CHEMISTRY

BOOKS - ZEN CHEMISTRY (KANNADA ENGLISH)

CARBON AND ITS COMPOUNDS

Question Section In Text Questions

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

Watch Video Solution

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

Watch Video Solution

3. Calculated the difference in the formulae and molecular masses for

(a) CH_3OH and C_2H_5OH

(b) C_2H_5OH and C_3H_7OH and

(c) C_3H_7OH and C_4H_9OH

• Is there any similarity in these three ?

• Arrange these alcohols in the order of increasing carbon atoms to get a family . Can we call this family a homologous series ?

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

6. What is the formula and the electron-dot structure of cyclopentane?

Watch Video Solution

7. Draw the structures for the following compounds .

(i) Ethanoic (ii) Bromopentane

(iii) Butanone (iv) Hexanal

Watch Video Solution

8. Are structure isomers possible for bromopentane?

Watch Video Solution

9. How would you name the following compounds ?

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

$$(iii) H - C = C - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{c}} - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{c}} - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - H$$

Watch Video Solution

10. Why is conversion of ethanol into ethanoic acid an oxidation reaction ?

Watch Video Solution

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

Watch Video Solution

12. How do you distinguish experimentally between an alcohol and a carboxylic acid ?

Watch Video Solution

13. What are oxidizing agents ?

Watch Video Solution

14. Would you be able to check of water is hard using a detergent ?

Watch Video Solution

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

Watch Video Solution

Question Section Textual 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:

Watch Video Solution

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

A. Carboxylic acid

B. aldehyde

C. ketone

D. alcohol

Answer:

Watch Video Solution

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

A. food is not cooked completely

B. the fuel is not burning completely

C. fuel is wet

D. fuel is burning completely

Answer:

Watch Video Solution

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

Watch Video Solution

5. Draw the electron-dot structure for

(i) Ethanoic acid (ii) H_2S (iii) propanone (iv) F_2

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

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

Watch Video Solution

11. What change do you observe if you test soap with litmus paper?

Watch Video Solution

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

Watch Video Solution

13. Which of the following hydrocarbons undergo addition reaction ?

$C_2H_6, C_3H_8, C_3H_6, C_2H_2$ and CH_4

Watch Video Solution

14. Give a test to differentiate chemically between butter and vegetable oil .

Watch Video Solution

15. Explain the mechanism of cleaning action of soap.

Watch Video Solution

Zee Additional Questions Section Multiple Choice Questions

1. The atomic numbers of four elements A,B,C and D are 6,10,12 and 17 respectively. Which two elements combine to form a covalent compound ?

