DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : CHEMISTRY
DPP No. : 8

Topic :- Chemical Bonding and Molecular Structure

1 **(b)**
e.g., BF_3.

2 **(d)**
Bond order for $H_2^- = +1/2$

3 **(b)**
sp-hybridization leads to bond angle of 180°.

4 **(c)**
$\mu\ H_2O \neq 0$, $\mu_{CO_2} = 0$

5 **(b)**
No. of hybrid orbital $= \frac{1}{2}$[No.of e^- in V-shell of atom + No.of monovalent atoms –charge on cation +charge on anion]

No. of hybrid orbital	2	3	4	5	6	7
Type of hybridisation	sp	sp^2	sp^3	sp^3d	sp^3d^2	sp^3d^3

Hybridisation in $TeCl_4$:
No. of hybrid orbital $= \frac{1}{2}[6 + 4 + 0 + 0] = 5$
Hence, $TeCl_4$ shows sp^3d hybridisation.

6 **(a)**
The stability and bond angle order for hybrids in a group is $NH_3 > PH_3 > AsH_3 > SbH_3 > BiH_3$.

7 **(c)**
Isoelectronic species are those species which have equal number of electrons. Hence, CO_2 is isoelectronic with N_2O.
Number of electron in CO_2 =22
Number of electron in N_2O =22

8 **(d)**
In $BeCl_2$, Be atom has incomplete octet.

9 **(a)**
Greater the charge, smaller the radius, greater the polarising power and thus greater the covalent nature. This leads to increase in lattice energy.

10 **(c)**
The structure, $CH_2 = C = CH_2$ is non-planar with two $-CH_2$ groups being in planes

perpendicular to each other.

12 **(d)**

Electronegativity increases along the period and decreases down the group.

13 **(a)**

Brass in an alloy.

14 **(c)**

It is head on overlapping and thus, forms more stronger bond.

15 **(c)**

H-bonding in molecule gives rise to increase in its b.p.

16 **(b)**

One bonding molecular orbital and one antibonding.

17 **(a)**

Follow Fajans' rule.

18 **(b)**

Removal of two electrons (one by one) from an atom requires energy $= IP_1 + IP_2$.

19 **(c)**

The molecular orbital electronic configuration.

$(\sigma 1s)^2(\overset{*}{\sigma} 1s)^2(\sigma 2s)^2\ (\overset{*}{\sigma} 2s)^2(\sigma 2p_x)^2$

$(\pi 2p_y)^2(\pi 2p_z)^2(\pi \overset{*}{2p_y})^2\ \ (\overset{*}{\pi} 2p_z)^1$

Total electrons $=17$

Hence, this configuration belongs to O_2^- $(17e^-)$ ion.

20 **(a)**

$H_3O^+ : sp^3$; $NO_3^- : sp^2$

ANSWER-KEY										
Q.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A.	**B**	**D**	**V**	**C**	**B**	**A**	**C**	**D**	**A**	**C**
Q.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A.	**C**	**D**	**A**	**C**	**C**	**B**	**A**	**B**	**C**	**A**