CHEMISTRY

BOOKS - SURA CHEMISTRY (TAMIL ENGLISH)

HYDROXY COMPOUNDS AND ETHERS

Choose The Correct Answer

1. An alcohol (x) gives blue colorin Victormayer's test and 3.7g of X when treated with metallic sodium liberates 560 mL of hydrogen at 273 K and 1 atm pressure what will be the possible structure of X?

A. $CH_3CH(OH)CH_2CH_3$

B. $CH_3 - CH(OH) - CH_3$

C. $CH_3 - C(OH) - (CH_3)_2$

D. $CH_3 - CH_2 - CH(OH) - CH_2 - CH_3$

Answer: A

Watch Video Solution

2. Which of the following compounds on reaction with methyl magnesium bromide will give tertiary alcohol?

A. benzaldehyde

B. propanoic acid

C. methyl propanoate

D. acetaldehyde

Answer: C

Watch Video Solution

3. In the reaction sequence, $\text{Ethane} \xrightarrow{\text{HOCl}} A \xrightarrow{x} \text{ethane} - 1, 2 - diol.$ A and X respectively are

A. Choroethane and NaOH

B. ethanol and H_2SO_4

C. 2-chloroethan - 1-ol and $NaHCO_3$

D. ethanol and H_2O

Answer: C

Watch Video Solution

4. Which one of the following is the strongest acid

A. 2-nitrophenol

B. 4-chlorophenol

C. 4-nitrophenol

D. 3-nitrophenol

Answer: C

Watch Video Solution

5. Carbolic acid is

A. Phenol

B. Picric acid

C. benzoic acid

D. phenylacetic acid

Answer: A

Watch Video Solution

6. Which one of the following will react with phenol to give salicyladehyde after hydrolysis?

A. Dichlo methane

B. trichloroethane

C. trichloro methane

D. CO_2

Answer: C

Watch Video Solution

7. $(CH_3)_3 - C - CH(OH)CH_3 \xrightarrow{\text{Conc.}H_2\square SO_4} X$ (major product)

A. $(CH_3)_3\text{C}\,\text{C}H = CH_2$

B. $(CH_3)_2C = C(CH_3)_2$

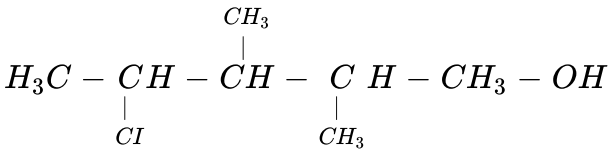
C. $CH_2 = C(CH_3)CH_2.\,CH_2.\,CH_3$

D. $CH_2 = C(CH_3).\,CH_2.\,CH_2.\,CH_3$

Answer: B

Watch Video Solution

8. The correct IUPAC name of the compound,



A. 4-chloro-2,3-dimethyl pentan -1-ol

B. 2,3-dimethyl-4-chloropentan-1-ol

C. 2,3,4-trimethyl-4-chlorobutan-1-ol

D. 4-chloro-2,3,4-trimethyl pentan -1-ol

Answer: A

Watch Video Solution

9. Assertion: Phenol is more acidic than ethanol

Reason: Phenoxide ion is resonance stablized

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reaso are true but reason is not the correct explanation of assertion.

C. assertion is true but reason is false

D. both assertion and reason are false.

Answer: A

Watch Video Solution

10. In the reacion

$\text{Ethanol} \xrightarrow{PCl_3} X \xrightarrow{\text{alc. KOH}} Y \xrightarrow[298K]{H_2SO_4 / H_2O} Z$, The 'Z' is

A. ethane

B. ethoxyethane

C. ethylbisulphite

D. ethanol

Answer: D

Watch Video Solution

11. Isopropylbenzene on air oxidation in the presence of dilute acid gives

A. C_6H_5COOH

B. $C_6H_5COCH_3$

C. $C_6H_5COC_6H_5$

D. $C_6H_5.OH$

Answer: D

Watch Video Solution

12. Assertion: Phenol is more reactive than benzene towards electrophilic substitution reaction.

Reason: In the case of phenol, the intermediate arenium ion is more stabilized by resonance.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reaso are true but reason is not the correct explanation of assertion.

C. assertion is true but reason is false

D. both assertion and reason are false.

Answer: A

Watch Video Solution

13. $HOCH_2CH_2 - OH$ on heating with periodic acid gives

A. methanoic acid

B. Glyoxal

C. Methanal

D. CO_2

Answer: C

Watch Video Solution

14. Which of the following compound can be used as antifreeze in automobile radiators?

A. methanol

B. ethanol

C. Neopentyl alcohol

D. ethan -1, 2-diol

Answer: D

Watch Video Solution

15. One mole of an organic compound (A) with the formula C_3H_8O reacts comletely with two moles of HI to form X and Y. When Y is boiled with

aqueous alkali it forms Z. Z answers the iodoform test. The compound (A) is

A. propan -2-ol

B. propan -1-ol

C. ethoxy ethane

D. methoxy ethane

Answer: D

Watch Video Solution

16. Among the following ethers which one will produce methyl alcohol on treatment with hot HI?`

A. $(H_3C)_3 - C - O - CH_3$

B. $(CH_3)_2 - CH - CH_2 - O - CH_3$

C. $CH_3 - (CH_3)_3 - O - CH_3$

D. $CH_3 - CH_3 - \underset{\underset{CH_3}{|}}{C} - O - CH_3$

Answer: A

Watch Video Solution

17. Williamson synthesis of preparing dimethyl ether is a/an /

A. SN^1 reactions

B. SN^2 reactions

C. electrophilic addition

D. electrophilic substitution

Answer: B

Watch Video Solution

18. On reacting with neutral ferric chloride, phenol gives

A. red colour

B. violet colour

C. dark green colour

D. no colouration

Answer: B

Watch Video Solution

Short Answer Questions

1. Identify the product(s) is/are formed when 1- methoxy propane is heated with excess HI. Name the mechanism involved in the reaction.

Watch Video Solution

2. Draw the major product formed when 1-ethoxyprop-1-ene is heated with one equivalent of HI

Watch Video Solution

3. Suggest a suitable reagent to prepare secondary alcohol with identical group using Grignard reagent.

Watch Video Solution

4. What is the major product obtained when two moles of ethyl magnesium bromide is treated with methyl benzoate followed by acid hydrolysis?

Watch Video Solution

5. Predict the major product, when 2-methyl but-2-ene is converted into an alcohol in each of the following methods.

(i) Acid catalysed hydration.

(ii) Hydroboration

(iii) Hydroxylation using Bayer's reagent.

Watch Video Solution

6. Arrange the following in the increasing order of their boiling point and give a reason for your ordering

(i) Butan -2-ol, Butan -1-ol, 2- methylpropan -2-ol

(ii) Propan -1-ol, propan -1,2,3-triol, propan-1,3-diol, propan -2-ol

Watch Video Solution

7. Can we use nucleophiles such as NH_3, CH_3O for the Nucleophilic substitution of alcohols.

Watch Video Solution

8. Is it possible to oxidise t-butyl alcohol using acidified dichromate to form a carbonyl compound.

Watch Video Solution

9. What happens when 1-phenyl ethanol is treated with acidified $KMnO_4$

Watch Video Solution

10. Write the mechanism of acid catalysed dehydration of ethanol to give ethene.

Watch Video Solution

11. How is phenol prepared form

(i) chloro benzene , (ii) isopropyl benzene

Watch Video Solution

12. Explain Kolbe's reaction .

Watch Video Solution

13. Write the chemical equation for Williamson synthesis of 2-ethoxy -2-methyl pentane starting from ethanol and 2-methyl pentan-2-ol.

Watch Video Solution

14. Write the structure of the aldehyde, carboxylic acid and ester that yield 4-methylpent-2-en-1-ol.

Watch Video Solution

15. What is meta merism? Give the structure and IUPAC name of metamers of 2-methyoxy propane.

Watch Video Solution

16. How are the following conversions effected

(i) Benylchloride to benzylalchol

(ii) benzyalalcohol to benzoic acid

Watch Video Solution

17. Complete the following reactions

(i) $CH_3 - CH_2 - OH \xrightarrow{PBr_3} A \xrightarrow{aq.NaOH} B \xrightarrow{Na} C$

(ii) $C_6H_5 - OH \xrightarrow{\text{Zn dust}} A \xrightarrow[\text{Anhydrous}AlCl_3]{CH_2Cl} B \xrightarrow{\text{acid}KMnO_4} C$

(iii) Anisole $\xrightarrow[AlCl_3]{\text{t-betychloride}} A \xrightarrow{Cl_2/FeCl_3} B \xrightarrow{HBr} C$

View Text Solution

18. 0.44 g of a monohydric alcohol when added to methyl magnesium iodide in ether lilberates at STP 112 cm^3 of methane with PCC the same alcohol form a carbonyl compound that answers silver mirror test. Identify the compound.

