

ORGANIC CHEMISTRY

NEET

CRASH COURSE

ALCOHOL & ETHER

SMART ACHIEVERS
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ALCOHOL & ETHER

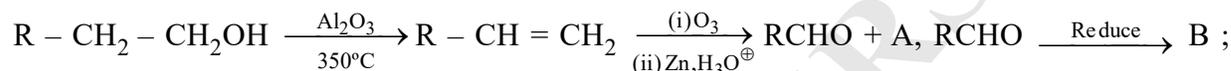
- Q.1 Which of the following is also known as 'picric acid'?
- (1) phenol (2) carboxylic acids (3) trinitrophenol (4) nitroalkane
- Q.2 Which of the following has the highest boiling point?
- (1) $\text{CH}_3 - \text{CH}_2 - \underset{\text{OH}}{\text{CH}} - \text{CH}_3$ (2) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2\text{OH}$
- (3) $\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \text{CH}_2\text{OH}$ (4) $\text{CH}_3 - \underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}} - \text{OH}$
- Q.3 Lucas test is used to determine the type of
- (1) amines (2) alcohols (3) acids (4) phenols
- Q.4 LiAlH_4 converts acetic acid into-
- (1) Acetaldehyde (2) Methane (3) Ethyl alcohol (4) Methyl alcohol
- Q.5 Hydrogen bonding is possible in-
- (1) Ethers (2) Hydrocarbons (3) Alkanes (4) Alcohols
- Q.6 Methanol and ethanol are distinguished by-
- (1) Treating with Schiff's reagent (2) Treating with Lucas reagent
(3) Heating with iodine and alkali (4) Treating with CrO_3 in dil. H_2SO_4
- Q.7 Power alcohol is a mixture of petrol and alcohol in the ratio-
- (1) 4 : 1 (2) 1 : 4 (3) 2 : 1 (4) 1 : 2
- Q.8 The reactivities of alcohol CH_3OH , 1° , 2° , 3° towards metals follow the order :
- (1) $\text{CH}_3\text{OH} > 1^\circ > 2^\circ > 3^\circ$ (2) $1^\circ > 2^\circ > 3^\circ > \text{CH}_3\text{OH}$
(3) $\text{CH}_3\text{OH} > 3^\circ > 2^\circ > 1^\circ$ (4) $\text{CH}_3\text{OH} > 2^\circ > 3^\circ > 1^\circ$
- Q.9 Lucas reagent is :
- (1) Conc. HCl and anhydrous ZnCl_2 (2) Conc. HCl and hydrous ZnCl_2
(3) Conc. HNO_3 and hydrous ZnCl_2 (4) Conc. HNO_3 and anhydrous ZnCl_2

- Q.10 Which of the following reactions of alkanols does not involve C–O bond breaking
- (1) $\text{CH}_3\text{CH}_2\text{OH} + \text{SOCl}_2$ (2) $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3 + \text{PBr}_3$
 (3) $\text{CH}_3\text{CH}_2\text{OH} + \text{CH}_3\text{COOH}$ (4) $\text{ROH} + \text{HX}$
- Q.11 Which alcohol produces turbidity with Lucas reagent most slowly
- (1) 2-Butanol (2) t-Butyl alcohol (3) Isobutyl alcohol (4) Diphenylcarbinol
- Q.12 Which of the following alcohols gives a red colour in Victor Meyer test
- (1) n-Propyl alcohol (2) Isopropyl alcohol (3) $(\text{CH}_3)_3\text{C}-\text{OH}$ (4) sec. Butyl alcohol
- Q.13 Methanol can be distinguished from ethanol by the following except
- (1) Reaction with iodine and alkali (2) Reaction with salicylic acid and H_2SO_4
 (3) Reaction with Lucas reagent (4) Boiling point
- Q.14 Which of the following does not turn orange colour of chromic acid to green
- (1) 1° alcohol (2) 2° alcohol (3) 3° alcohol (4) Allyl alcohol
- Q.15 The compound A, B and C in the reaction sequence
- $$\text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{PBr}_3} \text{A} \xrightarrow{\text{alc.KOH}} \text{B} \xrightarrow{\text{Br}_2} \text{C}$$
- are given by the set
- (1) $\text{C}_2\text{H}_5\text{Br}$, $\text{CH}_3\text{CH}_2\text{OH}$, CH_3CHBr_2 .
 (2) $\text{C}_2\text{H}_5\text{Br}$, $\text{CH}\equiv\text{CH}$, $\text{CH}_2=\text{CHBr}$
 (3) $\text{C}_2\text{H}_5\text{Br}$, $\text{CH}_2=\text{CH}_2$, $\text{CH}_2\text{Br}-\text{CH}_2\text{Br}$
 (4) $\text{C}_2\text{H}_5\text{Br}$, $\text{CH}_3\text{CH}_2\text{OH}$, $\text{BrCH}_2-\text{CH}_2\text{Br}$
- Q.16 Which of the following isomeric alcohols have highest boiling point -
- (1) Primary (2) Secondary (3) Tertiary (4) All equal
- Q.17 The increasing order of boiling points of 1°, 2°, 3° alcohol is -
- (1) $1^\circ > 2^\circ > 3^\circ$ (2) $3^\circ > 2^\circ > 1^\circ$ (3) $2^\circ > 1^\circ > 3^\circ$ (4) None