A. A and D

B. A and C

C. B and D

D. C and D

Answer: A

Watch Video Solution

Watch Video Solution

2. A covalent molecule having a triple bond between its atoms is :

A. oxygen

B. hydrogen

C. nitrogen

D. sulphur

Answer: C

Watch Video Solution

3. Which of the following has double bonds ?

A. Ethane and oxygen

B. nitrogen and ethane

C. oxygen and methane

D. ethene and carbon dioxide

Answer: D

Watch Video Solution

4. The first organic compound synthesized by Wohler was:

A. urea

B. glucose

C. uric acid

D. vinegar

Answer: A

Watch Video Solution

5. The pair of elements which shows catenation is

A. silicon and sodium

B. carbon and sulphur

C. carbon and chlorine

D. silicon and sodium

Answer: B

Watch Video Solution

6. The allotrope of carbon which is a good electrical conductor:

A. diamond

B. coal

C. fullerene

D. graphite

Answer: D

Watch Video Solution

7. Buckminster fullerene has ..... carbon atoms .

A. 55

B. 65

C. 60

D. 70

Answer: C

Watch Video Solution

8. Isomerism is possible if a hydrocarbon has _____or more carbon atoms.

A. 3

B. 4

C. 2

D. 1

Answer: B

Watch Video Solution

9. The general formula of saturated hydrocarbons is

A. C_nH_{2n+1}

B. C_nH_{2n+2}

C. C_nH_{2n}

D. C_nH_{2n-2}

Answer: B

Watch Video Solution

10. Which of the following compounds is not a hydrocarbon ?

A. $R-CH_3$

B. $CH_2=CH_2$

C. CH_3OH

D. CH_4

Answer: C

Watch Video Solution

11. The next homologue of C_5H_{10} is

A. C_5H_{12}

B. C_4H_8

C. C_4H_9

D. C_6H_{12}

Answer: D

Watch Video Solution

12. An alkyne among the following is

A. C_2H_6

B. C_5H_{10}

C. C_3H_4

D. C_3H_6

Answer: C

Watch Video Solution

13. The possible isomers for pentane are

A. 3

B. 4

C. 2

D. 6

Answer: A

Watch Video Solution

14. Butanal is organic compound with the functional group

A. alchol

B. ketone

C. aldehyde

D. estar

Answer: C

Watch Video Solution

15. The hydrocarbon 2 -methylpropane is an isomer of

A. n-butane

B. isobutane

C. n-propane

D. pentane

Answer: B

Watch Video Solution

16. How many hydrogen atoms are present in a hydrocarbon with 50 carbon atoms and one triple bond in it ?

A. 50

B. 100

C. 102

D. 98

Answer: D

Watch Video Solution

17. The number of carbon atoms present in the sixth member of alkenes is

A. six

B. five

C. seven

D. four

Answer: C

Watch Video Solution

18. Pantane has the molecular formula C_5H_{12}.It has

A. 5 covalent bonds

B. 12 covalent bonds

C. 16 covalent bonds

D. 17 covalent bonds

Answer: D

Watch Video Solution

19. The hydrocarbon that burns with a clean flame is

A. C_4H_{10}

B. C_3H_6

C. C_4H_8

D. C_5H_{10}

Answer: A

Watch Video Solution

20. Which of the compounds has an aldehyde group ?

A. C_5H_8O

B. $C_5H_{12}O$

C. $C_5H_{10}O$

D. C_5H_9O

Answer: C

Watch Video Solution

21. In which of the following compounds is –OH the functional group ?

A. Butanone

B. Butanol

C. butanoic acid

D. butanal

Answer: B

Watch Video Solution

22. Propanone is an organic compound with functional group as

A. $-CHO$

B. $-CO$

C. $-OH$

D. $-COOH$

Answer: B

Watch Video Solution

23. Vinegar is a solution of

A. 50% - acetic acid in alcohol

B. 5% - acetic acid in alcohol

C. 5% - 8% acetic acid in water

D. 50% - 60% acetic acid in water

Answer: C

Watch Video Solution

24. Which of the following doesn't undergo a substitution reaction ?

A. C_4H_6

B. C_3H_6

C. C_4H_{10}

D. C_5H_{10}

Answer: C

Watch Video Solution

25. Carbon forms covalent bonds by sharing its four valence electrons with four univalent atoms , e.g, hydrogen . After the formation of four bonds, carbon attains the electronic configuration of

A. Helium

B. neon

C. argon

D. Krypton

Answer: B

Watch Video Solution

26. The compound which gives effervescence with baking soda solution is

A. C_2H_6O

B. C_2H_5O

C. $C_2H_4O_2$

D. CH_3OCH_3

Answer: B

Watch Video Solution

27. Which of the following mixed with ethanol to denature it ?

A. oxygen

B. methane

C. acetone

D. methanol

Answer: D

Watch Video Solution

28. An example for detergent is

A. sodium lauryl sulphate

B. sodium palmate

C. Potassium stearate

D. sodium linoleate

Answer: A

Watch Video Solution

29. Commercially available ethanol is known as

A. adulterated spirit

B. rectified spirit

C. absolute alcohol

D. denatured alcohol

Answer: B

Watch Video Solution

30. The damage of the optic nerve, leading to blindness, is caused when.....is consumed.

A. ethanol

B. methanal

C. methanol

D. ethanoic acid

Answer: C

Watch Video Solution

31. The disease caused when ethanol is consumed for a longer period of time.

A. diabetes

B. cirrhosis

C. cataract

D. arthritis

Answer: A

Watch Video Solution

32. The presence of which ion makes water hard?

A. sodium

B. calcium

C. potassium

D. sulphate

Answer: B

Watch Video Solution

33. Which among the following has a sweet smell ?

A. CH_3OCH_3

B. CH_3COCH_3

C. CH_3COOH

D. CH_3OH

Answer: C

Watch Video Solution

34. Conversion of vegetable oil into ghee is an example for

A. oxidation reaction

B. substitution reaction

C. reduction reaction

D. displacement reaction

Answer: C

Watch Video Solution

35. An example for saturated hydrocarbon is

A. C_2H_6

B. C_3H_4

C. C_2H_2

D. C_2H_4

Answer: A

Watch Video Solution

36. The molecular formula of three carbon compounds which are in homologous series are $C_2H_6, C_3H_8, C_4H_{10}$. The suitable general formula for these compounds is

