



CHEMISTRY

BOOKS - CAMBRIDGE CHEMISTRY (KANNADA ENGLISH)

CARBON AND ITS COMPOUNDS

Question

1. What would be the electron dot structure of carbon dioxide which has the formula CO_2 ?



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2. What would be the electron dot structure of a molecule of sulphur which is made up of eight atoms of Sulphur ?

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3. How many structural isomers can you draw for pentane ?

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4. What are the two properties of carbon which lead to the huge number of carbon compounds we see around us?

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5. What will be the formula and electron dot structure of cyclopentane?

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6. Draw the structures for the following compounds .

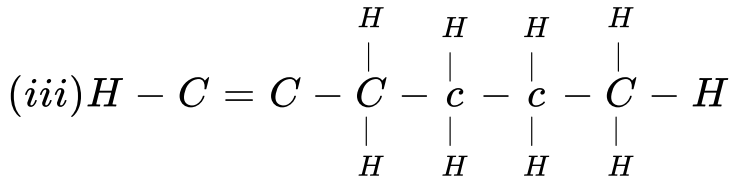
(i) Ethanoic (ii) Bromopentane

(iii) Butanone (iv) Hexanal

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7. How would you name the following compounds ?

(i) $CH_3 - CH_2 - Br$ (ii) $H - CH = O$



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8. Why is the conversion of ethanol to ethanoic acid an oxidation reaction?

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9. A mixture of oxygen and ethyne is burnt for welding . Can you tell why a mixture of ethyne and air is not used ?

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10. How would you distinguish experimentally between an alcohol and a carboxylic acid?

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11. What are oxidising agents ?

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12. Would you be able to check if water is hard by using a detergent?

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13. People use a variety of methods to wash clothes, Usually after adding the soap, they 'beat' the clothes on a stone or beat it with a paddle scrub with a brush or the mixture is agitated in a washing machine. Why is agitation necessary to be clean clothes?



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Exercise

1. Ethane with the molecular formula C_2H_6 has

A. 6 Covalent bonds

B. 7 Covalent bonds

C. 8 Covalent bonds

D. 9 Covalent bonds

Answer: A::B::C::D



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2. Butanone is a four-carbon compound with the functional group

A. carboxylic acid

B. Aldehyde

C. Ketone

D. Ketone

Answer:



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3. While cooking, if the bottom of the vessel is getting blackened on the outside, it means that

- A. The food is not cooked completely
- B. the fuel is not burnig completely
- C. The fuel is wet
- D. The fuel Is burning completely

Answer:



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4. Explain the nature of covalent bond using the bond formation in CH_3Cl

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5. What is a homologous series? Explain with an example.

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6. How can ethanol and ethanoic acid be differentiated on the basis of their physical and chemical properties?

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7. Why does micelle formation take place when soap is added to water? Will a micelle be formed in other solvents such as ethanol also?

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8. Why are carbon and its compounds used as fuels for most applications?

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9. Explain the formation of scum when hard water is treated with soap.

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10. What change will you observe if you test soap with litmus paper (red and blue)?

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11. What is hydrogenation ? What is its industrial application ?

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12. Which of the following hydrocarbon undergo addition reactions ?

C_2H_6 , C_3H_8 , C_3H_6 , C_2H_2 and CH_4

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13. Give a test that can be used to differentiate chemically between butter and cooking oil.



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14. Explain the mechanism of the cleaning action of soaps.



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Additional Questions

1. Which of the following is an odd compound?

A. Ethene

B. Ethane

C. Propene

D. Acetylene

Answer: B



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2. Which one of the following is an unsaturated hydrocarbon?

A. Acetylene

B. Butane

C. Propene

D. Decane

Answer: A

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3. Two neighbours of homologous series differ by

A. $-CH$

B. $-CH_2$

C. $-CH_3$

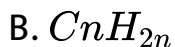
D. $-CH_4$

Answer: B



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4. Write the general formula of alkynes.

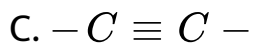
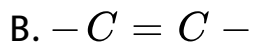
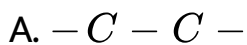


Answer: C



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5. Which of the following represent alkynes?



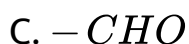
D. None of these

Answer: C



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6. Which of the following is not represents ketones?



D. $-COOH$

Answer: A

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7. Which of the following is not an aliphatic hydrocarbon?

A. Ethene

B. Ethane

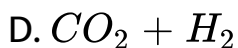
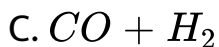
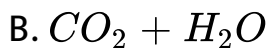
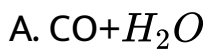
C. Propyne

D. Benzene

Answer: D

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8. Complete combustion of a hydrocarbon gives.



