



# CHEMISTRY

## BOOKS - BRILLIANT PUBLICATION

### ALCOHOL, PHENOL & ETHER

#### Level I Questions

1. Which is most readily hydrolysed to alcohol?

a)  $\text{C}_2\text{H}_5\text{F}$  b)  $\text{C}_2\text{H}_5\text{Cl}$  c)  $\text{C}_2\text{H}_5\text{I}$  d)  $\text{C}_2\text{H}_5\text{Br}$



**Answer: C**



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2. Which among the following is not an isomeric primary alcohol.

A. isobutyl alcohol

B. neopentyl alcohol

C. allyl alcohol

D. isopropyl alcohol

**Answer: D**



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**3. Predict the major products of acid catalysed dehydration of butan-1-ol**

A. 1-butene

B. 2-butene

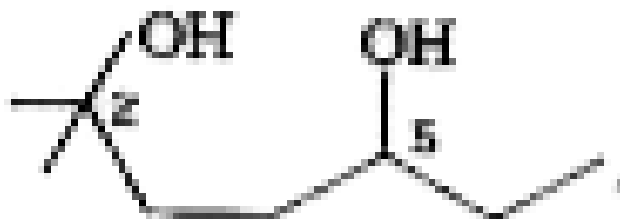
C. isobutene

D. isobutane

**Answer: B**



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4.

In this

diol

A. OH at  $C_2$  is more basic than that of at

$C_5$

B. OH at  $C_2$  is more acidic than at  $C_5$

C. Both behave as a base

D. Both behave 'as an acid'

**Answer: A**



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5. Which of these can be used to prepare alcohols?

I : Hydration of olefins

II : Hydrolysis of cyanides

III : Reduction of carbonyl compounds.

A. I, II and III

B. I and II

C. II and III

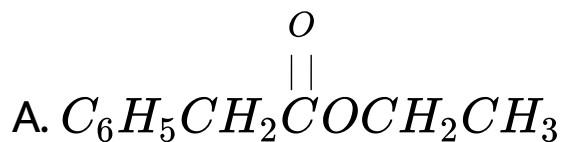
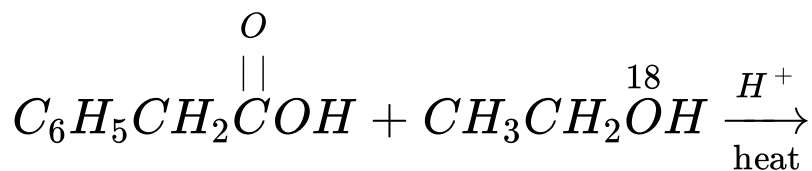
D. I and III

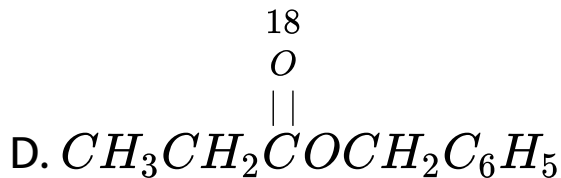
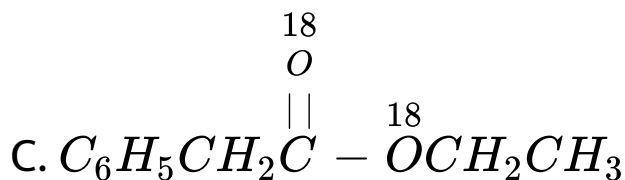
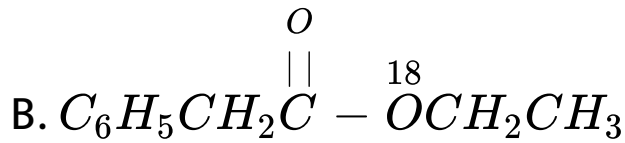
**Answer: D**



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6. Which is the ester formed by the following reaction.





**Answer: B**



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7. Ingesting even very small amount of methyl alcohol is fatal. Methanol poisoning is treated



by

A. A. Ethanol

B. B.Methanal

C. C .Ethanoic acid

D. D.Benzene

**Answer: A**

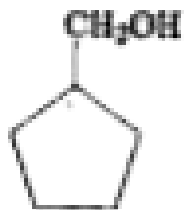


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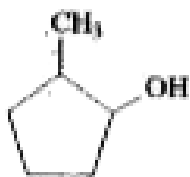
8. Oxymercuration-demercuration of 3-methylcyclopentene produces this/these product(s)



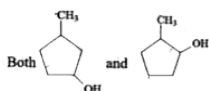
A. A.



B. B.



C. C.



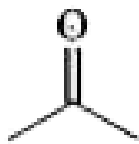
D. D.