A. C_nH_{2n}

B. C_nH_{2n-1}

C. C_nH_{2n-2}

D. C_nH_{2n+2}

Answer: D

Watch Video Solution

37. The functional groups present in propanol and propanal respectively are

A. $-OH$ and $-CHO$

B. $-OH$ and $-COOH$

C. $-CHO$ and $-COOH$

D. $-CHO$ and $-CO$

Answer: A

Watch Video Solution

Zee Additional Questions Section Very Short Answer Vsa Type Questions

1. Draw the electron-dot structure of a methane molecule,

Watch Video Solution

2. Why does carbon atom exhibit the property of catenation and from a large number of compounds with other elements ?

Watch Video Solution

3. Which element exhibits the property of catenation ? Why ?

Watch Video Solution

4. Name an element other than carbon, which exhibits catenation up to 7-8 atoms. Are these compounds stable ?

Watch Video Solution

5. Name the first member of alkynes and write its molecular formula.

Watch Video Solution

6. What do you mean by functional groups ? Given examples.

Watch Video Solution

7. Write the formula of the following groups :

(a) aldehyde (b) ketone

Watch Video Solution

8. Write the names of the next homologue of CH_3CH_2OH and HCOOH.

Watch Video Solution

9. The molecular formula of A is $C_{10}H_{18}$ and B is $C_{18}H_{36}$.

Name the homologous series to which they belong .

Watch Video Solution

10. Why is it not possible to have isomers of methana , ethane, propane?

Watch Video Solution

11. Write the molecular formula of benzene and state the number of double bonds in its structure.

Watch Video Solution

12. Draw the electron-dot structure of CH_3CI.

Watch Video Solution

13. Write the name and the structure of an aldehyde with four carbon atoms in its molecule

Watch Video Solution

14. Give the name and structure of the simplest ketone .

Watch Video Solution

15. Give the IUPAC name of $C_2H_5COCH_3$.

Watch Video Solution

16. What would be the structure of ethanoic acid which had the formula CH_3COOH

Watch Video Solution

17. The formula of citric acid is shown below:

State the name of the functional group in citric acid .

View Text Solution

18. Identify the functional group in pentanone

Watch Video Solution

19. Alkanes generally burn with a clean flame . Why?

Watch Video Solution

20. Name the gases that are burnt as a mixture for welding. .

Watch Video Solution

21. What is esterification?

Watch Video Solution

22. Intake of small amount of methanol can be fatal. Comment .

Watch Video Solution

23. What type of bond is present in F_2 molecule ?

Watch Video Solution

24. Select saturated hydrocarbon from the following .

$C_3H_6, C_5H_{10}, C_4H_{10}lC_2H_4, C_6H_{14}$

Watch Video Solution

25. State the valency of each carbon atoms in

(1) an alkane (2) alkyne .

Watch Video Solution

26. Write the name and formula of second member of the carbon compounds having functional group - OH.

Watch Video Solution

27. Write the molecular formula of alcohol which can be derived from butane.

Watch Video Solution

28. Write the name and structure of an alcohol with three Carbon atoms in its molecule.

Watch Video Solution

29. What is meant by covalent bond ?

Watch Video Solution

30. State the part of the soap molecule that attaches itself to dirt when soap is dissolved in water

Watch Video Solution

31. Name the Ions whose presence makes the water hard.

Watch Video Solution

32. Draw the electrons dot structure of an alkane having molecular formula C_6H_{14}.

Watch Video Solution

33. Carbon tetrachloride is not a good conductor of electricity give reason to justify your answer . .

Watch Video Solution

34. What happens when a small piece of sodium is dropped into ethanol ?

Watch Video Solution

35. Write the name the following functional group

$-OH$

Watch Video Solution

36. Name the process of converting vegetable oil to vegetable ghee.

Watch Video Solution

37. Write the formula of functional group

(a) alcohol (b) aldehyde .