Answer: B



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9. Buckminster fullerene is an example of _____ of carbon

- A. An isomer
- B. An isotope
- C. An allotrope
- D. A functional group

Answer: C



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10. Butanone is a four-carbon compound with the functional group

- A. Carboxylic acid
- B. Aldehyde

C. Ketone

D. Alcohol

Answer: C



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11. Major constituent of LPG is

A. Eathane

B. Butane

C. Propane

D. Pentane

Answer: B



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12. The gas used in welding and cutting metals is ___

- A. Ethyne
- B. Ethene
- C. Ethane
- D. Propane

Answer: A



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Answer The Following

1. which is the common name of ethyne?

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2. Why are unsaturated hydrocarbons more reactive than saturated hydrocarbon?

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3. Why C_2H_2 can't exist?

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4. Why acetic acid is known as glacial acetic acid?



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5. What is meant by the term 'functional group' ?



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6. What is the molecular formula of the alcohol which can be derived from propane?



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7. Give the names of the functional groups :

a) -CHO

b) -C=O

c) -OH

d) -COOH

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8. Why a candle flame burnns yellow, While a highly oxygenated gas - fuel flame burns blue?

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9. Why is the reaction between methane and chlorine considered a substituion reaction..

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10. What are hydrocarbons? Give examples.

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11. What is meant by covalent bond ?

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12. What are isomers ? Give example.

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13. What is glycerol?

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14. (i) Give a chemical test to distinguish between saturated and unsaturated hydrocarbons.

(ii) Name the products formed when ethanol burns in air.

List two forms of energy that are liberated on burning ethanol.

(iii) Why is the reaction between methane and chlorine considered a substitution reaction?



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15. Give reasons for the following observation:

(a) The element carbon forms a very large number of compounds.

(b) Air holes of a gas burner have to be adjusted when the heated vessels get blackened by the flame.

c) Use of synthetic detergents causes pollution of water.

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16. Write the molecular formula of the following compounds and draw their electron-dot structures :

(i) Ethane

(ii) Ethene

(iii) Ethyne

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17. Define a homologous series of carbon compounds, List any two characteristics of a homologous series.

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18. Explain esterification reaction with an example.

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19. Out of HCl and CH_3COOH , which one is weak acid and why? Describe an activity to support your answer?

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20. Write chemical equations for what happens when

a) Sodium metal is added to ethanoic acid.

b) Solid sodium carbonate is added to ethanoic acid.

c) Ethanoic acid reacts with a dilute solution of sodium hydroxide.



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21. Name the compound formed where ethanol is heated in excess of concentrated sulphuric acid at 443 K. Also write the chemical equation of the reaction stating the role of concentrated sulphuric acid in it. What would happen if hydrogen is added to the product of this reaction in the presence of a catalyst such as potassium or nickel?

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22. Write the structural formula of chloroethane

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23. Explain the following reactions with one example for each giving relevant chemical equations : (i)

Hydrogenation reaction,

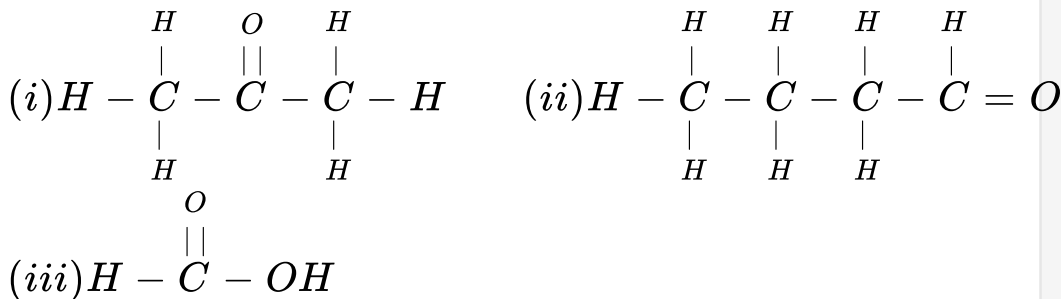
(ii) Oxidation reaction,

(iii) Substitution reaction,

(iv) Saponification reaction.

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24. Name the following compound :



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Unit Test Fill In The Blanks

1. Write the general formula of alkynes.

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2. Major constituent of LPG is



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Unit Test Answer The Following

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A. Ethanoic acid

B. Bromopentane

C. Butanone

D. Hexanol

Answer:



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