**Answer: D**



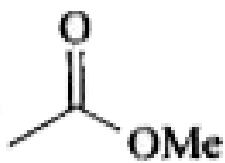
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9. Stepwise reaction of which set of reagents with isobutyl bromide produce a primary alcohol? (i)  $Li, Et_2O$ , (ii)

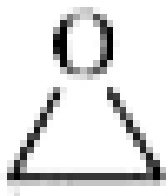


, (iii)  $NH_4Cl, H_2O$  (i)  $Mg, Et_2O$

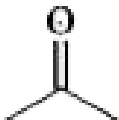
, (ii)  $CH_3C(=O)H$ , (iii)  $H_3O^+$  (i)  $Mg, Et_2O$ , (ii)



, (iii)  $NH_4Cl, H_2O$  (i)  $Mg, Et_2O$

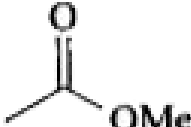


, (ii) , (iii)  $H_3O^+$

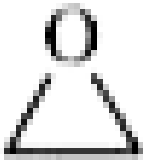
A. (i)  $Li, Et_2O$ , (ii) , (iii)

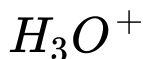
$NH_4Cl, H_2O$

B. (i)  $Mg, Et_2O$ , (ii)  $CH_3\overset{O}{\parallel}CH$ , (iii)  $H_3O^+$

C. (i)  $Mg, Et_2O$ , (ii) , (iii)

$NH_4Cl, H_2O$

D. (i)  $Mg, Et_2O$ , (ii) , (iii)

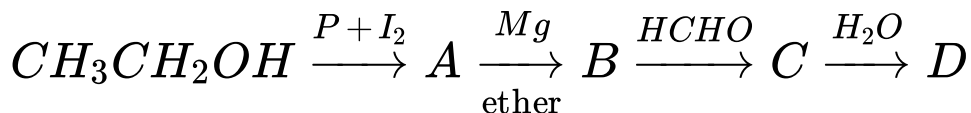


**Answer: D**



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**10.** In the following sequence of reactions.



the compound D is:

A. butanol

B. n-butyl alcohol

C. n-propyl alcohol

D. propanal

**Answer: C**



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**11.** Among the following-the one used as anaesthetic is

A. Carbontetrachloride

B. Ethoxyethane

C. anisole

D. Cumene

**Answer: B**



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**12.** The alcohol that reacts fastest with Lucas reagent and its mechanism are respectively

A. Tertiary alcohol by  $S_N1$

B. Secondary alcohol by  $S_N2$

C. tertiary alcohol by  $S_N2$

D. Secondary alcohol by  $S_N1$

**Answer: A**



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**13.** The pair of alcohols that can be distinguished by Victor Meyer test.



- A. Methanol and ethanol
- B. Ethanol and 1-propanol
- C. 2-Pentanol and 3-pentanol
- D. 1-Propanol and 2-propanol

**Answer: D**



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**14.** The compound that is insoluble in sodium bicarbonate is?

A. 2,4,6-Trinitrophenol

B. Benzoic acid

C. ortho-Nitrophenol

D. Benzene sulphonic acid

**Answer: C**



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**15.** Power alcohol is a mixture of 80 %' peterol

'+20 %' ethanol '+' small quantity of benzene

80 %' ethanol '+20 %' benzene '+' small

quantity of petrol 50 %' petrol '+50 %' ethanol  
'+' small quantity of benzene 80 %' petrol '+20  
' benzene '+' small quantity of ethanol

A. 80% petrol+20% ethanol+small quantity  
of benzene

B. 80% ethanol- 20% benzene + small  
quantity/of petrol

C. 50%-petrol + 50% ethanol + small  
quantity of benzene

D. 80% petrol + 20% benzene+small

quantity of ethanol

**Answer: A**



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**16.** The major product obtained on heating phenol with a, solution of mixture of  $KBr$  and  $KBrO_3$  is.

A. 3-bromophenol

B. 4-bromophenol

C. 2,4,6-tribromophenol

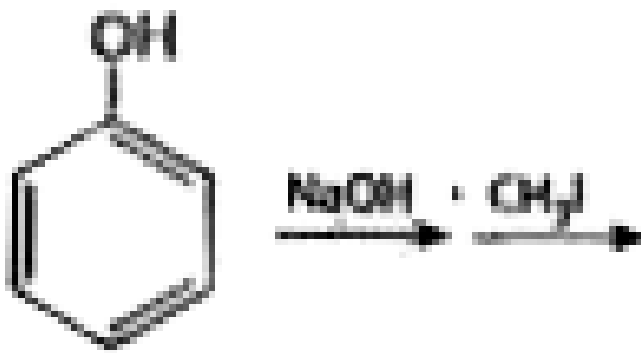
D. 2-bromophenol

**Answer: C**



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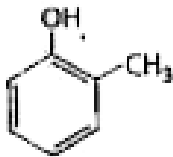
**17.** The major product formed in the following reaction is



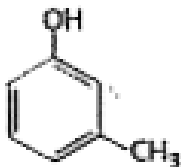
A. A.

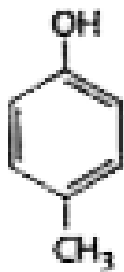


B. B.



C. C.





D. D.

**Answer: A**



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**18.** The reagent among the following that can be used to separate o-cresol from a mixture of o-cresol and acetic acid : metallic sodium, aqueous  $NaHCO_3$  , dil.HCl, Iodine and alkali

A. A) metallic sodium

B. B) aqueous  $NaHCO_3$

C. C) dil.HCl

D. D) Iodine and alkali

**Answer: B**



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**19.** In Victor meyers test the colour produced by isopropyl alcohol and isobutyl alcohol are respectively



A. red and blue

B. blue and colourless

C. blue and red

D. red and colourless

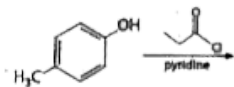
**Answer: C**



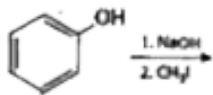
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**20.** Which among the following is an electrophilic substitution reaction.