View Text Solution

19. Complete the following reactions:-

(i)

$$C_6H_5 - CHCH(OH)CH(CH_3)_2 \xrightarrow{\text{Conc}H_2SO_4}$$

View Text Solution

20. Phenol is distilled with Z,n dust followed by friedel - crafts alkylation with propyl chloride to give a compound B, B on oxidation gives (C). Indentify A,B and C.

Watch Video Solution

21.

Identify A,B,C,D and write the complete equation.

View Text Solution

22. What will be the product for the following reaction

acetylchoride $\xrightarrow[(ii)\,H_3O^+]{(i)\,CH_3MgBr} X \xrightarrow{\text{acid}K_2Cr_2O_7} A$. Identify X and A

Watch Video Solution

23. How will you convert acetyene into a n-butyl alcohol?

Watch Video Solution

24. Predict the product A,B,X and Y in the following sequences of reaction

$$\underset{\substack{\downarrow \\ X \\ Cu\,/\,573K}}{\text{butan}-2-ol} \xrightarrow{SOCl_2} A \underset{\text{ether}}{\overset{Mg}{B}} \xrightarrow{X} Y$$

Watch Video Solution

25. 3,3- dimethylbutan -2-ol on treatment with conc. H_2SO_4 to give tetramethyl ethylene as a major product. Suggest a suitable mechanisms.

Watch Video Solution

Evaluate Yourself

1. Classify the following alcohols as 1°, 2°, and 3° and give their IUPAC Names.

(a) $CH_3 - CH_2 - CH(OH)CH_2 - \overset{\overset{Br}{|}}{C}(CH_3)_2$

(b) $(C_2H_5)_3COH$

(c) $CH_2OH = C(Cl) - CH(OH)CH_3$

(d)

(e)

View Text Solution

2. Suggest a suitable carbonyl compound for the preparation of pent-2-en-1-ol using $LiAlH_4$

Watch Video Solution

3. 2-methylpropan -1-ene $\xrightarrow{H_2SO_4 / H_2O}$?

Watch Video Solution

4. How will you prepare the following using Grignard reagent

(i) t-butyl alcohol

(ii) allyl alcohol

Watch Video Solution

5. Identify the products in the following reactions. Write the IUPAC names and mention the mechanism involved in the reactions.

(i) cyclopentanol $\xrightarrow[\Delta]{H_2SO_4}$

(ii) $\text{butan}-1-ol \xrightarrow[H_2SO_4]{NaBr}$

(iii) neopentyl alcohol $\xrightarrow{PCl_5}$

Watch Video Solution

6. When phenol is treated with propan -2-ol in the presence of HF, Friedel-Craft reaction takes place. Identify the products.

Watch Video Solution

7. Give the IUPAC name for the following ethers and classify them as simple or mixed.

(i) $CH_3 - CH_2O - (CH_2)_3 - CH_3$

(ii)

(iii)

(iv) $(CH_3)_3C - O - C(CH_3)_3$

(v) $CH_2 = CH - CH(Cl) - O - CH_3$

(vi) dibenzyl ether

(vii) vinyl allyl ether

View Text Solution

8. Which of the following reaction will give 1-methoxy -4-nitrobenzene.

(a) 4-nitro -1-bromobenzene + sodium methoxide.

(b) 4-nitrosodium phenoxide + bromomethane

Watch Video Solution

9. 1 mole of HI is allowed to react with t-butyl methylether. Identify the product and write down the mechanism of the reactions.

Watch Video Solution

Additional Questions And Answers

1. Which among the following alkene on acid hydration will produce tertiary butyl alcohol?

A. $CH_3 - \underset{\underset{CH_3}{|}}{C} = CH_3$

B. $CH_3 - CH = CH_2$

C. $CH_3 - \underset{\underset{CH_3}{|}}{CH}$

D. $CH_3 - CH_2 - CH = CH - CH_3$

Answer: A

Watch Video Solution

2. Pick out the odd one among the following:

A. $CH_3CHOHCH_3$

B. $CH_3CH_3 - \underset{\underset{CH_3}{|}}{C}\ H - OH$

C. $(CH_3)_3C - OH$

D. $C_6H_5CHOHC_2H_5$

Answer: C

Watch Video Solution

3. Which one of the alcohol cannot be prepared by grignard reagent?

A. Methanol

B. ethanol

C. iso propyl alcohol

D. phenyl methanol

Answer: A

Watch Video Solution

4. Which among the following statement are correct with regard to alkyl halides?

A. Alkyl halides on heating with aq NaOH gives alcohols

B. 1° alkyl halides produced by SN_2 mechanism

C. 2° and 3° alkyl halides undergo substiution by SN_1 mechanism

D. all the above

Answer: D

Watch Video Solution

5. Which among the following reagent is not used to differentiate ethanol and phenol?

A. neutral $FeCl_3$

B. $C_6H_5N_2Cl$

C. NaOH

D. anhy $ZnCl_2$

Answer: D

Watch Video Solution

6. Which one of the following alcohols on oxidation gives carboxylic acid with lesser number of carbon atoms?

A. $(CH_3)_2 - CH - CH_2OH$

B. $CH_3CH_2CHOHCH_3$

C. $CH_3 - (CH_2)_3 - CH_2OH$

D. both (a) and (c)

Answer: B

Watch Video Solution

7. An organic compound 'A' reacts with methyl magnesium chloride followed by hydrolysis to form 'B'. 'B' give a blue colour with Victor meyers test. A and B respectively

A. acetaldehyde, tert butyl alcohol

B. acetone, iso proply alchol

C. acetaldehyde, isoproyl alcohol

D. acetone, ethanol

Answer: C

Watch Video Solution

8. Which one of the following would not react with conc. HCl and anhy. $ZnCl_2$ at room temperature?

A. $(CH_3)_3COH$

B. $(CH_3)_2CHOH$

C. $CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{CH} - OH$

D. $CH_3CH_2CH_2OH$

Answer: D

Watch Video Solution

9. $\text{Glycol} \xrightarrow{773K} 'A'$. Identify 'A'

A.

B.

C.

D.

Answer: A

Watch Video Solution

10. $CH_3 - \underset{CH_3}{\overset{CH_3}{C}} - ONa + CH_3CH_2Cl \rightarrow CH_3 - \underset{CH_3}{\overset{CH_3}{C}} - OCH_2CH_3$

