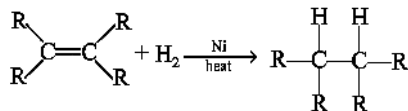


SCIENCE

Carbon and its Compounds

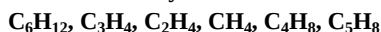
4. With the help of a suitable example explain in brief the process of hydrogenation mentioning the conditions for the reaction and also state any one physical property of substances which changes due to hydrogenation.

Ans:



When unsaturated hydrocarbons are heated with hydrogen in presence of nickel as catalyst, saturated hydrocarbons are formed. If the starting unsaturated hydrocarbons are liquids, they will change into solids. Vegetable oils are hydrogenated to form vegetable ghee by hydrogenation process

5. Select alkene and alkyne from the following:



Ans: Alkenes: C_6H_{12} , C_2H_4 , C_4H_8

Alkynes: C_3H_4 , C_5H_8

6. What is the IUPAC name of

(i) $\text{CH}_3-\text{CH}_2-\text{CH}=\text{CH}_2$ (ii) CH_3CHO

Ans: (i) but-1-ene (ii) Ethanal

7. Explain why carbon generally forms compounds by covalent bonds.

Ans: Carbon cannot lose four electrons easily because very high energy is required. It cannot gain four electrons easily because six protons cannot hold 10 electrons. It can easily share four electrons forming covalent bonds.

8. Write IUPAC names of

(i) $\text{CH}_3\text{COCH}_2\text{CH}_3$ (ii) $\text{CH}_3-\text{CH}-\text{CH}_3$

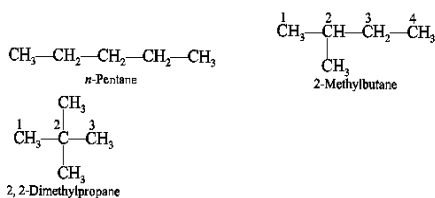


(iii) HCOOH (iv) $\text{CH}_3\text{COOCH}_3$

Ans: (i) Butanone (ii) 2-Propanol
(iii) Methanoic acid (iv) Methyl ethanoate

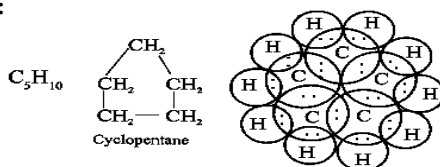
9. How many structural isomers can you draw for pentane?

Ans: There are three possible structural isomers of pentane.



10. What will be the formula and electron dot structure of cyclopentane?

Ans:

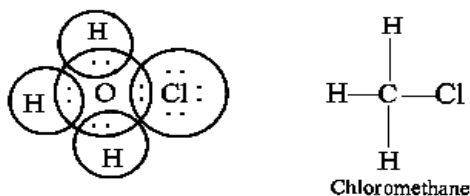


11. People use a variety of methods to wash clothes. Usually after adding the soap, they 'beat' the clothes on stone, or beat it with a paddle, scrub with a brush or the mixture is agitated in a washing machine. Why is agitation necessary to get clean clothes?

Ans: It is because dirt and grease are strongly attracted towards the clothes, therefore, beating or scrubbing with a brush or agitation in machine is necessary to overcome the force of attraction between fibre and dirt. Secondly, it will produce heat, which helps in removing dirt and grease from fibres.

12. Explain the nature of the covalent bond using the bond formation of CH_3Cl .

Ans: Carbon has four valence electrons. It shares one electron with chlorine and one electron each with three hydrogen atoms.

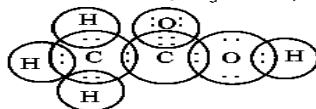


13. Draw the electron dot structures for:

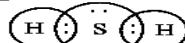
(i) Ethanoic acid (ii) H_2S
(iii) Propanone (iv) F_2

Ans:

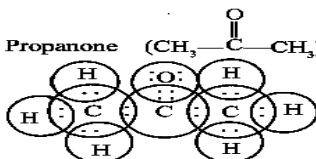
(i) Ethanoic acid (CH_3COOH)



(ii) H_2S



(iii) Propanone ($\text{CH}_3-\text{C}(=\text{O})-\text{CH}_3$)



(iv) F_2



(Contd.....)