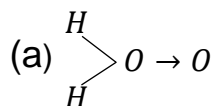
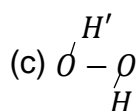


### Hybridisation

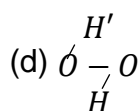
41. Structure formula of  $H_2O_2$  is



- (b)  $H - O - O - H$  (straight line)



Where  $\angle H - O - O = \angle O - O - H' = 101.5^\circ$  and all the four atoms are in the same plane



Where  $\angle H - O - O = \angle O - O - H' = 97^\circ$  and the angle between  $H - O - O$  plane and  $O - O - H'$  plane is  $101^\circ$

42. Number of shared electrons in between carbon-carbon atoms in ethylene molecule is

- (a) 2 (b) 4  
(c) 6 (d) 3

43. The structural formula of a compound is  $CH_3 - CH = C = CH_2$ . The type of hybridization at the four carbons from left to right are

- (a)  $sp^2, sp, sp^2, sp^3$   
(b)  $sp^2, sp^3, sp^2, sp$   
(c)  $sp^3, sp^2, sp, sp^2$   
(d)  $sp^3, sp^2, sp^2, sp^2$

44. Acetate ion contains

- (a) One C, O single bond and one C, O double bond  
(b) Two C, O single bonds  
(c) Two C, O double bonds  
(d) None of the above

45. The two carbon atoms in acetylene are

- (a)  $sp^3$  hybridized  
(b)  $sp^2$  hybridized  
(c)  $sp$  hybridized  
(d) Unhybridized

46. Among the following compounds which is planar in shape

- (a) Methane (b) Acetylene  
(c) Benzene (d) Isobutene

47. In methane the bond angle is

- (a)  $180^\circ$  (b)  $90^\circ$   
(c)  $120^\circ$  (d)  $109^\circ$

48. The angle between  $sp^2$  orbitals in ethylene is

- (a)  $90^\circ$  (b)  $120^\circ$



- (c)  $180^\circ$  (d)  $109.5^\circ$
49. The species in which the central atom uses  $sp^2$  hybrid orbitals in its bonding is  
 (a)  $PH_3$  (b)  $NH_3$   
 (c)  $H_3C^+$  (d)  $SbH_3$
50. Carbon atoms in diamond are bonded to each other in a configuration  
 (a) Tetrahedral (b) Planar  
 (c) Linear (d) Octahedral
51. Which of the following molecules can central atom said to adopt  $sp^2$  hybridization  
 (a)  $BeF_2$  (b)  $BCl_3$   
 (c)  $C_2H_2$  (d)  $NH_3$
52. In  $[Cu(NH_3)_4]SO_4$ ,  $Cu$  has following hybridization  
 (a)  $dsp^2$  (b)  $sp^3$   
 (c)  $sp^2$  (d)  $sp^3d^2$
53. The hybridization of carbon atoms in  $C - C$  single bond of  $HC \equiv C - CH = CH_2$  is  
 (a)  $sp^3 - sp^3$  (b)  $sp^2 - sp^3$   
 (c)  $sp - sp^2$  (d)  $sp^3 - sp$
54. The compound in which  $C^+$  uses  $sp^3$  hybrids for bond formation is  
 (a)  $H \leftrightarrow \overset{+}{C} \leftrightarrow OOH$   
 (b)  $(NH_2)_2 \leftrightarrow \overset{+}{C} \leftrightarrow O$   
 (c)  $(NH_3)_3 \leftrightarrow \overset{+}{C} \leftrightarrow OHHgCl_2$   
 (d)  $CH_3 \leftrightarrow \overset{+}{C} \leftrightarrow HO$
55. In diborane, the  $H - B - H$  bond angle is  $120^\circ$ . The hybridization of boron is likely to be  
 (a)  $sp$  (b)  $sp^2$   
 (c)  $sp^3$  (d)  $dsp^2$
56. The number of shared pairs of electrons in propane is  
 (a) 2 (b) 4  
 (c) 6 (d) 10
57. s-character in  $sp$  hybridised orbitals are  
 (a)  $\frac{1}{3}$  (b)  $\frac{1}{2}$   
 (c)  $\frac{1}{4}$  (d)  $\frac{2}{3}$



58. The two types of bonds present in  $B_2H_6$  are covalent and
- (a) Three centre bond
  - (b) Hydrogen bond
  - (c) Two centre bond
  - (d) None of the above

?

59. In the compound  $CH_3 OCl$ , which type of orbitals have been used by the circled carbon in bond formation

- (a)  $sp^3$
- (b)  $sp^2$
- (c)  $sp$
- (d)  $p$

60. The correct order of the  $O - O$  bond length in  $O_2$ ,  $H_2O_2$  and  $O_3$  is

- (a)  $O_2 > O_3 > H_2O_2$
- (b)  $O_3 > H_2O_2 > O_2$
- (c)  $H_2O_2 > O_3 > O_2$
- (d)  $O_2 > H_2O_2 > O_3$