The above reaction is called

A. Gatterman reaction

B. Williamson ether synthesis

C. Swern's reaction

D. Riemer tiemann reaction

Answer: B

Watch Video Solution

11. Which among the following sets of reactatns will produce anisole?

A. HCHO, RMgX

B. C_6H_5OH; $NaOH$; CH_3I

C. C_6H_5OH ; neutral $FeCl_3$

D. $C_6H_5CH_3$, CH_3COCl,$AlCl_3$

Answer: C

Watch Video Solution

12. Which has the highest boiling point?

A. CH_3CH_3

B. CH_3OH

C. C_2H_5OH

D. C_3H_8

Answer: C

Watch Video Solution

13. Which is soluble in H_2O?

A. Phenol

B. Alkanes

C. Alcohols

D. Alkenes

Answer: C

Watch Video Solution

14. Ethyl alcohol cannot be used as a solvent for CH_3MgI because

A. CH_3MgI reacts with alcohol giving methane

B. the reaction between them is explosive in natrue

C. CH_3MgI is converted to C_2MgI

D. alcohol is immicible with CH_3MgI

Answer: A

Watch Video Solution

15. Which of the following compound is optically active?

A. n-butyl alcohol

B. isobutyl alcohol

C. 2-butanol

D. t-butyl alcohol

Answer: C

Watch Video Solution

16. The ionisation constant of phenol is higher than that of ethanol because

A. phenoxide ion is bulkier than ethoxide.

B. phenoxide ion is stronger base than ethoxide

C. phenoxide ion is stablized through delocalisation.

D. phenoxide ion is less stable than ethoxide ion.

Answer: C

Watch Video Solution

17. Glycerol is used

A. as a sweetening agent

B. in the manufacture of good quality soap

C. in the manufacture of nitro glycerin

D. in all the above

Answer: D

Watch Video Solution

18. The reaction of Lucas reagent is fast with

A. $(CH_3)_3COH$

B. $(CH_3)_2CHOH$

C. $CH_3(CH_2)_2OH$

D. CH_3CH_2OH

Answer: A

Watch Video Solution

19. The ractions of ethylene glycol with PI_3 gives

A. ICH_2CH_2I

B. $CH_2 = CH_2$

C. $CH_2 = CHI$

D. ICH=CHI

Answer: B

Watch Video Solution

20. p-Nitrophenol is having lower pK_a value than phenol because

A. phenol is more acidic than p-nitro phenol.

B. anion of p-nitro phenol is more stablised by resonance than that of phenol.

C. degree of ionisation of p-nitro phenol is less than that of phenol.

D. anion of p-nitro phenol is less stable than that of phenol.

Answer: B

Watch Video Solution

21. When phenol is distilled with zinc dust it gives

A. benzaldehyde

B. benzoic acid

C. toluene

D. benzene

Answer: D

Watch Video Solution

22. Ethylene diamine is converted to ethylene glycol using

A. Na_2CO_3 solution

B. Nitrous acid

C. $NaHCO_3$ (aqueous)

D. Baeyer's reagent

Answer: B

Watch Video Solution

23. 1-Propanal and 2-propanol can be best distinguished by

A. oxidation with $KMnO_4$ followed by reaction with Fehling solution

B. oxidation with acidic dichromate followed by reaction with Fehling solution

C. oxidation by heating with copper followed by reaction with Fehling solution

D. oxidation with concentrated H_2SO_4 followed by reaction with Fehling solution.

Answer: C

Watch Video Solution

24. Predict the structure of propane -1,2 diol

A. $CH_2(OH) - CH_2CH_2OH$

B. $HOCH_2 - CH_2OH$

C. $CH_3CH(OH)CH_2OH$

D. None of these

Answer: C

Watch Video Solution

25. It has no α - hydrogen

A. CH_3CH_2OH

B. $CH_3 - CH_2 - CH_2 - OH$

C. $CH_3 - \underset{\underset{CH_3}{|}}{C}\ H - OH$

D. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - OH$

Answer: D

Watch Video Solution

26. The reactivity of alcohols with respect to oxidation decreases with

A. increase in α- H

B. decreases in α-H

C. increase in β- H

D. decrease in β -H

Answer: B

Watch Video Solution

27. Intermolecular hydrogen bondig in ethylene glycol leads to its

A. high viscosity

B. high boiling point

C. hygroscopic nature

D. all the above

Answer: D

Watch Video Solution

28. The IUPAC name of $CH_3 - \underset{H}{\overset{CH_3}{C}} - \underset{OH}{\overset{CH_3}{C}} - CH_3$

A. 2-methyl-2-propanol

B. 2-methyl -1-butanol

C. 2,3-dimethyl tributanol

D. 2,3-dimethyl-2-butanol

Answer: D

Watch Video Solution

29. The carbinol name of $CH_3 - \underset{CH_3}{\overset{CH_3}{C}} - OH$

A. ethyl propyl carbinol

B. ethyl methyl carbinol

C. trimethyl carbinol

D. dimethyl isopropyl carbinol

Answer: C

Watch Video Solution

30. Alcohols are isomeric with

A. aldehyde

B. ketones

C. ethers

D. esters

Answer: C

Watch Video Solution

31. Alcohols are soluble in polar solvents like water due to

A. intermolecular hydogen bonding

B. intramolecular hydrogen

C. co-ordinate bonding

D. ionic bonding

Answer: A

Watch Video Solution

32. Higher alcohols are not soluble in water because of

A. hydrophilic alkyl group

B. hydrophobhic alkyl groups

C. hydrophilic aryl group

D. hydrophobic aryl groups

Answer: B

Watch Video Solution

33. Lucas test is used to distinguish 1°, 2° and 3°

A. amines

B. nitro compound

C. alcohols

D. all the above

Answer: C

Watch Video Solution

34. Ethanol mixed with 5% methanol is known as

A. methylated spirit

B. denature spirit

C. both a and b

D. neither a nor b

Answer: C

Watch Video Solution

35. With concentrated sulphuric acid, glycol undergoes intermolecular dehydration to give cylcic compound

A. diethylene glycol

B. dioxan

C. paraldehyde

D. glyoxal

Answer: B

Watch Video Solution

36. Glycerol when heated with conc. H_2SO_4 gives

A. allyl alcohol

B. propyl alcohol

C. acrolein

D. propylene

Answer: C

Watch Video Solution

37. Glycerose is a mixture of

A. glyceric acid + dihydroxy acetone

B. glyceraldehyde + dihydroxy acetone

C. glyceraldehyde + glyceric acid

D. dihydroxy acetone + mesoxalic acid

Answer: B

Watch Video Solution

38. Which is the group that decreases the acid strength of phenol?

A. $-NO_2$

B. $-CN^-$

C. $-NH_2$

D. Both (a) and (b)

Answer: C

Watch Video Solution

39. Which of the following gives violet colour with neutral ferric chloride solution

A. phenol

B. glycerine

C. benzyl alcohol

D. ethanol

Answer: A

Watch Video Solution

40. Which among the following has both local anaesthetic and antiseptic properties?

A. benzyl benzoate

B. phenol

C. benzyl alcohol

D. n-propyl alcohol

Answer: C

Watch Video Solution

41. Compound of molecular formula C_7H_8O is a sweet smelling liquid. A on reaction with acidified $K_2Cr_2O_7$ gives compound B of molecular formula C_7H_8O. B reduces Tollen's reagent A and B are respectively.

A. benzaldehyde and benzoic acid

B. Methyl phenylcarbinol and acetophenone

C. benzyl alcohol and benzaldehyde

D. diphenyl carbinol and benzophenone

Answer: C

Watch Video Solution

42. Which of the following has a offensive odour?

A. Phenol

B. Benzyl alcohol

C. Acrolein

D. Benzyl benzoate

Answer: C

Watch Video Solution

43. Secondary alcohol on oxidation gives

A. aldehyde

B. ketone

C. ester

D. anydride

Answer: B

Watch Video Solution

44. Which of the following is not correct? Glycerol is used as

A. sweetening agent

B. moisturizing creams

C. copying links and stamp pad links

D. coolant in aeroplane engines

Answer: D

Watch Video Solution

45. Which one of the following is the strongest acid

A. $C_6H_5CH_2OH$

B. C_6H_5OH

C. $C_6H_5OCH_3$

D. CH_3OH

Answer: B

Watch Video Solution

46. Which of the following compound is optically active?

A. n-butyl alcohol

B. iso butyl alcohol

C. 2-butanol

D. tertiary butyl alcohol

Answer: C

Watch Video Solution

47. Which one of the following has the highest boiling point?

A. $CH_3CH_2CH_2CH_2CH_3$

B. $CH_3CH_2CH_2CH_2OH$

C. $CH_3CH_2CH_2CH_3$

D. $CH_3CH_2CH_2Cl$

Answer: B

Watch Video Solution

48. The compound that does not undergo Cannizaro reaction is:

A. Formaldehyde

B. Acetaldehyde

C. Benzaldehyde

D. Trimethyl acetaldehyde

Answer: B

Watch Video Solution

49. The compound that acts as a solvent for Grignard reagent is:

A. Ethyl alcohol

B. Diethyl ether

C. Acetone

D. Benzene

Answer: B

Watch Video Solution

50. Which one of the following is simple ether?

A. $CH_3 - O - C_2H_5$

B. $C_2H_5 - O - CH_3$

C. $C_2H_5 - O - C_2H_5$

D. $C_3H_7 - O - C_2H_5$

Answer: C

Watch Video Solution

51. Diethyl ether can be decomposed with

A. HI

B. $KMnO_4$

C. NaOH

D. H_2O

Answer: A

Watch Video Solution

52. Ethers are insoluble in water due to the

A. absence of co-ordinate bond

B. presence of co-ordinate bond

C. absence of H-bond

D. presence of H-bond

Answer: C

Watch Video Solution

53. Ethers should never be evaporated to dryness because

A. they form explosives peroxide

B. they are insoluble in water

C. they are inert

D. they are lighter than water

Answer: A

Watch Video Solution

54. Which of the following products ether, when heated with conc. H_2SO_4 at 413 K?

A. Organic acid

B. Aldehyde

C. Alcohol

D. Ketone

Answer: C

Watch Video Solution

Fill In The Blanks

1. Lower alcohols like ethanol and methanol are miscible in water due to _____

A. their acidic character

B. vanderwaals force of attraction

C. dipole-dipole inter action

D. inter molecular hydrogen bonding

Answer: D

View Text Solution

2. The common name of this compound $CH_2 = CH - CH_2 - OH$ is

A. glycerol

B. vinyl alcohol

C. allyl alcohol

D. prop-2-en-1-ol

Answer: C

Watch Video Solution

3. The functional isomer of n-propanol is

A. 2-propanol

B. prop-en-ol

C. ethyl methyl ether

D. acetaldehyde

Answer: C

Watch Video Solution

4. The structure of cyclohexanol is _____

A.

