

QB365 Question Bank Software Study Materials

Carbon and Its Compounds Important 2 Marks Questions With Answers (Book Back and Creative)

10th Standard

Science

Total Marks : 60

2 Marks

30 x 2 = 60

- 1) Name the simplest ketone and give its structural formula.

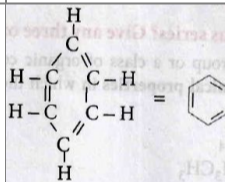
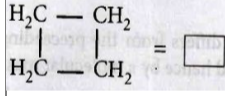
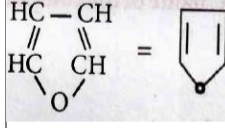
Answer :

Simplest Ketone	Structural formula
Acetone	$ \begin{array}{c} \text{H} \quad \text{O} \quad \text{H} \\ \quad \quad \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{H} \quad (\text{CH}_3\text{COCH}_3) \\ \quad \quad \\ \text{H} \quad \quad \text{H} \end{array} $

- 2) Classify the following compounds based on the pattern of carbon chain and give their structural formula:

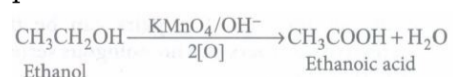
- (i) Propane
 (ii) Benzene
 (iii) Cyclobutane
 (iv) Furan

Answer :

Compound	Carbon chain	Structural formula
(i) Propane	Saturated compounds open chain compounds	CH ₃ -CH ₂ -CH ₃
(ii) Benzene	Aromatic compounds in carbocyclic compounds	
(iii) Cyclobutane	Alicyclic compounds contain one or more Carbocyclic compounds.	
(iv) Furan	Heterocyclic compounds contains carbon and other atoms like Oxygen, Nitrogen, Sulphur, etc.,	

- 3) How is ethanoic acid prepared from ethanol? Give the chemical equation.

Answer : Ethanoic acid is prepared by the oxidation of ethanol in the presence of alkaline potassium permanganate or acidified potassium dichromate.



- 4) How do detergents cause water pollution? Suggest remedial measures to prevent this pollution?

Answer : (i) Some detergents having a branched hydrocarbon chain are not fully biodegradable by microorganisms present in water.

(ii) So they settle as insoluble chemical in water bodies.

(iii) To avoid this type of water pollution, we should use detergents which have straight hydrocarbon chains.

(iv) Because these are easily degraded by bacteria.

- 5) Differentiate soaps and detergents.

Answer :

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i)	Soap is a sodium salt of long chain fatty acids.	Detergent is sodium salt of sulphonic acids.
ii)	The ionic part of a soap is $\text{-COO}^-\text{Na}^+$.	The ionic part in a detergent is $\text{-SO}_3^-\text{Na}^+$.
iii)	It is prepared from animal fats or vegetable oils.	It is prepared from hydrocarbons obtained from crude oil.
iv)	Soaps are biodegradable.	Most of the detergents are non biodegradable.

6) Identify saturated and unsaturated compound containing double and triple bond.

(i) C_5H_{12}

(ii) C_2H_2

(iii) C_3H_8

(iv) C_4H_8

Answer : (i) Pentane - Saturated

(ii) Ethyne - Unsaturated triple bond

(iii) Propane - Saturated

(iv) Butene - Unsaturated double bond

7) What is absolute alcohol?

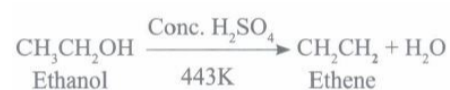
Answer : 100% pure alcohol is called absolute alcohol.

8) Define fermentation.

Answer : Fermentation is conversion of complex organic molecules into simpler molecules by the action of enzymes. Example: Curdling of milk.

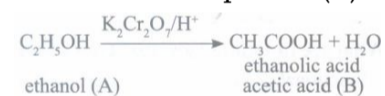
9) How will you convert ethanol to ethane?

Answer : When ethanol is heated with conc. H_2SO_4 at 443K, it loses a water molecule to form ethane.



10) An organic compound of molecular formula $\text{C}_2\text{H}_6\text{O}$ (A) which is used as an antifreeze when oxidised with $\text{K}_2\text{Cr}_2\text{O}_7/\text{H}^+$ gives compound (B) which is used for making Vinegar. Identify compound (A) and (B). Write the reactions involved.

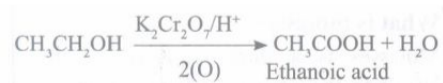
Answer : Compound (A) with molecular formula $\text{C}_2\text{H}_6\text{O}$ is ethanol $\text{C}_2\text{H}_5\text{OH}$.



A	$\text{C}_2\text{H}_5\text{OH}$	Ethanol
B	CH_3COOH	Acetic acid or ethanoic acid

11) Give a test to identify the presence of alcohol.

Answer : Ethanol is oxidised to ethanoic acid with alkaline KMnO_4 or acidified $\text{K}_2\text{Cr}_2\text{O}_7$



During this reaction, the orange colour of $\text{K}_2\text{Cr}_2\text{O}_7$ changes to green. Therefore, this reaction can be used for the identification of alcohols

12) What is glacial acetic acid?