Watch Video Solution

38. Name the functional group present in

(a) CH_3CHO (b) C_2H_5COOH

Watch Video Solution

39. Write the molecular formula and structure formula of an alkene having five carbon atoms.

Watch Video Solution

Zee Additional Questions Section Short Answer Sa Type Questions

1. Carbon is a versatile element. Justify.

Watch Video Solution

2. Carbon (group 14), an element in the periodic table , forms compound with many elements . Write the example of a compound formed with

(a) chlorine (group 17) (b) oxygen (group 16)

Watch Video Solution

3. In the electron-dot structure, the valence-shell electrons are represented by crosses or dots.

(a) The atomic number of chlorine is 17. Write its electronic configuration .

(b) Draw the electron-dot structure of a chlorine molecule.

Watch Video Solution

4. The general formula of two specific groups of saturated and unsaturated hydrocarbons is C_nH_{2n} . Write the structure of the number of each group when n = 3 .

Watch Video Solution

5. Write the molecular, electron-dot , and structural formula of ethyne.

Watch Video Solution

6. Classify the following into two homologous series and name them.

$C_3H_4, C_3H_6, C_4H_6, C_4H_8, C_5H_8, C_5H_{10}$

Watch Video Solution

7. C_3H_6, C_4H_8 and C_5H_{10} belong to the same homologous series .

a] Why is the melting point of CH higher than C,H,?

b] Arrange these hydrocarbons in order of their increasing boiling point

Watch Video Solution

8. An aldehyde and a ketone can be represented by the same molecular formula, say C_3H_6O. Write their structures and name them. State the relation between the two in the language of science.

Watch Video Solution

9. Unsaturated hydrocarbons contain multiple bonds between the two carbon atoms and show addition

reactions. Give the test to distinguish ethane from ethene.

Watch Video Solution

10. How do you differentiate between saturated and unsaturated hydrocarbons with the help of combustion reactions?

Watch Video Solution

11. Name the functional groups present in the following compounds:

$(a) CH_3COCH_2CH_2CH_2CH_3$ $(b) CH_3CH_2CH_2COOH$

$(c) CH_3CH_2CH_2CH_2CHO$ $(d) CH_3CH_2OH$

Watch Video Solution

12. How can you convert methane into chloroform by a substitution reaction? Explain with the help of a chemical equation.

Watch Video Solution

13. What happens when

a) ethanol is burnt in air and

b) ethanol is oxidized? Write the corresponding equations.

Watch Video Solution

14. What do you observe when you drop a piece of sodium into ethanol? Name the gas evolved. How do you test this gas? Write the chemical equation for the reaction.

Watch Video Solution

15. How is glacial acetic acid different from acetic acid given in a lab? Write its one characteristic which gave it its name.

Watch Video Solution

16. What is saponification?

Watch Video Solution

17. List out any two problems that arise due to use of detergents instead of soaps.

Watch Video Solution

18. Why are detergents better cleansing agents than soaps? Explain.

Watch Video Solution

19. Explain substitution reaction in hydrocarbons with an example.

Watch Video Solution

Watch Video Solution

20. Differentiate between addition reaction and substitution reaction.

Watch Video Solution

21. What is structural isomerism? Draw isomers of pentane.

Watch Video Solution

22. Draw the structure of the following compounds and identify the functional group present in them.

(i) Butanoic acid (ii) Bromopropane (iii) Butyne

Watch Video Solution

23. Write the molecular formula and electron dot structure of

a] Ethane b] Ethyne

Watch Video Solution

24. List two differences between saturated and unsaturated hydrocarbons.

Watch Video Solution

25. State any three physical properties of carbon compounds.

Watch Video Solution

26. State the reason why carbon forms a covalent compound and not C^{4+} and C^{-4}. Also give reasons why covalent compounds are bad conductors of electricity and have law melting and low boiling points.

Watch Video Solution

27. Give the structural difference between saturated and unsaturated hydrocarbons with an example each.

Watch Video Solution

28. Differentiate between saturated and unsaturated hydrocarbons giving one example each .

Watch Video Solution

29. Write the number of covalent bonds in the molecule of ethane, propane, and butane.

Watch Video Solution

30. The general formula of three compounds A,B and C is C_nH_{2n}, B has the highest boiling point , and C has the

lowest boiling point .

(a) Mention the type of compounds A,B and C .

(b) Which of them has the minimum number of carbon atoms?

(c) Name the homologous series to which they belong.

Watch Video Solution

31. Name the functional group present in each of the following compounds:

$(a) HCOOH \quad (b) C_2H_5CHO \quad (c) CH_3COCH_3$

Watch Video Solution

32. Write the molecular formula of two consecutive members of the homologous series of aldehydes. State which parts of these. Compounds determine their physical and chemical properties.