B.

C.

D.

Answer: B

Watch Video Solution

5. $RX + NaOH_{aq} \xrightarrow{\Delta} ROH + NaX$

The above reaction proceed by _____ mechanism.

A. nucleophilic addition

B. elimination

C. electrophilic substitution

D. nucleophilic substitution

Answer: D

View Text Solution

6. Addition of water across the double bond of an alkene is presence of sulphuric acid giving follows _____ rule.

A. Markownikoff's

B. anti Markownikoff

C. Sayt zeff's

D. Swern

Answer: A

Watch Video Solution

7. Consider the following reaction

$C_2H_5OH \xrightarrow{PCl_5} X \xrightarrow{\text{alc KOH}} Y \xrightarrow{alcH_2O\,|\,H^+} Z$ X, Y and Z respectively are

_____

A. $C_2H_5Cl, CH_2 = CH_2 \wedge OH$

B. $C_2H_4, C_2H_5COCl, C_2H_5OH$

C. $CH3COCl, CH2 = CH2, \wedge OH$

D. $C_2H_5Cl, \wedge OH, CH_2 = CH_2$

Answer: A

View Text Solution

8. Baeyer's reagent is _____

A. Zn|Hg in Conc HCl

B. acidified $K_2Cr_2O_7$

C. cold alkaline $KMnO_4$

D. Sodium borohydride

Answer: C

Watch Video Solution

9. Distinction of 1°, 2° and 3° alcohols is done by _____ test.

A. Lucas

B. Victor Meyer

C. Hoffmann

D. both (a) and (c)

Answer: D

Watch Video Solution

10. $CH_2 = CH_2 + H_2O \xrightarrow[alkKMnO_4]{\text{cold}} \begin{array}{c} CH_2 \\ | \\ OH \end{array}$ The above reaction is _____

A. Lucas test

B. Saponification

C. Victor Meyer's test

D. hydroxylation

Answer: D

Watch Video Solution

11. $CH_3 - CH = CH_2 + H_2O \xrightarrow{H_2SO_4} A$

Pick out the correct statement _____

A. A' is isopropyl alcohol and the reaction is Markoni Koff's addition.

B. A' is isopropyl alcohol and the reaction is nucleophili addition of water.

C. A' is propyl alcohol and the reaction involves nucleophilic attack of water followed by protonation

D. both (a) and (b) are correct

Answer: A

Watch Video Solution

12. $CH_3CH_2OH \xrightarrow[O]{} CH_3CHO \xrightarrow[O]{} CH_3COOH$

To stop the oxidation reactions at the aldehyde stage, _____ is used as an oxidising agent.

A. $KMnO_4 \mid H^+$

B. $K_2Cr_2O_7 \mid H^+$

C. pyridinium chloro chromate

D. both (a) and (b) are correct

Answer: C

Watch Video Solution

13. In swern method of oxidation of alcohols to aldehyde/ketones _____ is used as an oxidising agent.

A. dimethyl sulfoxide

B. pyridimum chloro chromate

C. CrO_3 in anhydrousmedium

D. $Na_2Cr_2O_7 \mid H^+$

Answer: A

View Text Solution

14. $\begin{array}{c} CH_2-OH \\ | \\ CH_2-OH \end{array} \xrightarrow{PI_1}$ _____?

A. ethane

B. ethene

C. ethyl iodide

D. ethyne

Answer: B

View Text Solution

15. Oxidation of ethylene glycol with HIO_4 gives _____

A. $\begin{array}{c} CHO \\ | \\ CH_2OH \end{array}$

B. $\begin{array}{c} CH \\ | \\ CHO \end{array}$

C. $\begin{array}{c} COOH \\ | \\ COOH \end{array}$

D. HCHO

Answer: D

Watch Video Solution

16. Glycerol an oxidation with _____ gives glyceric acid and tartronic acid

A. dil HNO_3

B. Conc. HNO_3

C. bismuth nitrate

D. Fenton's reagent

Answer: A

Watch Video Solution

17. The major product obtained when phenol is treated with sodium hydroxide and carbon di oxide is _____.

A. Salicyaldehyde

B. Salicylic acid

C. benzaldehyde

D. benzoic acid

Answer: B

Watch Video Solution

18. Picric acid is

A. 2,4,6 trinitro toluene

B. 2,4,6 trinitro benzaldehyde

C. 2,4,6 trinitro phenol

D. 2,4,6 trinitro benzoic acid

Answer: C

Watch Video Solution

19. The correct order of reactivity of alcohol during dehydration is

A. primary $>$ secondary $>$ tertiary

B. primary $<$ secondary $<$ tertiary

C. tertiary $<$ secondary $<$ primary

D. secondary $<$ tertiary $<$ primary

Answer: B

View Text Solution

20. The general formula for aliphatic ether is _____.

A. $C_nH_{2n+2}O$

B. $C_nH_{2n}O$

C. $C_nH_{2n-2}O$

D. $C_{2n}H_{2n+1}O$

Answer: D

View Text Solution

21. The IUPAC name of $CH_3 - O - \begin{array}{c} CH_3 \\ | \\ C \\ | \\ CH_3 \end{array} - CH_3$ is _____.

A. 2-methoxy propane

B. ethoxy benzene

C. 2-methoxy-2-methyl propane

D. 2-methyl-1-butane

Answer: C

Watch Video Solution

22. The ether used in perfumery is _____.

A. diethyl ether

B. dimethyl ether

C. methyl phenyl ether

D. diphenyl ether

Answer: C

Watch Video Solution

23. Ethanol $\xrightarrow[413K]{\text{Conc}H_2SO_4}$? _____.

A. diethyl ether

B. ethene

C. ethane

D. ethyl methyl ether

Answer: A

Watch Video Solution

24. Ethers in the presence of atmospheric oxygen oxidises to give hydroperoxides and dialkyl peroxides Such a spontenous reaction by atmospheric oxygen is called_____.

A. auto oxidation

B. acylation

C. alkylation

D. dehydration

Answer: A

Watch Video Solution

25. Phenol is less acidic than _____.

A. ethanol

B. o-nitrophenol

C. o-methyl phenol

D. m-chlorophenol

Answer: B

Watch Video Solution

26. The number of secondary alcoholic group in glycerol is _____

A. 1

B. 2

C. 3

D. 0

Answer: A

View Text Solution

27. Order of reactivity of alcohol towards sodium metal is _____

A. primary $<$ secondary $<$ tertiary

B. primary $>$ secondary $>$ tertiary

C. primary $<$ secondary $<$ tertiary

D. primary $>$ secondary $<$ tertiary

Answer: B

Watch Video Solution

28. The boiling point of ethyl alcohol should be less than that of _____

A. propane

B. formic acid

C. dimethyl ether

D. none of the above

Answer: B

Watch Video Solution

29. When alcohols are converted to alkyl chlorides by thionyl chloride in presence of pyridine the intermediate formed is _____.

A. sulphonium ion

B. chlorosulphonic acid

C. alkyl chlorosulphite

D. chlorosulphite

Answer: C

View Text Solution

30. On oxidation of an alcohol gives an aldehyde having the same number of carbon atoms as that of alcohol. The alcohol is

A. 1° alcohol

B. 2° alcohol

C. 3° alcohol

D. None

Answer: A

Watch Video Solution

31. A compound that gives a positive iodoform test is

A. 1-Pentanol

B. 2-Pentanone

C. 3-Pentanol

D. Pentanol

Answer: B

Watch Video Solution

32. The compound that reacts faster with Lucas reagent is _____

A. butan -1-ol

B. butan-2-ol

C. 2-methyl propan-1-ol

D. 2-methyl propan -2-ol

Answer: D

Watch Video Solution

33. Among the following compounds strongest acid is _____

A. HC $\equiv$ CH

B. C_6H_6

C. C_2H_6

D. CH_3OH

Answer: D

View Text Solution

34. The most unlikely repersentation of resonance structures of p-nitro phenoxide ion is _____

A. 

B. 

C. 

D. 