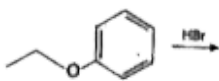
A. A .



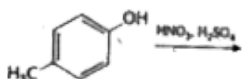
B. B.



C. C



D. D .

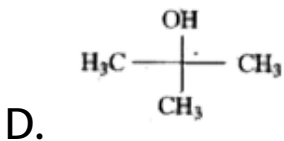
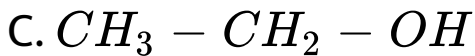
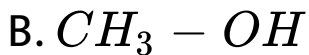
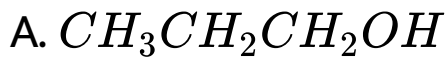


**Answer: D**



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**21.** Among the following alcohols, which one is most acidic?

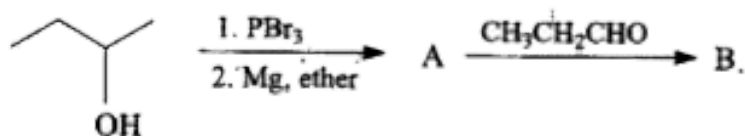


**Answer: B**



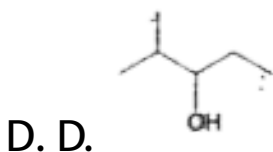
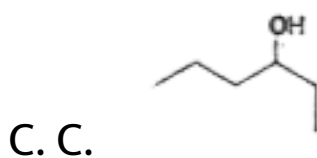
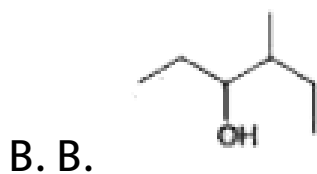
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22. In the reaction



The

final product 'B' is:



**Answer: B**



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**23.** An organic compound X on treatment with  $K_2Cr_2O_7$  in anhydrous medium gives a compound Y which reacts with  $I_2$  and sodium carbonate to form triiodomethane. The compound X is

A.  $CH_3OH$

B.  $CH_3COCH_3$

C. C. $CH_3CHO$

D. D. $CH_3CHOHCH_3$

**Answer: D**



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**24.** Conversion of  $CH_2 = CH - CHO$  to  $CH_2 = CH - CH_2OH$  is effected by:

A. A.  $H_2 / Ni / \Delta$

B. B.  $Pt / H_2$

C. C. $NaBH_4$

D. D. $H_2$  / Wilkinson catalyst

**Answer: C**

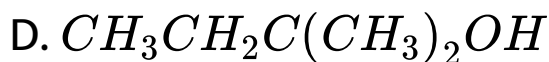
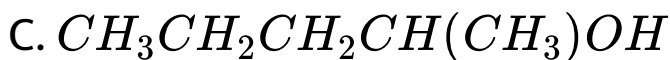


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**25.** Among the given compounds boiling point is highest for?

A.  $CH_3CH_2OCH_2CH_3$

B.  $CH_3CH_2CH_2CH_2CH_2OH$



**Answer: B**



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**26.** Methoxybenzene is prepared from phenol

by using the reagents:





C. C.NaOH, then  $CH_3OCH_3$

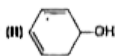
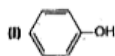
D. D.(A) and (B)

**Answer: B**



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27. The stability towards dehydration of the following compounds decreases-in the order



A. A.  $I > II > III > IV$

B. B.  $I > IV > III > II$

C. C.  $IV > II > I > III$

D. D.  $II > III > IV > I$

**Answer: D**



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**28.** The alcohol that reacts fastest with Lucas reagent and its mechanism are respectively

A. Butan-2-ol

B. Butan-1-ol

C. 2-Methylpropan-1-ol

D. 2-Methylpropan-2-ol

**Answer: D**



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**29.** In  $CH_3CH_2OH$ , the bond that undergoes heterolytic cleavage most readily in presence of  $H_3O^+$  is:

A. C-C

B. C-O

C. C-H

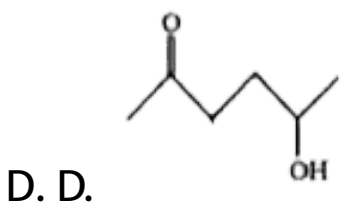
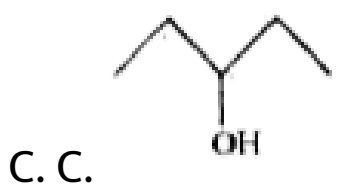
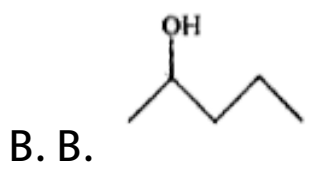
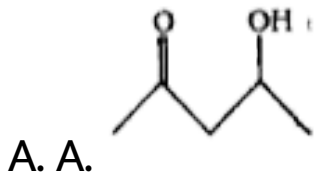
D. O-H

**Answer: D**



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**30.** Which of the following will Be most readily dehydrated in acidic conditions?



