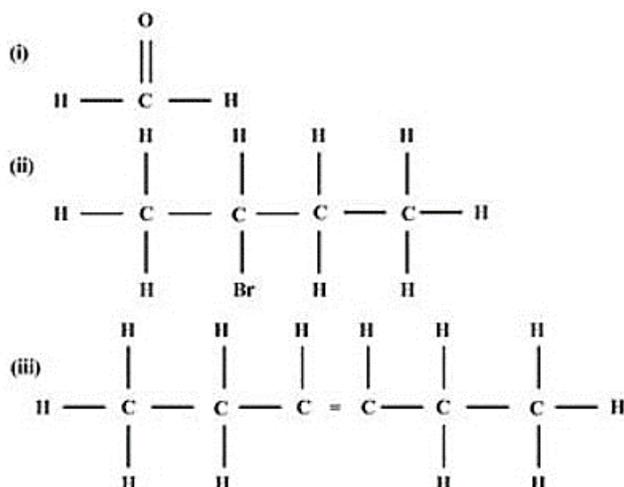


Board – CBSE

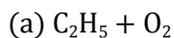
Class –10th

Chapter – Carbon and its compounds

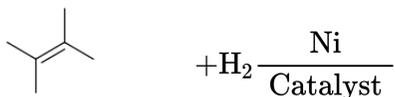
- Why does carbon form the largest number of compounds? Give two reasons.
  - Why are some of these called saturated and the other unsaturated compounds?
  - Which of these two is more reactive and why?
- Why does carbon form strong bonds with other carbon atoms, hydrogen, oxygen, nitrogen or sulphur?
- An organic compound A is widely used as a preservative in pickles and has a molecular formula  $C_2H_4O_2$ . This compound reacts with ethanol to form a sweet smelling compound B;
  - Identify the compound A.
  - Write the chemical equation for its reaction with ethanol to form compound B.
  - How can we get compound A back from B?
- Why is the reaction between methane and chlorine considered a substitution reaction?
- Define the term functional group. Identify the functional group present in the following compounds:
  - $CH_3-CH_2-CH_2-OH$
  - HCHO
- What will you observe on adding a 5% alkaline potassium permanganate solution drop by drop to some warm ethanol taken in a test tube? Write the name of the compound formed during the above chemical reaction.
- Write the structures of the following compounds.
  - Formic acid
  - 2-pentanone
  - Heptanal
- Give IUPAC name of the following compounds.



9. Classify following into alkanes, alkenes and alkynes:  
 $\text{CH}_4$ ,  $\text{C}_2\text{H}_2$ ,  $\text{C}_4\text{H}_6$ ,  $\text{C}_2\text{H}_4$ ,  $\text{C}_3\text{H}_6$ ,  $\text{C}_2\text{H}_6$ ,  $\text{C}_3\text{H}_8$ ,  $\text{C}_3\text{H}_4$  Give reasons.
10. Differentiate between addition reaction and substitution reaction shown by hydrocarbons.
11. Why do covalent compounds have low boiling and melting point?
12. Write the formula and name of the next homologue of:  
 (i)  $\text{CH}_3\text{CH}=\text{CH}_2$  and (ii)  $\text{CH}_3\text{-CO-CH}_3$
13. How do ionic compounds differ from covalent compounds?
14. (a) State the role of concentrated sulphuric acid in the esterification reaction.  
 (b) Write one use of ester.
15. Give 2 characteristics of a homologous series.
16. Give reasons for the following observations:  
 (a) The element carbon forms a very large number of compounds.  
 (b) Air holes of a gas burner have to be adjusted when the heated vessels get blackened by the flame.  
 (c) Use of synthetic detergents causes pollution of water.
17. Write the names and molecular formula of two organic compounds having functional group suffixed as '-oic acid'. With the help of a balanced chemical equation and explain what happens when any one of them reacts with sodium hydroxide.
18. Draw the structure of butanone molecule,  $\text{CH}_3\text{COC}_2\text{H}_5$
19. Complete the following reactions and name the main product formed in each case.



(b)



20. Complete the following reactions and name the main product formed in each case



21. What are esters? How are they prepared? Give an example and write the chemical reaction involved.
22. Write and explain the structure of an alkane with two carbon atoms.
23. Discuss the drawback of using soaps over detergents for the cleansing process.
24. Give a chemical test to distinguish between saturated and unsaturated hydrocarbons.
25. Explain the cleaning action of soap. Why does soap not work in hard water?
26. Would you be able to check if water is hard by using a detergent?