Answer: C

View Text Solution

35. The reaction of Lucas reagent is fast with

A. $(CH_3)_3COH$

B. $(CH_3)_2CHOH$

C. $CH_3(CH_2)_2OH$

D. CH_3CH_2OH

Answer: A

Watch Video Solution

36. A compound that undergoes bromination easily is _____.

A. benzoic acid

B. benzene

C. phenol

D. toluene

Answer: C

Watch Video Solution

37. Isomerism exhibited by ethylene glycol is _____.

A. position isomerism

B. chain isomerism

C. functional isomerism

D. both (a) and (c)

Answer: C

Watch Video Solution

38. The alcohol obtained by the hydrolysis of oils and fats is _____.

A. pentanol

B. propanol

C. glycerol

D. glycol

Answer: C

Watch Video Solution

39. The active component of dynamite is

A. keiselghur

B. nitro glycerine

C. nitro benzene

D. trinitro toluene

Answer: B

Watch Video Solution

40. The reaction of ethylene glycol with PI_3 gives

A. ICH_2CH_2I

B. $CH_2 = CH_2$

C. $CH_2 = CHI$

D. ICH=CHI

Answer: B

Watch Video Solution

41. The IUPAC name for isobutyl alcohol is _____.

A. 2-methyl-1 propanol

B. 2-methyl-1-butanol

C. 2,2-dimethyl -2-propanol

D. 1,1-dimethyl-2-butanol

Answer: A

Watch Video Solution

42. Formation of o and p-hydroxy benzaldeyde form phenol on treatment with $CHCl_3$ and NaOH is _____.

A. Riemer- Tiemann reaction

B. Kolber's reaction

C. Coupling reaction

D. Hydrogenation

Answer: A

Watch Video Solution

43. Ethylene glycol is dehydrated to diethylene glycol by _____.

A. conc. H_3PO_4

B. conc. H_2SO_4 and anydrous $ZnSO_4$

C. anhy. $ZnCl_2$

D. heat as 773 K

Answer: A

Watch Video Solution

44. The characteristic odour of lower phenol is _____.

A. carbolic acid

B. fruity

C. oil of bitter almond

D. rotten fish

Answer: A

View Text Solution

45. The structure of cumene is _____

A.

B. 

C. 

D. None

Answer: C

View Text Solution

46. Phenol is used to manufacture _____

A. plastics and drugs

B. explosives and pesticides

C. antiseptics and germicides

D. all the above

Answer: D

Watch Video Solution

47. An example of trihydric alcohol is _____.

A. trimethyl carbinol

B. 3-hexanol

C. propane -1,23-triol

D. tert -butylacohol

Answer: C

View Text Solution

48. The structure of 2-methyl-1-propanol is _____.

A. $CH_3 - \underset{\underset{CH_3}{|}}{C}H - CH_2OH$

B. $CH_3 - CH_2 - \underset{\underset{CH_3}{|}}{H} - OH$

C. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}} - OH$

D. $CH_3 - \overset{\overset{H}{|}}{\underset{\underset{OH}{|}}{C}} - H_3$

Answer: A

View Text Solution

49. Lucas reagent is _____.

A. $ZnCl_2$

B. conc. H_2SO_4 and anydrous $ZnSO_4$

C. $ZnSO_4$

D. conc. HCl and anhydrous $ZnCl_2$

Answer: D

View Text Solution

50. The test used to distinguish wish 1°, 2° and 3° alcohol is _____

A. Lucas test

B. Victor Meyer's

C. dehydrogenation

D. all the above

Answer: D

View Text Solution

51. _____ is used as an anti-freeze in automobiles .

A. ethanol

B. propanol

C. Methanol

D. Benzyl alcohol

Answer: C

Watch Video Solution

52. The number of primary alcoholic groups in ethylene glycol is _____

A. 0

B. 1

C. 2

D. 3

Answer: C

Watch Video Solution

53. The ultimate product obtained when glycerol reacts with oxalic acid at 533 K is _____.

A. formic acid

B. glycerol oxalate

C. allyl alcohol

D. acrolein

Answer: C

View Text Solution

54. The reaction between phenol and benzoyl chloride ishte present of sodium hydroxide is named as _____ reaction.

A. Cannizaro

B. Reimer- Tiemann

C. Kolbe's

D. Schotten-Baumann

Answer: D

View Text Solution

55. When phenol reacts with CCl_4 and $NaOH_3$ the product formed is _____ acid.

A. salicylic

B. cinnamic

C. benzoic

D. carboxylic

Answer: A

View Text Solution

56. Phenol turns _____ when air oxidised.

A. red

B. violet

C. blue

D. green

Answer: A

Watch Video Solution

57. $C_6H_5OH + Zn \rightarrow C_6H_6 + ZnO$ this reaction is used to identify the _____ present in natural products.

A. methoxy group

B. alkoxy group

C. double bond

D. aromatic ring

Answer: D

View Text Solution

58. The common name for 4-hydroxy toluene is _____.

A. p-cresol

B. m-cresol

C. resoricinol

D. catechol

Answer: A

View Text Solution

59. Ethanol and methoxy methane are _____.

A. chain isomers

B. position isomers

C. functional isomes

D. metamers

Answer: C

View Text Solution

60. Oxidation of glycerol with bismuth nitrate gives _____

A. meso-oxalic acid

B. glyceric acid

C. tartrnoic acid

D. both (b) and (c)

Answer: A

View Text Solution

61. The characteristic odour of lower phenols is _____.

A. carbolic acid

B. fruity

C. oil of bitter almond

D. rotten fish

Answer: A

View Text Solution

62. The isomersim exhibited by $C_2H_5 - O - C_2H_5$ and $CH_3 - O - \underset{\underset{CH_3}{|}}{CH} - CH_3$ is _____

A. Functional

B. Metamerism

C. Position

D. Chain

Answer: B

Watch Video Solution

63. Oxygen atom of ether is _____

A. very active

B. replacable

C. oxidising

D. comparatively inert

Answer: D

View Text Solution

64. According to Lewis concept of acids and bases, ethers are

A. neutral

B. acidic

C. basic

D. amphoteric

Answer: C

Watch Video Solution

65. Intermolecular hydrogen bonds are not present in _____

A. CH_3COOH

B. $C_2H_5OC_2H_5$

C. CH_3CH_2OH

D. $C_2H_5NH_2$

Answer: B

View Text Solution

66. When ethyl Iodide is treated with dry silver oxide it forms

A. Ethyl alcohol

B. diethylether

C. silver ethoxide

D. ethylmethyl ether

Answer: B

Watch Video Solution

67. Williamson's synsthesis is an example of _____.

A. nucleophilic addition

B. electrophilic addition

C. electrophilic substitution

D. nucleophilic substitution

Answer: D

Watch Video Solution

68. When ether is exposed to air for sometime as explosive substance produced is _____.

A. peroxide

B. oxide

C. TNT

D. superoxide

Answer: A

Watch Video Solution

69. Ether is formed when alkylhalide is treated with sodium alkoxide. This method is known as

A. Hoffmann reaction.

B. Williamson's synthesis

C. Wurtz synthesis

D. Kolbe's reaction

Answer: B

Watch Video Solution

70. Metamerism is exhibited by_____.

A. hydrocarbon

B. nitro compounds

C. mineral acid

D. ether

Answer: D

Watch Video Solution

71. 1- methoxy propane and 2- methoxy propane are _____

A. chain isomers

B. position isomers

C. metamers

D. functional isomers

Answer: C

View Text Solution

72. Diethyl ether reacts will excess of HI to form_____

A. C_2H_5OH and H_2O

B. C_2H_5I and H_2O

C. C_2H_5I and C_2H_5OH

D. C_2H_5OH and I_2

Answer: B

View Text Solution

73. If the two alkyl groups attached to the oxygen atom are the same, then it is calleld _____ ether.

A. simple

B. symmetrical

C. unsymmetrical

D. both (a) and (b) are correct

Answer: D

View Text Solution

74. $C_6H_5 - O - CH_3$ is an exmaple of _____

A. nitriles

B. mixed ether

C. symmetrical ether

D. anhydride

Answer: B

View Text Solution

75. Ethers are functional isomers of _____

A. acids

B. alcohols

C. nitro compounds

D. aldehydes

Answer: B

View Text Solution

76. The number of possible isomers for molecular formula C_3H_8O is _____

A. 2

B. 3

C. 7

D. 4

Answer: B

View Text Solution

77. Write all possible isomers with the molecular formula $C_4H_{10}O$ and name them.

A. 3

B. 4

C. 6

D. 7

Answer: D

Watch Video Solution

78. The number of ether isomes for molecular formula $C_4H_{10}O$ is _____

A. 2

B. 3

C. 4

D. 5

Answer: B

View Text Solution

79. Write all possible isomers with the molecular formula $C_4H_{10}O$ and name them.

A. 7

B. 10

C. 3

D. 4

Answer: D

Watch Video Solution

80. The functional isomer of $CH_3CH_2CH_2OH$ is _____.

A. $CH_3 - O - CH_2 - CH_3$

B. CH_3CH_2CHO

C. $CH_3 - CO - CH_3$

D. CH_3CHO

Answer: A

View Text Solution

81. $CH_3-CH_2-O-CH_2CH_3$ and $CH_3-O-\overset{\overset{CH_3}{|}}{C}H-CH_3$ are example of _____ isomerism.

