

QB365

Important Questions - Carbon and Its Compounds

10th Standard CBSE

Science

Reg.No. :

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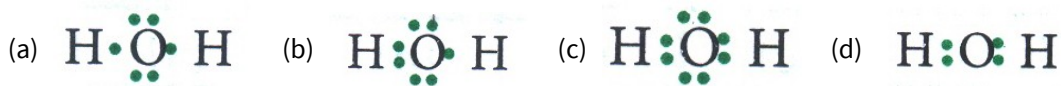
Time : 01:00:00 Hrs

Total Marks : 50

Section - A

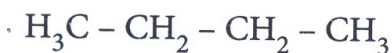
- 1) Butanone is a four-carbon compound with the functional group 1
(a) carboxylic acid (b) aldehyde (c) ketone (d) alcohol
- 2) Carbon exists in the atmosphere in the form of 1
(a) carbon monoxide only (b) carbon monoxide in traces and carbon dioxide (c) carbon dioxide only
(d) coal
- 3) $CH_3 - CH_2 - OH \xrightarrow{\text{Alkaline } KMnO_4 + \text{Heat}} CH_3 - COOH$ 1
In the above given reaction, alkaline $KMnO_4$ acts as
(a) reducing agent (b) oxidising agent (c) catalyst (d) dehydrating agent
- 4) Identify the unstructured compounds from the following 1
(i) Propane
(ii) Propene
(iii) Propyne
(iv) Chloropropane
(a) (i) and (ii) (b) (ii) and (iv) (c) (iii) and (iv) (d) (ii) and (iii)
- 5) Vinegar is a solution of 1
(a) 50% - 60% acetic acid in alcohol (b) 5% - 8% acetic acid in alcohol (c) 5% - 8% acetic acid in water
(d) 50% - 60% acetic acid in water
- 6) Which of the following does not belong to the same homologous series? 1
(a) CH_4 (b) C_2H_6 (c) C_3H_8 (d) C_4H_8
- 7) Which of the following represents saponification reaction? 1
(a) $CH_3COONa + NaOH \xrightarrow{CaO} CH_4 + Na_2CO_3$ (b) $CH_3COOH + C_2H_5OH \xrightarrow{H_2SO_4} CH_3COOC_2H_5 + H_2O$
(c) $2CH_3COOH + 2Na \rightarrow 2CH_3COONa + H_2$ (d) $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$
- 8) Structural formula of ethyne is 1
(a) $H - C \equiv C - H$ (b) $H_3 - C \equiv C - H$ (c) $\begin{array}{c} H & & H \\ & \diagdown & / \\ & C = C & \\ & / & \diagdown \\ H & & H \end{array}$ (d) $\begin{array}{c} H & & H \\ & \diagdown & / \\ & C = C & \\ & / & \diagdown \\ H & & H \end{array}$

9) The correct electron dot structure of a water molecule is 1



10) Which among the following are unsaturated hydrocarbons? 1

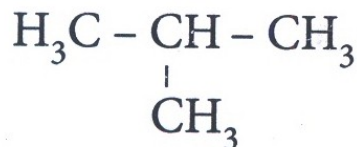
(i)



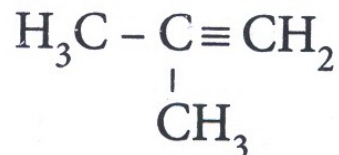
(ii)



(iii)



(iv)



(a) (i) and (iii) (b) (ii) and (iii) (c) (ii) and (iv) (d) (iii) and (iv)

Section - B

11) Why is the conversion of ethanol to ethanoic acid an oxidation reaction? 2

12) Draw the structure for the following compounds. 2

(i) Ethanoic acid

(ii) Bromopentane*

(iii) Butanone

(iv) Hexanal

* Are structural isomers possible for bromopentane?

13) Explain the formation of scum when hard water is treated with soap. 2

14) Why detergents are better cleansing agents than soaps? Explain. 2

15) 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 2

(i) Physical properties and

(ii) Chemical properties

16) When ethanol reacts with ethanoic acid in the presence of conc. H_2SO_4 a substance with fruity smell is produced. Answer the following: 2

(i) State the class of compounds to which the fruity smelling 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.

- 17) 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. 2
- 18) List two differences between saturated and unsaturated hydrocarbons 2
- 19) Differentiate between addition reactions and substitution reactions shown by hydrocarbons. 2
- 20) (i) Write, the name of the following compounds: 2
(a) HCOOH, (b) CH₃COCH₂CH₃
(ii) Explain why carbon generally forms compounds by covalent bonds.

Section - C

- 21) a) What are hydrocarbons? Give examples 5
b) Give the structural differences between saturated and unsaturated hydrocarbons with two example each.
c) What is a functional group? Give example of four different functional groups.
- 22) Give reasons for the following: 5
(i) Element carbon forms compounds mainly by covalent bonding.
(ii) Diamond has a high melting point.
(iii) Graphite is a good conductor of electricity.
(iv) Acetylene burns with a sooty flame.
(v) Kerosene does not decolourise bromine water while cooking oils do.
- 23) What is the difference between the chemical composition of soaps and detergents? State in brief in action of soaps in removing an oily spot from a shirt. Why are soaps not considered suitable for washing where water is hard? 5
- 24) What are the detergents chemically? List two merits and two demerits of using detergents for cleansing. State the reason for the suitability of detergents for washing, even in the case of water having calcium and magnesium ions. 5
