

CARBON AND COMPOUNDS

DPP-I

A. Very Short Answer Type Questions

- Q.1** Write the formula of two homologous of propane (C_3H_8)
- Q.2** Give the general name of the class of compounds having the general formula C_nH_{2n-2}
- Q.3** Give the general formula of alkane
- Q.4** Give the IUPAC name
$$\begin{array}{c} CH_3 \\ | \\ CH_3-CH-CH_2-CH_3 \end{array}$$
- Q.5** Write the structural formulae for 2-methyl-2 butene
- Q.6** Write the formulae of Butanoic acid.
- Q.7** Write the chemical formula of the simplest hydrocarbon
- Q.8** Give two examples of unsaturated hydrocarbons
- Q.9** Give IUPAC name of following compounds
 $CH_3 - C \equiv C - CH_3$
- Q.10** Write the structural formulae of neo-pentane
- Q.11** Write the IUPAC name of the compound CH_3COOH
- Q.12** What is Vinegar ?
- Q.13** Will CH_3COOH be acidic, neutral or basic.
- Q.14** Complete the reaction
 $CH_3COOH + NaHCO_3 \rightarrow$
- Q.15** Write the molecular formulae of an alkane and an alkene with twenty carbon atoms.
- Q.16** Give the names of the following functional group.
– CHO, > CO
- Q.17** Name the functional groups present in the following compounds
(i) $CH_3CH_2CH_2COOH$
(ii) $CH_3CH_2CH_2OH$
- Q.18** To which group of the periodic table does carbon belong.

CARBON AND COMPOUNDS

DPP-II

A. Very Short Answer Type Questions

- Q.1 Name the main constituent of alcoholic drinks.
- Q.2 What are hydrocarbons?
- Q.3 Write the electronic configuration of carbon.
- Q.4 Name two allotropes of carbon
- Q.5 Write the name of C₆₀
- Q.6 What type of bonds are formed by carbon?

B. Short Answer Type Questions

- Q.7 Write the general formulae of alkanes, alkenes and alkynes.
- Q.8 An organic compound 'X' is a constituent of wine and beer. This compound on oxidation forms another organic compound 'Y' which is a constituent of vinegar. Identify the compounds 'X' and 'Y'. Write the chemical equation of the reaction that takes place to form the compound 'Y'.
- Q.9 What are alkynes?
- Q.10 Write the structural formulae of the isomers of n-butane.
- Q.11 What are hydrocarbons? Give two points of difference between saturated and unsaturated hydrocarbons.
- Q.12 Define isomers. Give one example of a hydrocarbon other than pentane having isomers.
- Q.13 Classify the following compounds as alkanes, alkenes and alkynes.
C₂H₄, C₃H₄, C₄H₈, C₅H₁₂, C₅H₈, C₃H₈, C₆H₆
- Q.14 Write two tests to demonstrate that acetic acid (ethanoic acid, CH₃COOH) is acidic in nature.+
- Q.15 What is meant by a functional group in an organic compound? Pick out and name the functional groups present in the following compounds
CH₃CH₂OH, CH₃COOH, CH₃COCH₃
- Q.16 What is homologous series ? State three characteristics of homologous series.
- Q.17 Write chemical equation for the reaction of
(i) ethanol with alkaline potassium permanganate
(ii) ethanoic acid with sodium hydrogen carbonate.
(iii) ethanol with oxygen
- Q.18 Give an example of each
(i) a straight chain hydrocarbon
(ii) branched chain hydrocarbon, and
(iii) ring chain hydrocarbon
- Q.19 What is alcohol ? Write the molecular formula condensed formula and structural formula of ethyl alcohol. What is its IUPAC name?
- Q.20 Write the formulae and names of first three carboxylic acid.
- Q.21 Write two tests to demonstrate that CH₃COOH is an acid. What do you understand by saponification of esters?
- Q.22 How does ethanoic acid react with
(i) Sodium metal
(ii) Sodium hydrogen carbonate
(iii) Soda lime
- Q.23 Complete the following reactions :
(i) CH₃CH₂OH $\xrightarrow{\text{Alc.KMnO}_4}$
(ii) C₂H₅OH + Na \longrightarrow
(iii) CH₃CH₂OH + O₂ \longrightarrow
- Q.24 Write the molecular formulae and names of lower and higher homologous of C₄H₆