A. functional

B. chain isomerism

C. position

D. metamerism

Answer: D

View Text Solution

82. Lower halogenated ethers can be converted into higher ethers by using _____ reagent.

A. Grignard

B. Tollen's

C. Fehling's

D. none of the above

Answer: A

View Text Solution

83. The acid that cannot be prepared by Grignard reagent

A. $CH_3 - C_2H_5$

B. $CH_3 - OCH_3$

C. $C_2H_5 - O - C_2H_5$

D. $CH_3 - OCH_2CH_3$

Answer: B

Watch Video Solution

84. Ether oxygen is capable of forming _____ bonds with electron deficient species.

A. covalent

B. ionic

C. coordinate covalent

D. hydrogen

Answer: C

View Text Solution

85. On heating, peroxides are _____

A. stable

B. unstable

C. decomposes violently

D. both b and c

Answer: D

View Text Solution

86. Write short notes on bromination of anisole.

A. m-bromo anisole

B. o-bromo anisole

C. o-&-p-bromo anisole

D. benzoic acid

Answer: C

Watch Video Solution

87. The IUPAC name of phenetole is _____.

A. ethoxybenzene

B. methyl phenyl ether

C. diethyl ether

D. diphenyl ether

Answer: A

Watch Video Solution

Assertion Reason

1. Assertion(A) : Pentan -2-ol and pentan-3-ol are both secondary alcohols.

Reason(R) : Both give blue colouration with Victor Meyer's test

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B

View Text Solution

2. Assertion: Phenol is more acidic than ethanol

Reason: Phenoxide ion is resonance stablized

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

Watch Video Solution

3. Assertion (A): Alcohols have higher boiling points than ethers of comparable molecular mass.

Reason (R): Alcohols and ethers are functional isomes.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B

Watch Video Solution

4. Assertion(A): Reduction of crotonaldehyde is preferbaly carried in the presence of $LiAlH_4$.

Reason(R): $LiAlH_4$ does not reduce carbon-carbon double bond in the carbonyl compound.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

View Text Solution

5. Assertion (A): $(CH_3)_2 - \underset{\underset{CH_3}{|}}{C} - OH + HCl \xrightarrow[ZnCl_2]{\text{anhy}}$

No reaction at Room temperature

Reason(R): $(CH_3)_2 - \underset{\underset{CH_3}{|}}{C} - OH + HCl$ is a secondary alcohol.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

View Text Solution

6. Assertion (A): Ethanol is a weaker acid than phenol.

Reason (R): Sodium ethoxide may be prepared by the reaction of ethanol with aqueous NaOH.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C

Watch Video Solution

7. Assertion (A): Ethers have higher boiling points than alcohols of comparble molecular mass.

Reason (R): Both ethers and alcohols form intermolecular hydrogne bands.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

View Text Solution

8. Assertion (A): Phenol on nitration with Conc. HNO_3 and H_2SO_4 give a mixture of o and p-nitro phenol.

Reason (R): -OH group is deactivating group.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: D

Watch Video Solution

9. Assertion (A) : Anisole reacts with HI to give phenol and methyl iodide.

Reason (R): The strong C-O bond in anisole does not cleave so methanol is never formed.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: A

Watch Video Solution

10. Assertion (A): Ethers is used as a solvent for Grignard reagent.

Reason (R): Ether decomposes grignard reagent to give methane.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C

View Text Solution

11. Assertion (A): Ethyl alcohol is manufactured by fermentation of sugar.

Reason (R): Lower alcohols are oils, liquids or waxy solids.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: C

Watch Video Solution

12. Assertion (A): Compounds with two hydroxy groups are gem diols.

Reason (R): Ethanol which contains 5% methanol is known s methylated spirit.

A. (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true but (R) does not explain (A)

C. (A) is true but (R) is false

D. Both (A) and (R) are false

Answer: B

Watch Video Solution

Correct Statements

1. Choose the correct statement

A. An example of unsymmetrical ether is $CH_3OC_2H_5$.

B. Ethers exhibit functional isomerism with alcohols.

C. Halogenated ethers on treating with alcohols forms higher ether.

D. Ether is lighter than water.

Answer: C

Watch Video Solution

2. Choose the correct statement:

A. Diethylether with chlorine in presence of sunlight forms $(C_2Cl_5)_2O$

.

B. The formula of diethyl oxonium chloride is $(C_2H_5)_2 - O^+Cl^-$.

C. In anisole oxygen is strongly bonded to benzene ring.

D. Ether is used as solvent for Grignard reagent.

Answer: B

View Text Solution

3. Choose the correct statement:

A. $CH_3OCH_3 \xrightarrow{\text{Dry HI}} CH_3I + CH_3OH$

B. Ether is used as substitute for petrol.

C. In Williamson synthesis, ether is formed using alkoxide and alcohol.

D. Ethers act as lewis base due to the presence of non-bonding electrons on oxygen.

Answer: C

View Text Solution

4. Which among the following is the correct statement regarding diethyl ether?

A. Undergoes nitration

B. high boiling point

C. With HI forms phenol and CH_3I

D. Forms peroxide in air.

Answer: D

View Text Solution

Incorrect Statements

1. Which of the following is incorrect with respect to anisole?

A. with nitrating mixture forms nitroanisoles.

B. Not used as a solvent.

C. Forms peroxides easily

D. Used in perfumery.

Answer: C

Watch Video Solution

2. Pick out incorrect statement regarding ethers

A. Ethers have higher boiling points than alkanes of companies mass.

B. Ethers are miscible with water.

C. Diethyl ether is used as refrigarant

D. Anisole is used as surgical anesthetic agent.

Answer: D

View Text Solution

3. Pick out the wrong statement regarding ethers.

A. dimethyl ether and diethyl ethers are simple ethers

B. ethyl methyl ether is a symmetrical ether

C. the reaction between sodium ethoxide and methyl bromide is known as williamson's ether synthesis.

D. Diethyl ether is used as an anaesthetiz

Answer: B

View Text Solution

4. Pick out the incorrect statement regarding anisole.

A. Anisole is not as reactive as phenol

B. The $-OCH_3$ group is m-directing

C. Anisole is used in perfumery

D. Nitration of anisole forms two substituted isomers.

Answer: B

View Text Solution

Very Short Answers 2 Marks

1. Give reasons: Methanol is mescible with water while iodo-methane isnot.

View Text Solution

2. Compare the acid strength in 1°, 2° and 3° alcohol giving reason.

View Text Solution

3. How will you convert C_2H_5OH to $C_2H_5OC_2H_5$?

Watch Video Solution

4. Complete the reaction and write the names of products. $C_2H_5OH + NH_3 \xrightarrow[360^\circ C]{Al_2O_3}$?

View Text Solution

5. Explain 'esterification' reaction with an example.

Watch Video Solution

6. Why is glycol more viscous than ethanol ?

Watch Video Solution

7. What happens when ethylene reacts with alkaline $KMnO_4$ solution

View Text Solution

8. Write the conversion of ethylene glycol to 1,4-dioxan ?

Watch Video Solution

9. Explain why phenol does not undergo substiution of the -OH group like alcohol.

View Text Solution

10. Complete the following reactions giving names of products.

View Text Solution

11. Give chemical test to distinguish between methanol and phenol.

View Text Solution

12. What happens when phenol is treated with diazonium chloride in presence of $NaOH$?

Watch Video Solution

13. Identify the product A and B.

View Text Solution

14. Identify the product C and D.

View Text Solution

15. Identify the product A and B

View Text Solution

16. How is the following conversion effected?

Ethyl alcohol $\rightarrow$ Ethylene glycol

Watch Video Solution

17. Give the IUPAC name of

(i) $CH_3CH(OH)CH_2OH$

(ii) $HO - CH_2 - CH_2 - OH$

(iii) $CH_3 - \overset{\overset{OH}{|}}{C}H - COOH$

Watch Video Solution

18. Write the IUPAC names of

(I) $CH_3OCH_2CH_2OH$, (ii) $CH_3OCH_2OCH_3$ and (iii)