Answer : On cooling, pure ethanoic acid is frozen to form ice like flakes. They look like glaciers, so it is called glacial acetic acid.

13) What is soda lime?

Answer : Soda lime is solid mixture of 3 parts of NaOH and 1 part of CaO .

14) What is saponification?

Answer : The alkaline hydrolysis of oils and fats forming soaps is commonly known as saponification.

15) Why soap does not lather in hard water?

Answer : Ordinary soaps when treated with hard water, precipitate as salts of calcium and magnesium. They appear at the surface of the cloth as sticky grey scum. Thus the soaps cannot be used conveniently in hard water.

16) What are detergents?

Answer : Detergents are sodium salts of sulphonic acids. The detergents do not form precipitates with metal ions such as Ca^{2+} and Mg^{2+} present in hard water. Therefore, the cleansing action of detergents are better than soaps.

17) What are called heterocyclic compounds?

Answer : If the chain contains carbon and other atoms like oxygen, nitrogen, sulphur, etc., these compounds are called heterocyclic compounds.

18) Write the test to identify saturated and unsaturated compounds.

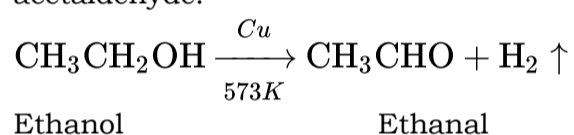
Answer : i) The given sample solution is taken in the test tube.
ii) Added a few drops of bromine water and observed any characteristic change in colour.
iii) If the given compound is unsaturated it will decolourise bromine water.

19) Define functional group.

Answer : Certain substances which are so hygroscopic, when exposed to the atmospheric air at ordinary temperature, absorb enough water to get completely dissolved. Such substances are called deliquescent substances.

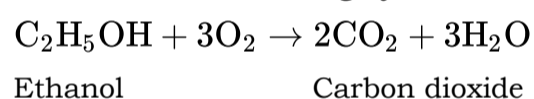
20) Write the process of dehydrogenation

Answer : When the vapour of ethanol is passed over heated copper, used as a catalyst at 573 K it is dehydrogenated to acetaldehyde.



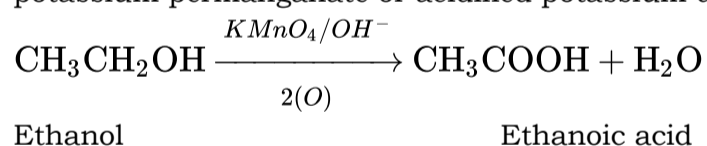
21) Write the process of combustion.

Answer : Ethanol is highly inflammable liquid. It burns with oxygen to form Carbon dioxide and water.



22) Write the preparation of Ethanoic acid.

Answer : Ethanoic acid or Acetic acid is prepared in large scale, by the oxidation of ethanol in the presence of alkaline potassium permanganate or acidified potassium dichromate.

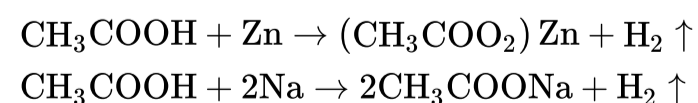


23) Write the physical properties of ethanoic acid.

Answer : a) Ethanoic acid is a colourless liquid having unpleasant odour.
b) It is sour in taste.
c) It is miscible with water in all proportions.
d) Its boiling point is higher than the corresponding alcohols, aldehydes and ketones.
e) On cooling, pure ethanoic acid is frozen to form ice like flakes. They look like glaciers. So it is called Glacial Acetic Acid.

24) Write the reaction of ethanoic acid with metal.

Answer : Ethanoic acid reacts with active metals like Zn, Na, etc., to liberate hydrogen and form Sodium ethanoate.



25) Write the uses of hydrocarbons in everyday life.

Answer : i) Fuels like LPG, petrol, kerosene.
ii) Raw materials for various important synthetic materials.
iii) Polymeric materials like tyre, plastic containers.

26) Define Soap.

Answer : Soaps are Sodium or Potassium salts of some long chain Carboxylic acids called fatty acids.

27) What are the raw materials required for the soap.

Answer : a) Fat.

b) Alkali.

The alkali most commonly used in the preparation of soap is sodium hydroxide, potassium hydroxide can also be used.

28) Explain the process saponification

Answer : The oil, which is used in this process, is taken in an iron tank. The alkaline solution is added into the kettle a little in excess. The mixture is boiled by passing steam through it. The oil gets hydrolysed after several hours of boiling. This process is called saponification

29) What happens when propyne is added to bromine water?

Answer : Propyne is an unsaturated hydrocarbons. So it decolourise the bromine water.

30) Write the IUPAC name of the simplest ketone and give its molecular formula.

Answer : i) The simplest ketone is CH_3COCH_3 and common name is acetone.

ii) IUPAC name is Propanone and molecular formula is $\text{C}_3\text{H}_6\text{O}$.