Watch Video Solution

33. State the meaning of a functional group in a carbon compound. Write the functional group present in ethanol and ethanoic acid and also draw their structures.

Watch Video Solution

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

Watch Video Solution

35. Draw the possible isomers of the compound with molecular formula $C_3H_6O$and also give their dot structures.

Watch Video Solution

36. Draw the structure of benzene and cyclohexane. Which one is a saturated hydrocarbon ?

Watch Video Solution

37. What are structural isomers ? Draw two structural isomers of butane.

Watch Video Solution

38. What are structural isomers? Name the first member of alkanes that show structural isomerism.

Watch Video Solution

39. Which category of compounds is formed when one hydrogen atom of an alkane molecule is replaced by a hydroxyl group ? Name the functional groups in the

following compounds:

(a) $RCOOH$ (b) $RCOOR$

Watch Video Solution

40. (a) Which of the following burn with a yellow flame: $C_2H_5OH, C_2H_4,$ or C_2H_6 ?

(b) Write a balanced chemical equation to show the burning of ethanol in oxygen .

(c) Name an oxidizing agents which can convert ethanol into ethanoic acid.

Watch Video Solution

41. An organic compound A on heating with concentrated sulphuric acid forms a compound B which on addition of the mole of hydrogen in presence of Ni forms a compound C. One mole of compound C on combustion forms two moles of CO_2 and 3 moles of H_2O. Identify the compounds A,B and C.

Watch Video Solution

42. A cyclic compound 'X' has the molecular formula CH. It is an unsaturated compound and burns with a sooty flame. Identify 'X' and write its structural formula. Is 'X' more reactive than its saturated homologue and if so, why?

Watch Video Solution

43. Two carbon compounds A and B have the molecular formula CH, and C,H, respectively. Which one of the two is most likely to show addition reaction? Justify your answer. Explain with the help of a chemical equation how an addition reaction is useful in the vegetable-ghee industry.

Watch Video Solution

44. Ethyl ethanoate smells like pears and is used for flavouring sweets.

a] Write the chemical formula of ethyl ethanoate.

b] Write the chemical reaction between ethanol and

ethanoic acid in the presence of sulphuric acid.

c] Suggest the function of sulphuric acid in the reaction.

Watch Video Solution

45. How do you bring about the following conversions:

a] Ethanol to ethene.

b] Ethanol to ethanoic acid.

Watch Video Solution

46. How can ethanol be converted into ethanoic acid?

Watch Video Solution

47. Why do detergents remain effective for washing clothes whereas with soaps foam is formed with difficulty?

Watch Video Solution

48. What is covalent bond? What type of bond exists in the following?

$i]CCl_4 \quad ii]CaCl_2 \quad iii]CH_4 \quad iv]NH_3.$

Watch Video Solution

49. Name the following compound :

$$(i)\,H-\overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}}-\overset{\overset{O}{||}}{C}-\overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}}-H \qquad (ii)\,H-\overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}}-\overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}}-\overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}}-\overset{\overset{H}{|}}{C}=O$$

$(iii) H - \overset{O}{\overset{||}{C}} - OH$

Watch Video Solution

50. Complete the following reaction and the main product formed in each case:

(i) $CH_3COOH + NaOH \rightarrow \ldots\ldots\ldots + \ldots\ldots\ldots$

(ii) $C_2H_5OH + O_2 \rightarrow \ldots\ldots\ldots\ldots + \ldots\ldots\ldots$

Watch Video Solution

51. Name the compound formed where ethanol is heated is 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?

Watch Video Solution

52. i) Name the property of ethanol which makes it useful in medicines,

ii) Name the organic compound which is used in pickles. Mention its composition.

iii) Mention any two uses of alcohol in medicine.

Watch Video Solution

53. Write the structural formula and IUPAC name of the following

i) A carboxylic acid with 4 carbon atoms

ii) An alkyne with three carbon atoms

iii) An alcohol having one carbon atom

Watch Video Solution

54. X' is a compound used in cough syrups and in many tonics. It is soluble in $H2O$

i) Name the compound X. Write its chemical forumula.

ii) Which gas is evolved when compound X reacts with Sodium? How will you test the chemical equation involved in the reaction of X with sodium.

iii) Complete the following equation for X and identify Y.