View Text Solution

19. Why sodium metal cannot be used to dry alcohols but it can be used to dry ethers?

View Text Solution

20. What is 'Glycerose'? How is it prepared from glycerol?

View Text Solution

21. Write the tests to differentiate phenol and alcohol.

Watch Video Solution

22. Write short notes on the following

Schotten - Baumann reaction

Watch Video Solution

23. Write the IUPAC names of (a) $C_2H_5OCH_3$

(ii) $C_6H_5OC_2H_5$

Watch Video Solution

24. Complete and balance

$$C_2H_5OH \xrightarrow[Al_2O_3]{250^\circ C} ?$$

Watch Video Solution

25. What happens when anisole is nitrated ?

Watch Video Solution

26. Write short notes on bromination of anisole.

Watch Video Solution

27. Give a test to identify the presence of alcohol .

Watch Video Solution

28. Name the only primary alcohol which gives positive iodoform test.

Watch Video Solution

29. What happens when crotonaldehyde is reduced in the presence of $LiAlH_4$?

Watch Video Solution

30. Write two uses of ethylene glycol.

Watch Video Solution

31. State Saytzeff's rule.

Watch Video Solution

32. Phenols does not protonation reactions readily-Give reason.

Watch Video Solution

33. Explain the mechanism involved in the intermolecular dehydration of alcohols to give ethers.

Watch Video Solution

34. Which of the following does not give iodoform reaction?

$$CH_3 - CH_2OH, CH_3 - \underset{\underset{OH}{|}}{CH} - CH_2 - CH_3, CH_3 - \underset{\underset{OH}{|}}{CH} - CH_3, CH_3 -$$

View Text Solution

35. How can isobutyl alcohol be converted to t-butyl alcohol ?

Watch Video Solution

36. Arrange the following in the decreasing order of order of acid strength.

View Text Solution

Short Answers 3 Marks

1. When phenol on treatment with Br_2 / H_2O readily gives a precipitate of 2,4,6- tribomo phenol.

View Text Solution

2. Explain Swern oxidation of propan-2-ol to propanane.

View Text Solution

3. Explain the manufacture of glycerol from triglycerides.

View Text Solution

4. Write a note on Friedel Crafts reaction of anisole.

View Text Solution

5. Complete the following sequence of reaction and Identify A, B and C

View Text Solution

6. Account for the following:

(a) Lower members of alcohols are soluble in water but higher members are not.

(b) Alcohols cannot be used as solvent for Grignard reagent.

Watch Video Solution

7. Why is the tertiary alcohols show greater reactivity towards hydrogen halides than secondary and primary alcohols?

View Text Solution

8. Give chemical tests to distinguish between propan -2-ol and 2-methyl -propan-2-ol.

View Text Solution

9. How is glycerol obtained commercially ? State its two uses.

Watch Video Solution

10. How does glycerol react with (i) PCl_5 (ii) $KHSO_4$.

Watch Video Solution

11. Give a brief account of the following reaction. (i) esterification, (ii) Riemer Tiemann reaction.

Watch Video Solution

12. Account for the following, (i) Phenol has a smaller dipole moment than methanol, (ii) Phenols do not give protonation reaction readily.

View Text Solution

13. Identify the isomerism in each of the following paris

$CH_3OCH_2CH_3$ and $CH_3OCH_2CH_2OHCH_3CH(OH)CH_2OH$ and $CH_2OHCH_2CH_2OH$

$CH_3 - \underset{\underset{CH_3}{||}}{C}H - CH_2 - OH$ and $CH_3 - CH_2 - CH_2 - CH_2OH$

View Text Solution

14. Complete the following equations by writing the missing A,B,C,D etc.

View Text Solution

15. Give the IUPAC name of each of the following and classify them as 1°, 2° and 3°

(a) $CH_3(CH_2)_3CHOHCH(CH_3)_2$,

(b) $(CH_3)_3C - CH_2OH$

(c) $(CH_3)_2C - \underset{\underset{C_6H_5}{|}}{C} - OH$

(d) $BrCH_3 - \underset{\underset{OH}{|}}{C}H_2 - CH - C(CH_3)_3$

(e) $CH_2 = CH - CHOHCH$

(f) $PhCH_2OH$

(g) $HOCH_2CH_2CH_2CH_2C_6H_5$

(h) $(C_2H_5)_2COH$

View Text Solution

16. How will you prepare phenol (i) From chloro benzene (ii) From benzene sulphonic acid?

Watch Video Solution

17. How can the following conversion be effected ?

(a) phenol to phenolphthalein

(b) phenol to benzene

Watch Video Solution

18. How is nitroglycerine prepared from glycerol?

View Text Solution

19. Ethers should never be evaporated to dryness because

Watch Video Solution

20. How do ethers react with HI? Give the significance of the reaction.

View Text Solution

21. What are the oxidation products of glycerol ?

Watch Video Solution

22. Account for the following:

(i) Phenol does not get protonated readily,

(ii) Phenol, benzene diazonium chloride, NaOH solution gives red dye.

View Text Solution

23. How do primary, secondary and tertiary alcohols differ in terms of their oxidation ?

Watch Video Solution

Long Answers

1. What is major product formed when 3,3-dimethyl -2-butanol is heated in the presence of H_2SO_4.

View Text Solution

2. Explain the mechanism involved in the intermolecular dehydration of alcohols to give ethers.

Watch Video Solution

3. Explain auto-oxidation of ether.

View Text Solution

4. Starting from phenol how would you obtain the following compounds ?

(a) p-quinone, (b) picric acid and (c) Anisole.

Watch Video Solution

5. Write all possible isomers with the molecular formula $C_4H_{10}O$ and name them.

Watch Video Solution

Watch Video Solution

6. Give any five chemical differences between aromatic ether and an aliphatic ether.

View Text Solution

7. Give short notes on the following :

(a) Kolbe's reaction

(b) Riemer Tiemann reaction

(c) Coupling reaction

Watch Video Solution

8. How will you distinguish the primary, secondary and tertiary alcohols by Victor Meyer's method ?

Watch Video Solution

9. How would you distinguish between (i) methyl alcohol and ethyl alcohol (ii) benzyl alcohol phenol, (iii) ethyl alcohol and benzyl alcohol?

View Text Solution

10. Distinguish between (a) Ethanol and phenol (b) Phenol and acetic acid (c) Phenol and (d) Phenol and anisole.

View Text Solution

11. What are ethers? Write note on simple and mixed ethers with examples.

Watch Video Solution

Problems For Practice

1. An organic compound (A) of molecular formula C_3H_8O gives turbidity within 5-10 min on reaction with anhydrous $ZnCl_2/HCl$. Compound (A) on treatment with sodium hypochlorite gives a carbonyl compound (B) with on further chlorination gives compound (C) of molecular formula $C_3H_3OCl_3$. Identify (A),(B) and (C). Explain the reaction.

View Text Solution

2. An organic compound (A) C_2H_6O liberates hydrogen on treatment with metallic sodium. (A) on mid oxidation gives (B) C_2H_4O which answers iodoform test. (B) treated with conc. H_2SO_4 undergoes polymerisation to give (C), a cyclic compound. Identify (A), (B) and (C) and explain the reactions.

View Text Solution

3. An organic compound A of molecular formula C_6H_6O gives violet colouration with neutral $FeCl_3$. Compound A on treatment with metallic

Na gives compound B. Compound B on treatment with CO_2 at 400 K under pressure gives C. This product on acidification gives compound D $(C_7H_6O_3)$ which is used in medicine. Identify A,B, C and D and explain the reaction.

View Text Solution

4. An organic compound A of molecular formula C_3H_6O on reduction with $LiAlH_4$ gives B. Compound B gives blue colour in Victor Meyer's test and also forms a chloride C with $SOCl_2$. The chloride on treatment with alcoholic KOH gives D. Identify A,B,C and D and explain the reactions.

View Text Solution

5. An organic compound (A) C_3H_8O answers Lucas test within 5-10 minutes andon oxidation forms B (C_3H_6O). This on further oxidation forms $C(C_2H_4O_2)$ which gives effevescence with Na_2CO_3 also undergoes iodoform reaction. Identify A, B, and C. Explain the conversion of A to B and C.

View Text Solution

6. Compound A of molecular formula C_2H_8 is treated with chlorine and then with NaOH to get compound B of molecular formula. C_2H_8O. B on oxidation by acidified $K_2Cr_2O_7$ gives compound C of molecular formula C_7H_6O. Compound C on treatment with 50% caustic soda gives the compound B and also D. Find A,B,C and D. Explain the reactions.

View Text Solution

7. An organic compound (A) C_3H_8O answers Lucas test within 5-10 min and on oxidation forms (B) C_3H_6O. (B) on further oxidation forms (C) $C_2H_4O_2$ which gives effervescence with $NaHCO_3$ (B) also undergoes iodoform reactions. Identify A, B and C. Explain the reactions involved.

View Text Solution

8. Compound (A) of molecular formula C_3H_6O liberates hydrogen with sodium metal. (A) with P/I_2 gives (B). Compound (B) on treatment with silveer nitrite gives (C) which gives blue color with nitrous acid. Identify (A), (B), (C) and explain the reactions.