Q.18 The solubility of lower alcohols in water is due to -

- (1) Formation of hydrogen bond between alcohol and water molecules
- (2) Hydrophobic nature of alcohol
- (3) Increases in boiling points
- (4) None of these

Q.19 The missing structures A and B in the reaction sequence :



A & B are given by the set -

- | | |
|----------------------|-------------------------|
| (1) $CH_3OH, RCOOH$ | (2) Methanal, RCH_2OH |
| (3) Ethanal, $RCOOH$ | (4) Methanal, $RCHOHR$ |

Q.20 Which alcohol does not give a ketone on oxidation-

- | | |
|-------------------------|--------------------------|
| (1) Isopropyl alcohol | (2) Allyl alcohol |
| (3) Ethylmethylcarbinol | (4) Methylphenylcarbinol |

Q.21 The product of reaction,



- | | | | |
|--------------|------------------|---------------|----------------|
| (1) C_2H_6 | (2) CH_3COCH_3 | (3) CH_3CHO | (4) CH_3COOH |
|--------------|------------------|---------------|----------------|

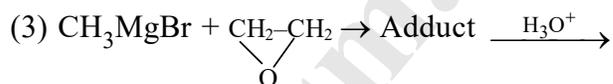
Q.22 Tertiary alcohols are resistant to oxidation because :

- | | |
|------------------------------------|--|
| (1) They do not have hydrogen atom | (2) Of large +I effect of alkyl groups |
| (3) Of greater steric hindrance | (4) All the above |

Q.23 $LiAlH_4$ converts acetic acid into-

- | | | | |
|------------------|-------------|-------------------|--------------------|
| (1) Acetaldehyde | (2) Methane | (3) Ethyl alcohol | (4) Methyl alcohol |
|------------------|-------------|-------------------|--------------------|

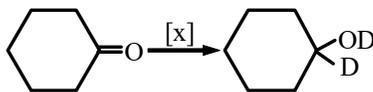
Q.24 Which of the following reactions leads to formation of 2- propanol :



Q.25 Ethyl alcohol is less acidic than phenol because :

- (1) The phenoxide ion is resonance stabilized
- (2) There is more hydrogen bonding in phenol than in ethyl alcohol
- (3) The ethoxide ion is less resonance stabilized than ethyl alcohol
- (4) Phenol has a higher b.p. than ethyl alcohol

Q.26 In the given reaction



[X] will be -

- (1) $\text{LiAlD}_4/\text{D}_2\text{O}$ (2) $\text{NaBD}_4/\text{H}_2\text{O}$ (3) $\text{LiAlD}_4/\text{HOH}$ (4) $\text{NaBH}_4/\text{D}_2\text{O}$

Q.27 The correct order of boiling points of n-pentane, butyraldehyde, diethyl ether and n-butyl alcohol is :

- (1) n-Pentane > butyraldehyde > diethyl ether > n-butyl alcohol
 (2) n-Pentane > diethyl ether > butyraldehyde < n-butyl alcohol
 (3) n-Butyl alcohol > butyraldehyde > n-pentane > diethyl ether
 (4) n-Butyl alcohol > diethyl ether > n-pentane > butyraldehyde

Q.28 Ether is used as :

- (1) An antiseptic and a solvent
 (2) An anaesthetic and a solvent
 (3) A fire extinguisher under the trade name pyrene
 (4) A dry cleaning solvent

Q.29 Ether reacts with air to form :