CARBON AND COMPOUNDS DPP 3

FILL IN THE BLANKS

- Next homologous of ethane is _____
- Valency of carbon in ethene is _____
- The ability of carbon to form chains give rise to a _____ series of compounds.
- _____ is the soft crystalline form of carbon.
- _____ is the purest form of carbon.
- _____ and _____ are the two allotropes of carbon.
- Ethene burns in air to give CO_2 and _____
- Vinegar is _____ % solution of acetic acid in water.
- _____ is the newly discovered allotrope of carbon.
- The molecular mass of any two adjacent homologous differ by _____ amu.
- Hydrogenation of vegetable oil is _____ reaction.

TRUE/FALSE

- Carbon is a versatile element
- Methanol is the first member of the alcohol homologous series.
- Saturated hydrocarbon has double or triple covalent bond.
- Graphite is a bad conductor of electricity.
- Methane is the simplest saturated hydrocarbon.
- The next higher homologue of ethanol is propanol.
- Carbon forms covalent bonds with itself and other elements such as hydrogen, oxygen, sulphur, nitrogen and chlorine.
- Carbon and its compounds are some of our most important sources of energy.
- The functional group of bromo alkane is $-\text{Br}$.
- When hydrocarbon burn in air, CO_2 and H_2O are produced with heat energy.

MATCH THE FOLLOWING

In this section each question has two matching lists. Choices for the correct combination from column-I and Column-II are given as option (a), (b), (c) and (d) out of which one is correct.

1. Column I

- (P) $-\text{CHO}$
 (Q) $-\text{CONH}_2$
 (R) $-\text{NH}_2$
 (S) $-\text{OH}$

- a. P-1, Q-2, R-3, S-4
 b. P-4, Q-1, R-3, S-2
 c. P-2, Q-3, R-4, S-1
 d. P-3, Q-1, R-2, S-4

Column II

- (1) Alcohol
 (2) Aldehydes
 (3) Acid amides
 (4) Amines

2. Column I

- (P) Halogenation
 (Q) Oxidising agent
 (R) Soap
 (S) Ethylene

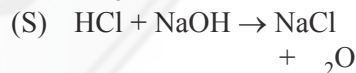
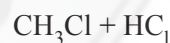
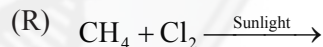
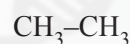
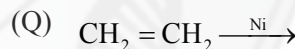
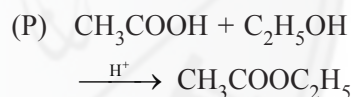
- a. P-3, Q-4, R-1, S-2
 c. P-2, Q-1, R-3, S-4

Column II

- (1) $\text{C}_{15}\text{H}_{31}\text{COONa}$
 (2) Dehydration
 (3) $\text{Cl}_2 + \text{UV light}$
 (4) Fumming HNO_3

- b. P-4, Q-1, R-2, S-3
 d. P-1, Q-2, R-4, S-3

3. Column I



- a. P-3, Q-4, R-1, S-2
 c. P-4, Q-1, R-2, S-3

Column II

- (1) Addition reaction
 (2) Substitution reaction
 (3) Neutralisation reaction
 (4) Esterification reaction

- b. P-1, Q-3, R-4, S-2
 d. P-2, Q-4, R-1, S-3

4. Column I

- (P) Alcohol
 (Q) Ketone
 (R) Aldehyde
 (S) Carboxylic acid

- a. P-1, Q-2, R-3, S-4
 c. P-4, Q-3, R-2, S-1

Column II

- (1) -al
 (2) -one
 (3) -ol
 (4) -oic acid

- b. P-2, Q-1, R-4, S-3
 d. P-3, Q-2, R-1, S-4