$X \xrightarrow{\text{heat}} Y.$

Watch Video Solution

55. Some esters are added to food items for special smells. An ester can be made from ethanol and ethanoic acid

i] Name the ester obtained in the reaction that takes place in the presence of concentrated sulphuric acid. Write the chemical equation.

ii] Name the process.

Watch Video Solution

56. Explain the addition and substitution reaction with the help of examples. C_2H_6 undergoes substitution reaction but not addition reaction. Why?

Watch Video Solution

Zee Additional Questions Section Long Answer La Type Questions

1. An organic compound A of molecular formula C_2H_4 on reduction gives another compound B of molecular formula C_2H_6. B on chlorination in the presence of sunlight gives C of molecular formula C_2H_4CI.

a) Name the compounds A, B, and C.

b] Write the equation for the conversion of A to B and name the type of the reaction.

Watch Video Solution

2. a] Complete the following reactions:

(i) $CH_3CH_2OH \xrightarrow{\text{Alkaline}KMnO_4}$

(ii) $2Na + 2CH_3CH_2OH \rightarrow$

(iii) $CH_3CH_2OH + CH_3COOH \xrightarrow{\text{acid}}$

b] Define an oxidizing agent. Explain its role in the oxidation of alcohol into acids.

Watch Video Solution

3. A gas is evolved when sodium carbonate reacts with propanoic acid. Write the balanced chemical equation between the two given reactants. Show the acidic nature of propanoic acid by any two methods.

Watch Video Solution

4. a] Write the chemical name of absolute alcohol.

b] Identify A, B, X, and Y in the reaction sequence:

i] $CH_3CH_2OH \xrightarrow{KMnO_4+KOH} A + H_2O$

ii] $CH_3CHOH + A \xrightarrow{\text{conc.}\,H_2SO_4} B + H_2O$

iii] $B + NaOH \rightarrow X + CH_3CH_2OH$

iv] $A + NaHCO_3 \rightarrow CO_2 + Y + H_2O.$

Watch Video Solution

5. Give reasons:

a) Pure ethanoic acid is known as glacial acetic acid.

b) Ethanol is used as an antifreeze in car batteries.

c) Ethanol mixed with methanol is known as denatured alcohol.

d) Oxyacetylene flame is used for welding.

e) Gasoline is used as a fuel in western countries.

Watch Video Solution

6. A compound X is formed by the reaction of a carboxylic acid $C_2H_4O_2$ and an alcohol in the presence of a few drops of sulphuric acid. The alcohol on oxidation with

alkaline potassium permanganate followed by acidification gives the same carboxylic acid as used in this reaction. Give the names and structures of the

a) carboxylic acid

b alcohol and

c) the compound X. Also write the reaction.

Watch Video Solution

7. A compound C [molecular formula $C_2H_4O_2$] reacts with Na. metal to form a compound R and evolves a gas which burns with pop sound. Compound C on treatment with alcohol A in the presence of an acid forms a sweet-smelling compound S [molecular formula $C_3H_6O_2$]. On addition of NaOH to C, it also gives R and water. S on

treatment with NaOH solution gives back Rand A.

Identify C, R, A, and S and write the reactions involved.

Watch Video Solution

8. State the reason why carbon forms a covalent compound and not C^{4+} and C^{-4}. Also give reasons why covalent compounds are bad conductors of electricity and have law melting and low boiling points.

Watch Video Solution

9. Define structural isomer and draw the isomeric structures of butane. Compare the structure of benzene and cyclohexane, by drawing them.

Watch Video Solution

10. Describe the addition reaction of carbon compounds with its application. State the functions of catalyst in this reaction. How this reaction is different from a substitution reaction? Explain with example.

Watch Video Solution

11. i] Give a chemical test to distinguish between saturated and unsaturated hydrocarbon.

ii] Name the product formed when ethane burns is air. Write the balanced chemical equation for the reaction showing the types of energies liberated.

iii] Why is the reaction between methane and chlorine in the presence of sunlight considered a substitution reaction?

Watch Video Solution

Activity

1. take some carbon compounds (naphthalene , camphor , alcohol) one by one on a spatula and burn them

* observe the nature of the flame and note whether smoke is produced

* place a metal plate above the flame . Is there a deposition on the plate in case of any of the compounds ?

Watch Video Solution

2. Light a Bunsen burner and adjust the air hole at the base to get different types of flames / presence of smoke

when do you get yellow sooty flame ?

when do you get a blue flame ?

Watch Video Solution