View Text Solution

9. An organic compound (A) (C_6H_6O) gives maximum of two isomers (B) and (C), When an alkaline solution of (A) is refluxed with chloroform. (B) on oxidation gives acid (D). The acid (D) is also obtained by treating. Sodium salt of (A) with CO_2 under pressure followed by hydrolysis, Identify the compounds (A), (B), (C) and (D) and explains with proper chemical reactions.

Watch Video Solution

10. An organic compound A (C_2H_6O) liberates hydrogen with sodium metal. A when heated with alumina at 620 K gives an alkene. B which

when passed through Bayer's reagent gives $C(C_2H_6O_2)$. C reacts with PI_3 and gives back B. Identify A,B and C. Write the reactions.

View Text Solution

11. Compound A (C_6H_6O) gives violet colouration with neutral $FeCl_3$ with CO at 400 K/4 to 7 atm followed by acidification with HCl gives B (C_7H_6O). Also, gives violet colouration with neutral $FeCl_3$ and gives effervescence with $NaHCO_3$ solution. Compound A reacts with NH_3 at 473 K in the presence of anhydrous $ZnCl_2$ to give compound C (C_6H_7N) which undergoes carbylamine test. Identify A, B, C and explain the reactions.

View Text Solution

12. An aromatic hydrocarbons A reacts with propene in the presence of anhydrous $AlCl_3$ to give a compound B with a molecular formula C_9H_{12}. Further compound B undergoes oxidation in the, presence of air to give

hydrogenperoxide C. Compound C decomposes in HCl acid solutions to give compound D and acetone. Identify A,B, C and D. Explain the reactions.

View Text Solution

13. An aromatic compound A $(C_2H_6O_2)$ liberates hydrogen with metallic sodium. Compound A when heated with anhydrous zinc chloride ultimately gives B (C_2H_4O) whereas, when heated with conc. Phosphoric acid gives C $(C_4H_{10}O_3)$. A on oxidation with acidified $K_2Cr_2O_7$ gives compound D (CH_2O_2). Identify A, B, C and D. Explain the reactions involved.

View Text Solution

14. Compound (A) with molecular formula C_6H_6O gives violet color with neutral $FeCl_3$. (A) reacts with $CHCl_3$ and NaOH gives two isomers (B) and (C) with molecular formula $C_7H_6O_2$. Compound (A) reacts with ammonial at 473 K in the presence of $ZnCl_2$ gives compound (D) with

molecular formula C_6H_7N. Compound (D) undergoes carbylamine test. Identify (A), (B), (C) and (D) and explain the reactions.

View Text Solution

15. Compound (A) with molecular formula C_6H_6O gives violet color with neutral ferric chloride. (A) reacting with $\mathbb{C}l_4$ and NaOH gives two isomers (B) and (C). (A) on oxidation with CrO_2Cl_2 gives (D) of molecular formula $C_6H_4O_2$. Identify A, B, C and D. Explain the reactions.

View Text Solution

16. An organic compound (A) of molecular formula $C_3H_8O_2$ is obtained as by-product in the manufacture of soap. Compound (A) on heating with P_2O_5 gives an unsaturated compound (B) of molecular formula C_3H_4O. Compound (A) with well cooled mixture of Conc. H_2SO_4 and fuming HNO_3 form compound (C) which is an explosive. Identify A, B and C and explain the reaction.

View Text Solution

View Text Solution

17. An organic compound (A) of molecular formula C_2H_4 reacts with alkaline potassium permanganate and gives compound (B) of molecular formula $C_2H_6O_2$. Compound (B) when heated with anhydrous zinc chloride forms (C) of molecular formula C_2H_4O. Identify A, B and C and explain the reactions.

View Text Solution

18. An organic compound (A) C_6H_6O gives violet colour with neutral $FeCl_3$ solution. With NH_3 in the presence of anhydrous $ZnCl_3$ (A) gives (B) (C_6H_7N). (A) with dimethyl sulphate gives (C) (C_7H_8O). What are (A), (B) and (C)? Explain the reactions.

Watch Video Solution

19. An organic compound of molecula formula $C_6H_5O\mathrm{Na}$ is heated with CO_2 at 400 K gives compound (A) of molecular formula $C_7H_5O_3Na$. Compound (A) on treating with HCl gives (B). B on further reactions wiith NaOH / CaO gives compound (C) of molecular formula C_6H_6O which on treatment with nitrous acid at 200 K gives compound (D). Identify (A), (B) , (C) and (D) are explain the reactions.

Watch Video Solution

20. An organic compound 'A' is a sodium salt of phenolic acid with molecular formula $C_7H_5O_3Na$. 'A' on hearting with soda lime gives compound 'B' of molecular formula C_6H_6O. 'B' gives violet colour with neutral ferric chloride. 'B' on treatment with C_6H_5COCl in the presence of NaOH gives an ester 'C'. Identify 'A', 'B' and 'C'. Explain the reactions.

View Text Solution

21. An organic compound (A) molecular formula CH_2O reacts with CH_3MgI to give compound (B). Compound (B) liberates Hydrogen with metallic sodium. Compound (B) in the presence of Conc. H_2SO_4 at 410 K on dehydration to give compound (C) molecular formula $C_4H_{10}O$. Identify (A), (B) and (C). Explain the above reactions.

View Text Solution

22. An organic compound (A) of molecular formula C_6H_6O gives voilet color with neutral $FeCl_3$ (A) gives maximum of two isomers (B) and (C) when an alkaline solution of (A) is refluxed with CCl_4, (A) also reacts with $C_6H_5N_2Cl$ to give the compound (D) which is red orange dye. Identify (A), (B), (C) and (D). Explain the suitable chemical reactions.

Watch Video Solution

Hots

1. When tertiary butyl alcohol and 1-butanol are separately treated with a few drops of $KMnO_4$, in one case only the purple colour disappears and a brown precipitate is formed. Which of the two alcohols gives the above reaction and what is that brown precipitate.

Watch Video Solution

2. Compound (A) $C_6H_{12}O_2$ on reduction with $LiAlH_4$ yields two compounds B and C. The compound (B) on oxidation gave (D), which on treatment with aqueous alkali and subsequent heating furnished E. The latter on catalytic hydrogenation gave (C). Compound (D) on oxidation gave monobasic acid (molecular formula weight =60). Deduce the structure of (A), (B), (C), (D) and (E).

View Text Solution

3. Give the Grignard reagent and carbonyl compound that can be used to prepare

(a) $CH_3 - CH_2 - CH_2 - OH$

(b) $(CH_3)_2C(OH)CH_2CH_2CH_3$

(c) $C_6H_5CH_2CH(OH)CH_3$

(d) $CH_3 - CH_2 - \overset{\overset{C_6H_5}{|}}{\underset{\underset{C_6H_5}{|}}{C}} - CH_3$

View Text Solution

4. Halo alkane are easily prepared from alcohols while aryl halides cannot be prepared from pehnol.- Justify.

View Text Solution

Unit Test Choose The Correct Answers

1. Which one of the following is the strongest acid

A. 2-nitrophenol

B. 4-chlorophenol

C. 4-nitrophenol

D. 3-nitophenol

Answer: c

Watch Video Solution

2. Glycerol an oxidation with _____ gives glyceric acid and tartronic acid

A. dil HNO_3

B. Conc. HNO_3

C. bismuth nitrate

D. Fenton's reagent.

Answer: a

Watch Video Solution

3. The major product obtained when phenol is treated with sodium hydroxide and carbon di oxide is _____.

A. Salicyaldehyde

B. Salicylic acid

C. benzaldehyde

D. benzoic acid

Answer: b

Watch Video Solution

4. Which among the following is the correct statement regarding diethyl ether?

A. Undergoes nitration

B. high boiling liquid

C. With HI forms phenol and CH_3I

D. Forms peroxide in air.

Answer: d

View Text Solution

5. Alcohols are isomeric with

A. aldehyde

B. ketones

C. ethers

D. esters

Answer: c

Watch Video Solution

Unit Test Very Short Answers

1. Can we use nucleophiles such as NH_3, CH_3O for the Nucleophilic substitution of alcohols.

Watch Video Solution

2. Why is glycol more viscous than ethanol ?

Watch Video Solution

Unit Test Short Answer

1. Account for the following:

(a) Lower members of alcohols are soluble in water but higher members are not.

(b) Alcohols cannot be used as solvent for Grignard reagent.

Watch Video Solution

2. Explain Kolbe's reaction .

Watch Video Solution

Unit Test Long Answer

1. How will you distinguish the primary, secondary and tertiary alcohols by Victor Meyer's method ?

Watch Video Solution