CHEMISTRY

91. (4)

In phenol each C atom is sp^2 hybridised and O atom is sp^3 hybridised.

92. (1)

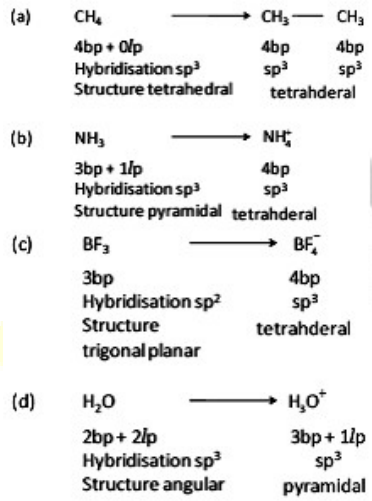
In BrF_5 number of electrons = 6

(1*l*p + 5 bp)

So, the structure is supposed to be square pyramidal but will be distorted because of additional *l*p-bp interaction.

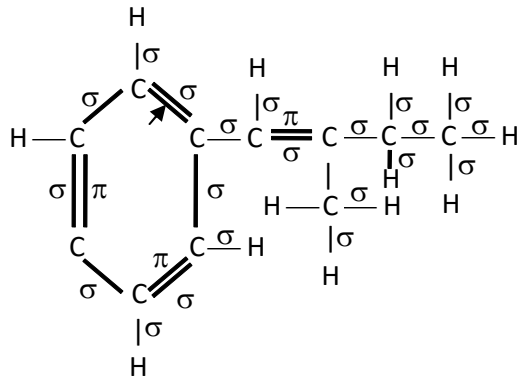
Additional *l*p-bp interaction reduced the all bond angle and do not let any angle to be 90°.

93. (3)



Thus conversion of BF_3 into BF_4^- involves changes in both hybridization and shape.

94. (3)



25 σ and 4π-bonds

95. (2)

In C_2H_6, C is sp^3 hybridised.

In C_2H_4, C is sp^2 hybridised.

In $BeCl_2$, Be is sp hybridised.

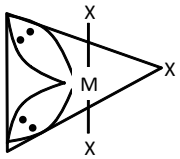
In C_2H_2, C is sp hybridised.

96. (3)

Since, the geometry of AsF_5 molecule is trigonal bipyramidal it is sp^3d hybridised. Thus, s, p_x, p_y, p_z and d_{z2} orbitals are utilized by as atom from bonding.

97. (2)

The formula of MX_3 shows the presence of 3σ bonds. Since, it has T-shape geometry, it must contain 2 lone pairs as



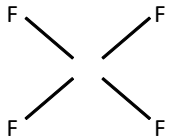
98. (2)

Molecule	Hybridization
SO_3	sp^2
C_2H_2	sp
C_2H_4	sp^2
CH_4	sp^3
CO_2	sp

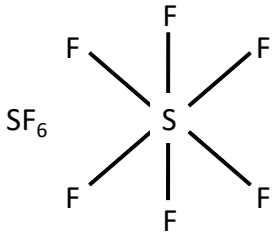
Hence, the hybrid state of S in SO_3 is similar to that of C in C_2H_4.

99. (3)

Total number = 4 → sp^3 hybridization



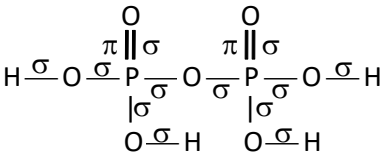
Total number = 5 → sp^3d hybridization



Total number = 6 → sp^3d^2 hybridization

100. (4)

Draw bond structure and then count bonds.



⇒ 12σ, 2π bonds.