**Answer: A**

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31. Phenyl magnesium bromide reacts with t-butanol to give

A. Benzene

B. Phenol

C. t-Butyl benzene

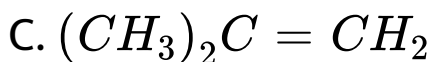
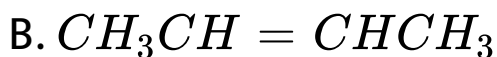
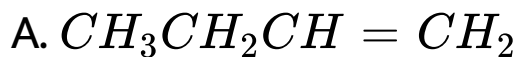
D. t-Butyl phenyl ether

**Answer: A**



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32. The alkene that produces tertiary butyl alcohol on acid catalysed hydration is:



**Answer: C**



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33. Acid-catalysed hydration of alkenes except ethene leads to the formation of

A. primary alcohol

B. secondary or tertiary alcohol

C. mixture of primary and secondary alcohols

D. mixture of secondary and tertiary alcohols

**Answer: B**



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34. The Grignard reagent suitable for the preparation of 3-methyl-2-butanol is:

A. 2-Butanone+methyl magnesium bromide

B. Acetone+ethyl magnesium bromide

C. Acetaldehyde+isopropylmagnesium  
bromide

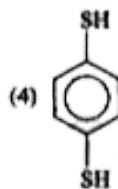
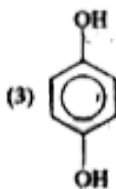
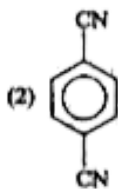
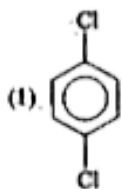
D. Ethyl propionate+methylmagnesium  
bromide

Answer: C



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35. Dipole moment,  $\mu \neq 0$  for



A. (3) and (4)

B. only (1)

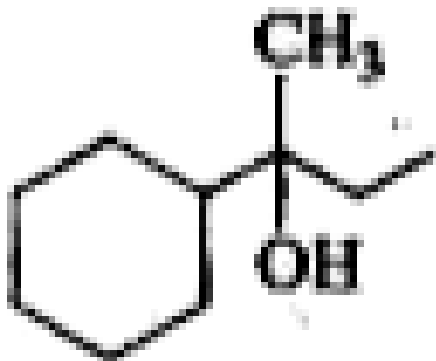
C. (1) and (2)

D. only (3)

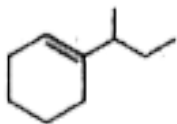
Answer: A

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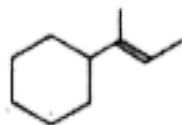
36. Which of the following is not the product of dehydration of:



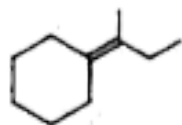
A. A,



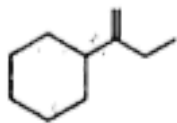
B. B.



C. C.



D. D.



**Answer: A**



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37. The conversion of m-nitrophenol to resorcinol by the sequence

- A. hydrolysis, diazotization and reduction
- B. diazotisation, reduction and hydrolysis
- C. hydrolysis, reduction and diazotization
- D. reduction, diazotization and hydrolysis

**Answer: A**



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**38.** The correct order of acid strength of the given phenols in aqueous medium at 298 K is -

A. p-nitrophenol < p-fluorophenol < p-chlorophenol

B. p-chlorophenol < p-fluorophenol < p-nitrophenol

C. p-fluorophenol < p-chlorophenol < p-nitrophenol

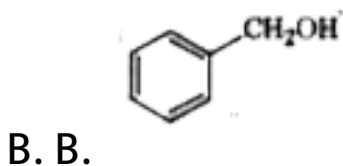
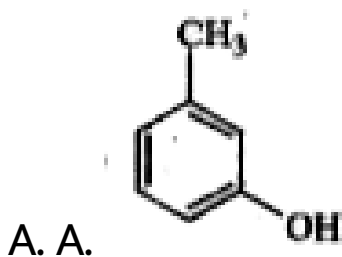
D. p-fluorophenol < p-nitrophenol < p-chlorophenol

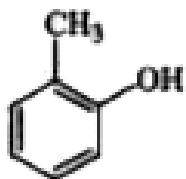
**Answer: C**



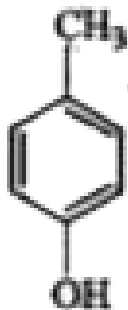
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**39.** The structure of the compound that gives a tribromo derivative on treatment with bromine water is:





C. C.



D. D.

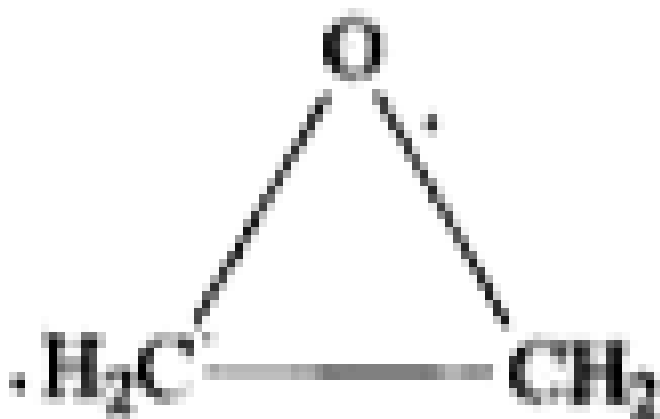
**Answer: A**



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40. Reaction of  $\text{RMgX}$



with

followed by hydrolysis gives:

A.  $\text{RCHOHR}$

B.  $\text{RCHOHCH}_3$

C.  $\text{R}_2\text{CHCH}_2\text{OH}$

D.  $\text{RCH}_2\text{CH}_2\text{OH}$

**Answer: D**



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**41.** Which among the following is Williamson's synthesis of ethoxyethane?

