

X<sup>th</sup> CBSE  
Chemistry  
Solutions

Date - 29.10.2018

Ans 1. The two allotropic forms of carbon are

- (i) Diamond
- (ii) Graphite

Ans 2. The two properties of carbon which lead to the huge number of carbon compounds are:

- (i) The self-linking of carbon atoms through covalent bonds is called catenation.

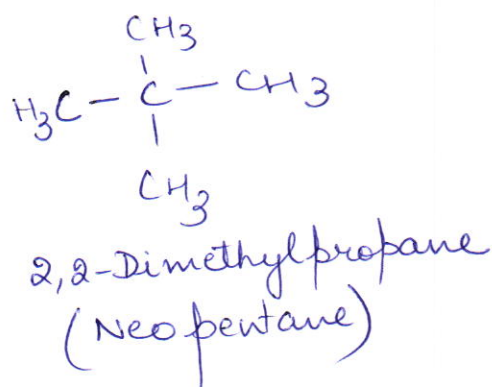
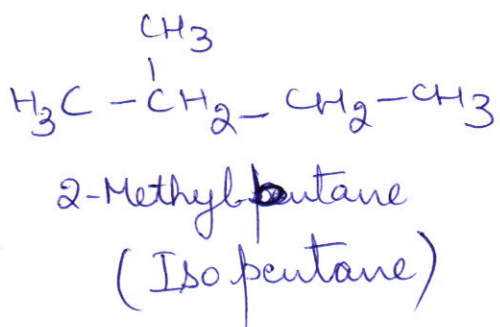
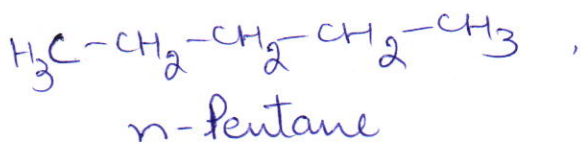
- (ii) Tetravalency of carbon: Due to tetravalency of carbon, it can form bonds either with four other atoms of carbon or some other elements. In fact, due to small size, carbon forms strong bond with many elements such as hydrogen, oxygen, nitrogen, sulphur, halogen etc.

Ans 3(a) Homologous series

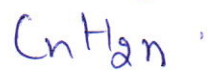
A homologous series may be defined as a family of organic compound having the same functional group, similar chemical properties and the successive members of which differ by a  $\text{CH}_2$  group or 14 mass units. For eg -

$\text{CH}_3\text{OH}$  (methanol),  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$  (Propanol)  
 $\text{CH}_3\text{CH}_2\text{OH}$  (ethanol),  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$  (butanol)

Ans 3 (b)

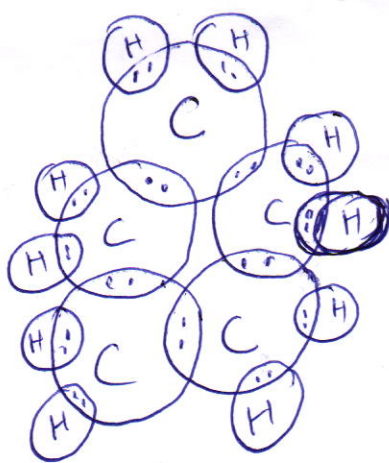
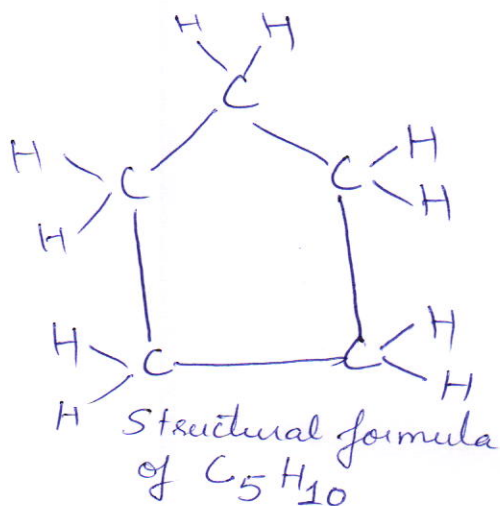


Ans 4. The general formula of cycloalkane is  $(\text{C}_n\text{H}_{2n})$



Putting  $n=5$  in this general formula, the formula of cyclopentane is  $\text{C}_5\text{H}_{2 \times 5} = \text{C}_5\text{H}_{10}$ .

Cyclopentane has 5 carbon atoms in the form of a pentagonal ring which are connected by single bonds. The structural formula and electron-dot structure of cyclopentane are given below:

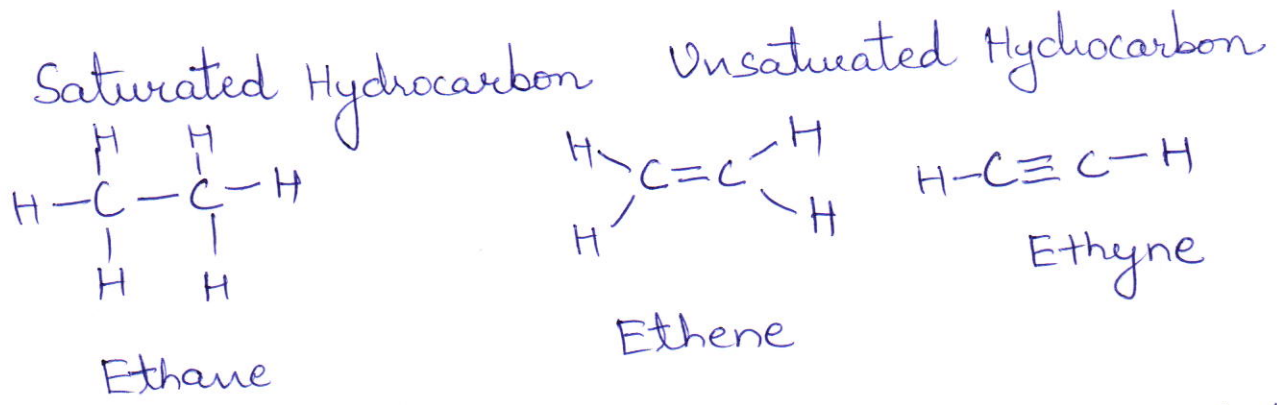




Ans 6 (a)  $>C=O$  (keto group) (b)  $-COOH$  (carboxylic group)  
 (c)  $-CHO$  (aldehyde group) (d)  $-OH$  (hydroxyl group)

Ans 7. (a) Compounds of carbon and hydrogen only are called hydrocarbons.  
 For eg methane ( $CH_4$ ), ethane ( $C_2H_6$ )

(b) Saturated hydrocarbons contain only C-C and C-H single covalent bonds while unsaturated hydrocarbons contain C=C double bond and  $C\equiv C$  triple bonds.



(c) That portion of the organic molecule which largely determines its chemical properties is called the functional group. For eg  $-OH$  (hydroxyl),  $>C=O$  (keto group),  $-CHO$  (aldehyde gp),  $-COOH$  (carboxyl group) etc.