

INDIAN SCHOOL MUSCAT

QUESTION BANK

CLASS 10

CARBON AND ITS COMPOUNDS

1. What is the name given to the chemical bond 1
 - a) formed by sharing of electrons between two atoms?
 - b) formed by the transfer of electrons from one atom to another?
2. Draw the electron structure of simplest ketone. 1
3. Which of the following compounds has double bond: 1
 $C_4H_{10}, C_4H_6, C_4H_8$
4. Name a catalyst that can be used in the addition reaction of unsaturated hydrocarbon with hydrogen. 1
5. Identify the functional group present in C_2H_5OH 1
6. Give the name and structural formula of the next higher homologue of CH_3CHO 1
7. A hydrocarbon has six carbon atoms. Write the molecular formula of the alkane and alkyne it forms. 1
8. State one advantage of detergents over soaps. 1
9. Draw the structural formula of cyclohexane and benzene. 2
10. Why does carbon form bonds by sharing electrons and not by losing or gaining electrons? 2
11. Explain why 2
 - a) Diamond is hard whereas graphite is soft
 - b) Diamond is a poor conductor of electricity whereas graphite is a good conductor.
12. What do you understand by homologous series? State any two characteristics of a homologous series? 2
13. Explain the bond formation in the following 2

- a) Water
b) Carbon dioxide
14. What is meant by substitution reaction? What type of hydrocarbons show substitution reaction? Explain with an example. 3
15. Complete the following equations 3
- a) $\text{CH}_3\text{CH}_2\text{OH} + \text{CH}_3\text{COOH} \rightarrow$
b) $\text{CH}_3\text{CH}_2\text{OH} + \text{Na} \rightarrow$
c) $\text{CH}_3\text{COOH} + \text{Na}_2\text{CO}_3 \rightarrow$
16. What happens when ethanol is treated with alkaline potassium permanganate? Identify the type of reaction and write an equation for the same. 3
17. Explain the versatile nature of carbon to form large number of compounds. Also explain why carbon forms strong bonds? 3
18. a) Differentiate between saturated and unsaturated hydrocarbons? 5
b) How are saturated and unsaturated hydrocarbons identified using bromine water?
c) Identify unsaturated hydrocarbons from the following and draw their structural formula: $\text{C}_3\text{H}_4, \text{C}_3\text{H}_6, \text{C}_3\text{H}_8$
19. a) What do you understand by functional group? 5
b) Draw the structure of a chloroalkane with three carbon atoms and write its IUPAC name.
c) Identify the functional groups in the following and write their IUPAC names
i) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$ ii) $\text{CH}_3\text{CH}_2\text{CH}_2\text{COCH}_3$
20. a) Explain cleansing action of soap. 5
b) What are isomers? Draw all possible isomers of pentane.