A. heating sodium ethoxide with ethyl bromide

B. passing ethanol vapour over heated alumina

C. treating ethyl alcohol with excess of  
cone.  $H_2SO_4$  at 430-440 K.

D. heating ethanol with dry  $Ag_2O$

**Answer: A**



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**42.** Which among the following sets of reagents can produce anisole?

A.  $CH_3CHO, RMgX$

B.  $C_6H_5OH$ ,  $NaOH$ ,  $CH_3I$

C.  $C_6H_5OH$ , neutral  $FeCl_3$

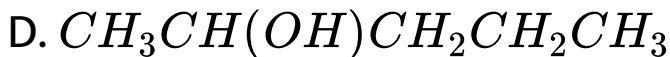
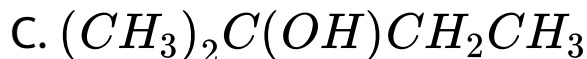
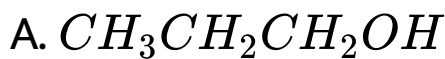
D.  $C_6H_5CH_3$ ,  $CH_3COCl$ ,  $AlCl_3$

**Answer: B**



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**43.** The alcohol among the following that can give  $CH_3COOH$  and  $CH_3CH_2COOH$  on oxidation with acidified dichromate is:

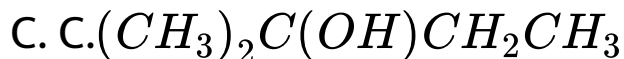
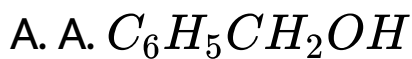


**Answer: D**

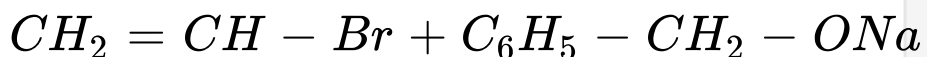


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**44.** Allyl phenyl ether can be prepared by heating:



D. D.



**Answer: B**



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45. The function of  $ZnCl_2$  in Lucas test for alcohols is:

A. to act as acid catalyst and react with HCl

to form  $H_2ZnCl_4$

B. to act base catalyst and reacts with

NaOH to form

C. to act as amphoteric catalyst

D. to act as neutral catalyst

**Answer: A**



**46.** o-Nitrophenol is less soluble in water than p - and m - nitrophenols because

A. o-nitrophenol is more volatile in steam than those of m - and p - isomers

B. o-nitrophenol shows intramolecular H - bonding

C. o-nitrophenol shows intermolecular H - bonding

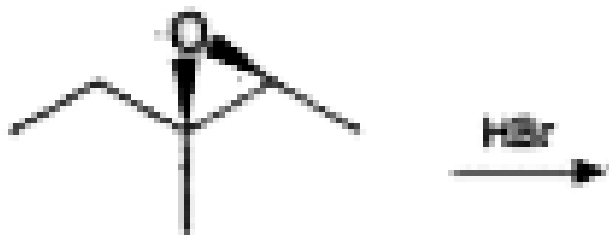


D. melting point of o - nitrophenol is lower than those of m - and p - isomers

**Answer: B**

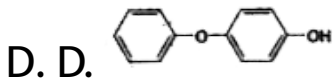
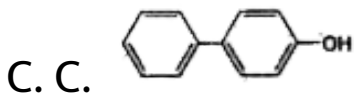
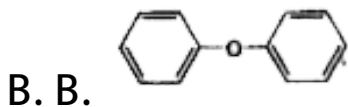
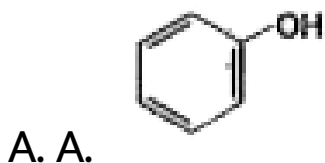
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47. The product of the following reaction is:



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48. Which of the following compound is not possible in the Dow's process?



**Answer: D**



49. Reaction of phenol with chloroform in presence of dilute sodium hydroxide finally introduces which one of the following functional group?

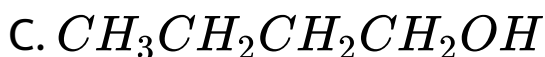
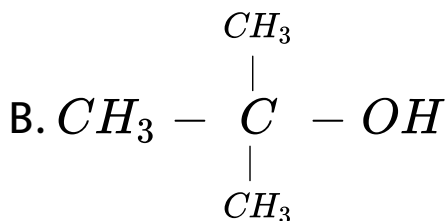
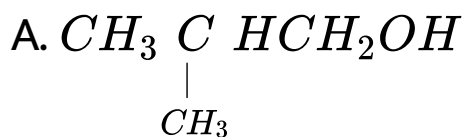


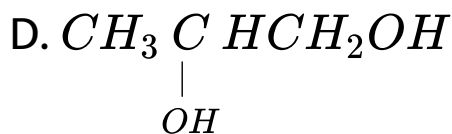
Answer: C



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50. The compound which gives the most stable carbonium ion on dehydration is:





**Answer: B**



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51. Which is most readily hydrolysed to alcohol?



