



NCERT Ch-4 Carbon and its Compounds

Class X Science Antim 1.0

1. Write the molecular formula of the following carbon compounds:

(i) Methane

(ii) Propane

(b) Carbon compounds have low melting and boiling points. Why? (2022)

2.(a) Draw two different possible structures of a saturated hydrocarbon having four carbon atoms in its molecule.

What are these two structures of the hydrocarbon having same molecular formula called? Write the molecular formula and the common name of this compound. Also write the molecular formula of its alkyne.(2022)

3.(i) Write the molecular formula of benzene and draw its structure.

(ii) Write the number of single and double covalent bonds present in a molecule of benzene.

(iii) Which compounds are called alkynes?(2022)

4. Write the name and the structural formula of the compound formed when ethanol is heated at 443K with excess of conc. H_2SO_4 . State the role of conc. H_2SO_4 in this reaction. Write chemical equation for the reaction. (2013)

5. Why homologous series of carbon compounds are so called? Write chemical formula of two consecutive members of a homologous series and state the part of these compounds that determines their (i) physical properties, and (ii) chemical properties. (2013)

6. (a) Define the term 'isomers'.

(b) Draw two possible isomers of the compound with molecular formula $\text{C}_3\text{H}_6\text{O}$ and write their names.

(c) Give the electron dot structures of the above two compounds. (2013)

7. State the meaning of functional group in a carbon compound. Write the functional group present in (i) ethanol and(ii) ethanoic acid and also draw their structures. (2014)

8. Write the name and general formula of a chain of hydrocarbons in which an addition reaction with hydrogen can take place. Stating the essential conditions required for an addition reaction to occur write the chemical equation giving the name of the reactant and the product of such a reaction. (2014)

9. State the reason why carbon can neither form C^{4+} cations nor C^{4-} anions, but forms covalent compounds. Also state reasons to explain why covalent compounds: (2014)

(i) are bad conductors of electricity?

(ii) have low melting and boiling points ?

10.(a)Write the name and formula of the 2nd member of homologous series having general formula C_nH_{2n} .

(b) Write the number of covalent bonds in the molecule of ethane. (2015)

11.Both soap and detergent are some type of salts. What is the difference between them? Describe in brief the cleansing action of soap. Why do soaps not form lather in hard water? List two problems that arise due to the use of detergents instead of soaps. (2015)

12.Draw the electron-dot structure for ethane. A mixture of ethane and oxygen is burnt for welding. In your opinion, why cannot we use a mixture of ethane and air for this purpose? (2015)

13.Name the process by which unsaturated fats are changed to saturated fats. (2015)

14. Write the molecular formula of the following compounds and draw their electron-dot structures: (2015)

- (i) Ethane
- (ii) Ethene
- (iii) Ethyne

15. Write the next homologue of each of the following : (2016)

- (i) C_2H_4
- (ii) C_4H_6

16. What are covalent compounds? Why are they different from ionic compounds? List their three characteristic properties. (2016)

17. When ethanol reacts with ethanoic acid in the presence of conc. H_2SO_4 a substance with fruity smell is produced. Answer the following :

- (i) State the class of compounds to which the fruity smelling compounds belong. Write the chemical equation for the reaction and write the chemical name of the product formed.
- (ii) State the role of conc. H_2SO_4 in this reaction. (2016)

18.(a) Give a chemical test to distinguish between saturated and unsaturated hydrocarbon.

(b) Name the products formed when ethane burns in air. Write the balanced chemical equation for the reaction showing the types of energies liberated.

(c) Why is reaction between methane and chlorine in the presence of sunlight considered a substitution reaction?

19. Write the molecular formula of the 2nd and the 3rd member of the homologous series whose first member is methane. (2017)

25. Distinguish between esterification and saponification reactions with the help of the chemical equations for each. State one use of each (i) esters, and (ii) saponification process. (2017)

20. A compound 'X' on heating with excess conc. sulphuric acid at 443 K gives an unsaturated compound 'Y'. 'X' also reacts with sodium metal to evolve a colourless gas 'Z'. Identify 'X', 'Y' and 'Z'. Write the equation of the chemical reaction of formation of 'Y' and also write the role of sulphuric acid in the reaction. (2018)

Question consists of two statements – Assertion (A) and Reason (R).

Answer these questions selecting the appropriate option given below : (2020)

Both (A) and (R) are true and (R) is the correct explanation of (A).

Both (A) and (R) are true but (R) is not the correct explanation of (A).

(A) is true, but (R) is false.

(A) is false, but (R) is true.

Assertion (A): Esterification is a process in which a sweet smelling substance is produced.

Reason (R): When esters react with sodium hydroxide an alcohol and sodium salt of carboxylic acid are obtained. (2020)