
 H_2O is V shaped.
- 6 (c)
In diethyl ether oxygen undergoes sp^3 hybridisation forming four sp^3 hybrid orbitals.
- 7 (a)
As soon as the electronegativity increases, ionic bond strength increases
- 8 (a)
Both are linear.
- 9 (c)
In spite of three polar bond, the lone pair of electron on N atom decreases the dipole moment of NF_3 than NH_3 .
- 10 (c)
Polarity in a molecule gives rise to an increase in forces of attractions among molecules and thus, more becomes boiling point.
- 12 (a)
The melting point of naphthalene is minimum because it is non – polar covalent compound and has less melting point.
- 13 (c)
 BF_3 is a electron deficient compound. So, it has no lone pair orbital over B atom.
- 14 (c)
Molecular orbital theory was given by Mulliken.
- 15 (d)

The trigonal geometry of BF_3 with three vectors (B→F) acting at 120° leads to zero dipole moment. In NH_3 three vectors (N←H) act as 107° along with one lone pair giving dipole moment in molecule.

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(d)

Proton (H^+) can only accept a lone pair from donor atom.

17

(d)

Each has 10 electrons

18

(d)

Isomerism is arised due to directional nature of covalent bonding.

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(b)

SF_4 has sp^3d -hybridized sulphur atom.

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(c)

$SbCl_5^{2-}$ has sp^3d^2 -and rest all has sp^3d -hybridisation.

PE

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	d	a	d	a	d	c	a	a	c	c
Q.	11	12	13	14	15	16	17	18	19	20
A.	d	a	c	c	d	d	d	d	b	c

PE