D.  $CH_3Br$

**Answer: C**



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52. Which among the following is not an isomeric primary alcohol.

- A. isobutyl alcohol
- B. neopentylalcohol
- C. allyl alcohol

D. isopropyl alcohol

**Answer: D**



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**53.** Major product of dehydration of 1 -butanol  
is-

A. 1-butene

B. 2-butene

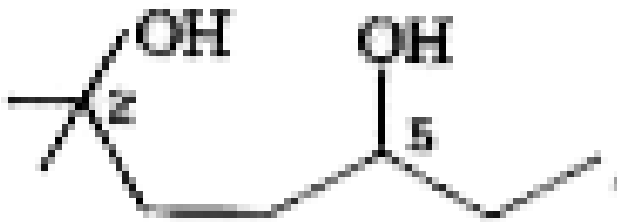
C. isobutene

D. isobutane

Answer: B



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54.

In

this diol



A. OH at  $C_2$  is more basic than that of at

$C_5$

B. OH at  $C_2$  is more acidic than at  $C_5$

C. Both behave as a base

D. Both behave as an acid'

**Answer: A**



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55. Which of these can be used to prepare alcohols?

I : Hydration of olefins

II : Hydrolysis of cyanides

III : Reduction of carbonyl compounds.

A. I, II and III

B. I and II

C. II and III

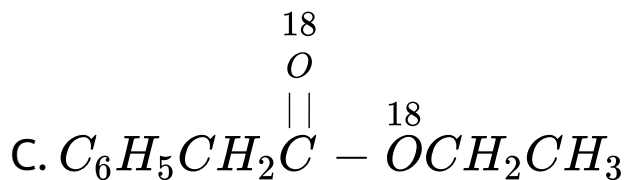
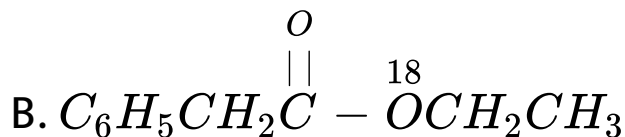
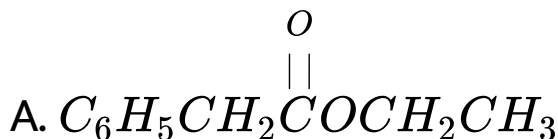
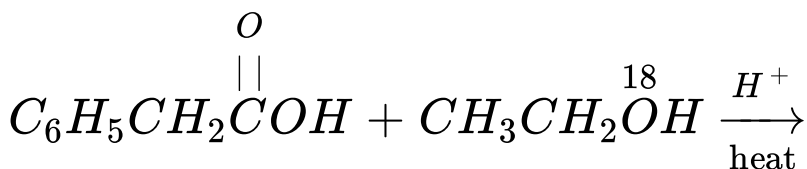
D. I and III

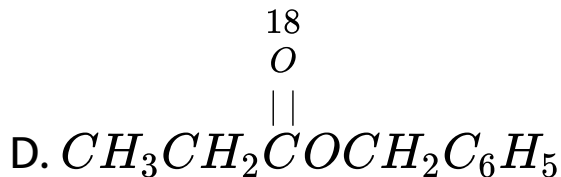
**Answer: D**



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56. Which is the ester formed by the following reaction.





**Answer: B**



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57. Ingesting even very small amount of methyl alcohol is fatal. Methanol poisoning is treated by

A. Ethanol

B. Methanal

C. Ethanoic acid

D. Benzene

**Answer: A**

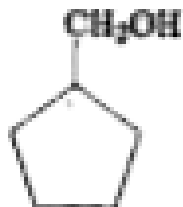


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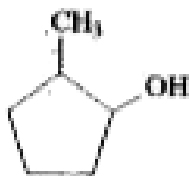
**58.** Oxymercuration-demercuration of 3-methylcyclopentene produces this/these product(s)



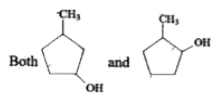
A.



B.



C.



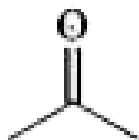
D.

**Answer: D**



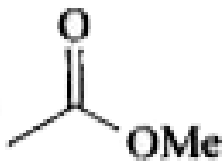
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59. Stepwise reaction of which set of reagents with isobutyl bromide produce a primary alcohol? (i)  $Li, Et_2O$ , (ii)

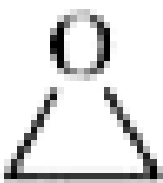


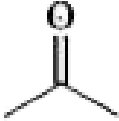
, (iii)  $NH_4Cl, H_2O$  (i)  $Mg, Et_2O$

, (ii)  $CH_3C(=O)H$ , (iii)  $H_3O^+$  (i)  $Mg, Et_2O$ , (ii)



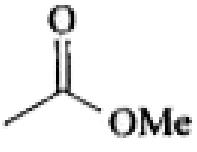
, (iii)  $NH_4Cl, H_2O$  (i)  $Mg, Et_2O$

, (ii)  , (iii)  $H_3O^+$

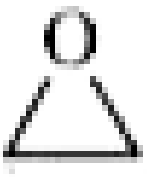
A. (i)  $Li, Et_2O,$  (ii) , (iii)