- (1) Acetic anhydride (2) Ether hydroperoxide
 (3) An ester (4) Alkanol

Q.30 Ether bottles should not be kept open in air because :

- (1) Ether is an anaesthetic (2) Ether forms an explosive peroxide
 (3) Ether is costly (4) Ether gets oxidised to ethanol

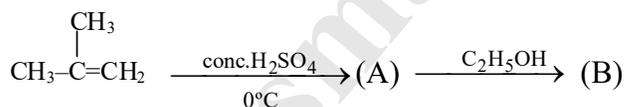
Q.31 Diethyl ether acts as a -

- (1) Lewis acid (2) Lewis base (3) Reducing agent (4) Oxidising agent

Q.32 The order of reactivity of halogen acids with ether is -

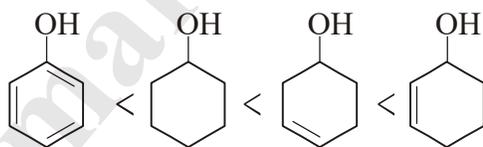
- (1) $\text{HCl} > \text{HBr} > \text{HI}$ (2) $\text{HI} > \text{HBr} > \text{HCl}$ (3) $\text{HCl} > \text{HI} > \text{HBr}$ (4) $\text{HI} > \text{HCl} > \text{HBr}$

Q.33 Identify the final product (B) in the following sequence of reactions.



- (1) $(\text{CH}_3)_2\text{C-OSO}_3\text{H}$ (2) $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$
 (3) $(\text{CH}_3)_3\text{COC}_2\text{H}_5$ (4) $(\text{CH}_3)_2\text{CHCH}_2\text{OC}_2\text{H}_5$

- Q.39 **Assertion** : Grignard reagent reacts with aldehydes and ketones to form alcohol.
Reason : Alcohols have acidic hydrogen.
- Q.40 **Assertion** : CH_3OH is a nucleophile.
Reason : CH_3OH forms sodium methoxide on treatment with NaOH .
- Q.41 **Assertion** : Primary and secondary alcohol can be distinguished by Victor-Meyer test.
Reason : Primary alcohols form nitrolic acids which dissolve in NaOH to form blood red colour but secondary alcohols form pseudonitroles which gives blue colour with NaOH .
- Q.42 **Assertion** : The acidity of alcohols follows the order $1^\circ > 2^\circ > 3^\circ$.
Reason : The +I effect of the additional alkyl groups favours the cleavage of O–H bond.
- Q.43 **Assertion** : A triester of glycerol and palmitic acid on boiling with aqueous NaOH gives a solid cake having soapy touch :
Reason : Free glycerol is liberated which is a greasy solid :
- Q.44 **Assertion** : Phenol is a weak acid than ethanol
Reason : Groups with + M effect and –I effect decrease acidity at p-position.
- Q.45 **Assertion** : t-butyl methyl ether is not prepared by the reaction of t-butyl bromide with sodium methoxide.
Reason : Sodium methoxide is a strong nucleophile.
- Q.46 **Assertion** : Change in colour of acidic solution of potassium dichromate by breath is used to test drunk drivers.
Reason : Change in colour is due to the complexation of alcohol with potassium dichromate.
- Q.47 **Assertion** : Alcohols have higher boiling points than ethers of comparable molecular masses.
Reason : Alcohols and ethers are isomeric in nature.
- Q.48 **Assertion** : The ease of dehydration of the following alcohols is



Reason : Alcohols leading to conjugated alkenes are dehydrated to a greater extent.

ANSWER KEY

Q.1	3	Q.2	2	Q.3	2	Q.4	3	Q.5	4	Q.6	3	Q.7	1
Q.8	1	Q.9	1	Q.10	1	Q.11	3	Q.12	1	Q.13	3	Q.14	3
Q.15	3	Q.16	1	Q.17	1	Q.18	1	Q.19	2	Q.20	2	Q.21	3
Q.22	1	Q.23	3	Q.24	2	Q.25	1	Q.26	1	Q.27	4	Q.28	1
Q.29	2	Q.30	2	Q.31	2	Q.32	2	Q.33	3	Q.34	1	Q.35	1
Q.36	2	Q.37	3	Q.38	3	Q.39	2	Q.40	2	Q.41	1	Q.42	3
Q.43	3	Q.44	4	Q.45	1	Q.46	1	Q.47	2	Q.48	1		