$NH_4Cl, H_2O$

B. (i)  $Mg, Et_2O,$  (ii)  $CH_3\overset{O}{\parallel}CH,$  (iii)  $H_3O^+$

C. (i)  $Mg, Et_2O,$  (ii) , (iii)

$NH_4Cl, H_2O$

D. (i)  $Mg, Et_2O,$  (ii) , (iii)

$H_3O^+$

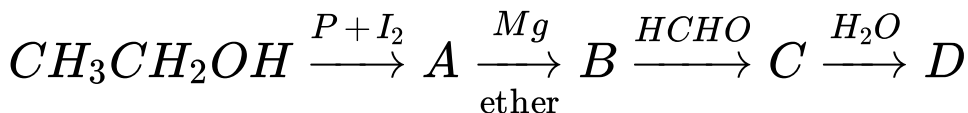


**Answer: D**



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**60.** In the following sequence of reactions.



the compound D is:

- A. butanol
- B. n-butyl alcohol
- C. n-propyl alcohol
- D. propanal

**Answer: C**



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**61.** Among the following-the one used as anaesthetic is

A. Carbontetrachloride

B. Ethoxyethane

C. anisole

D. Cumene

**Answer: B**



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**62.** The alcohol that reacts fastest with Lucas reagent and its mechanism are respectively

- A. Tertiary alcohol by  $S_N1$
- B. Secondary alcohol by  $S_N2$
- C. tertiary alcohol by  $S_N2$
- D. Secondary alcohol by  $S_N1$

**Answer: A**



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**63.** The pair of alcohols that can be distinguished by Victor Meyer test.

- A. Methanol and ethanol
- B. Ethanol and 1-propanol
- C. 2-Pentanol and 3-pentanol
- D. 1-Propanol and 2-propanol'

**Answer: D**



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**64.** The compound that is insoluble in sodium bicarbonate is?

- A. 2,4,6-Trinitrophenol
- B. Benzoic acid
- C. ortho-Nitrophenol
- D. Benzene sulphonic acid

**Answer: C**



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**65.** Power alcohol is a mixture of 80 % petrol + 20 % ethanol + small quantity of benzene  
80 % ethanol + 20 % benzene + small quantity of petrol  
50 % petrol + 50 % ethanol + small quantity of benzene  
80 % petrol + 20 % benzene + small quantity of ethanol

A. 80% petrol+20% ethanol+small quantity  
of benzene

B. 80% ethanoH- 20% benzene + small  
quantity/of petrol

C. 50%-petrol + 50% ethanol + small  
quantity of benzene

D. 80% petrol + 20% benzene+small  
quantity of ethanol

**Answer: A**



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66. The major product obtained on heating phenol with a solution of mixture of  $KBr$  and  $KBrO_3$  is.

- A. 3-bromophenol
- B. 4-bromophenol
- C. 2,4,6-tribromophenol
- D. 2-bromophenol

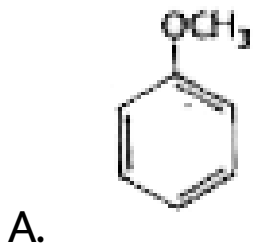
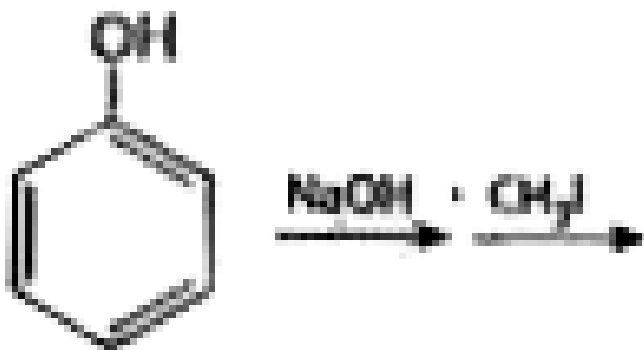
**Answer: C**

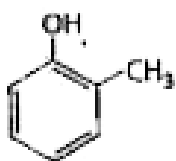


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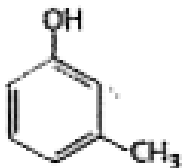


67. The major product formed in the following reaction is





B.



C.



D.

**Answer: A**



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68. The reagent among the following that can be used to separate o-cresol from a mixture of o-cresol and acetic acid : metallic sodium, aqueous  $NaHCO_3$  , dil.HCl, Iodine and alkali

A. metallic sodium

B. aqueous  $NaHCO_3$

C. dil.HCl

D. Iodine and alkali

**Answer: B**



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**69.** In Victor meyers test the colour produced by isopropyl alcohol and isobutyl alcohol are respectively

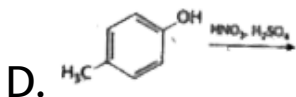
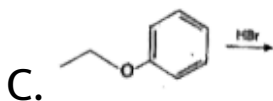
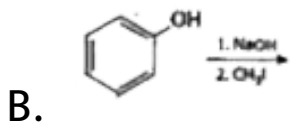
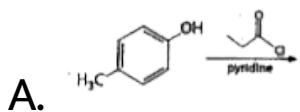
- A. red and blue
- B. blue and colourless
- C. blue and red
- D. red and colourless

**Answer: C**



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70. Which among the following is an electrophilic substitution reaction.

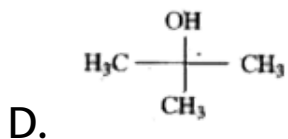
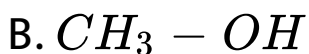
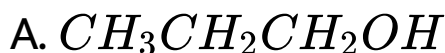


Answer: D



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71. Among the following alcohols, which one is most acidic?

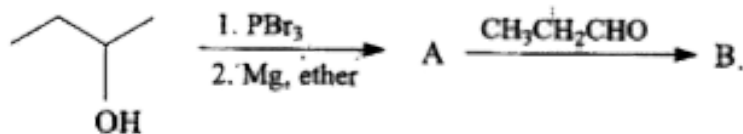


**Answer: B**



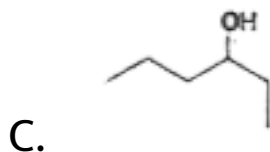
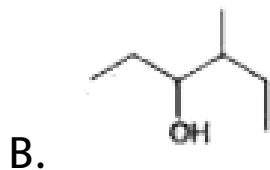
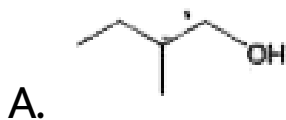
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72. In the reaction

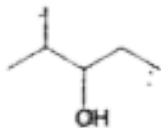


The

final product 'B' is:



D.



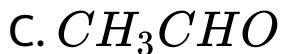
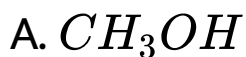
**Answer: B**



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**73.** An organic compound X on treatment with  $K_2Cr_2O_7$  in anhydrous medium gives a compound Y which reacts with  $I_2$  and sodium carbonate to form triiodomethane. The compound X is





**Answer: D**



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**74.** Conversion of  $CH_2 = CH - CHO$  to  $CH_2 = CH - CH_2OH$  is effected by:

A.  $H_2 / Ni / \Delta$

B.  $Pt / H_2$

C.  $NaBH_4$

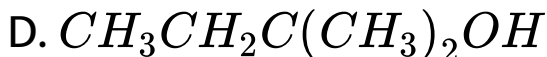
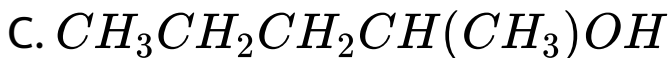
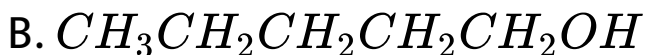
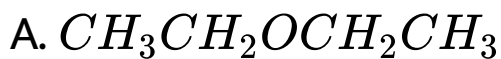
D.  $H_2 /$  Wilkinson catalyst

**Answer: C**



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**75.** Among the given compounds boiling point is highest for?



**Answer: B**



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**76.** Methoxybenzene is prepared from phenol by using the reagents:

A. NaOH, then  $CH_3OH$

B. NaOH, then  $CH_3OSO_3CH_3$

C. NaOH, then  $CH_3OCH_3$

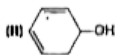
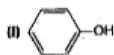
D. (A) and (B)

**Answer: B**



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77. The stability towards dehydration of the following compounds decreases-in the order



A.  $I > II > III > IV$

B.  $I > IV > III > II$

C.  $IV > II > I > III$

D.  $II > III > IV > I$

**Answer: D**



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**78.** The compound which reacts fastest with Lucas reagent at room temperature is:

A. Butan-2-ol

B. Butan-1-ol

C. 2-Methylpropan-1-ol

D. 2-Methylpropan-2-ol

**Answer: D**



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**79.** In  $CH_3CH_2OH$ , the bond that undergoes heterolytic cleavage most readily in presence of  $H_3O^+$  is:

A. C-C

B. C-O

C. C-H

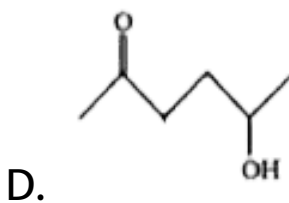
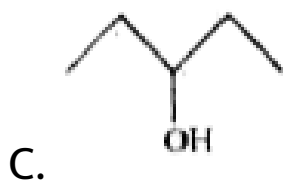
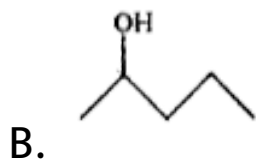
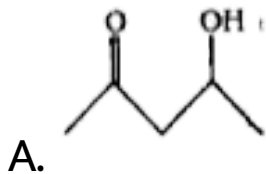
D. O-H

**Answer: D**



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**80.** Which of the following will Be most readily dehydrated in acidic conditions?



**Answer: A**



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**81.** Phenyl magnesium bromide reacts with t-butanol to give

A. Benzene

B. Phenol

C. t-Butyl benzene

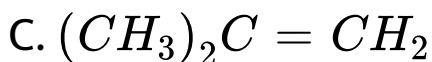
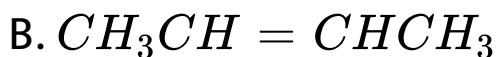
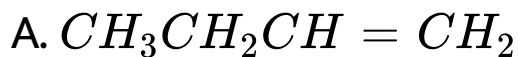
D. t-Butyl phenyl ether

**Answer: A**



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82. The alkene that produces tertiary butyl alcohol on acid catalysed hydration is:



**Answer: C**



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83. Acid-catalysed hydration of alkenes except ethene leads to the formation of

A. primary alcohol

B. secondary or tertiary alcohol

C. mixture of primary and secondary alcohols

D. mixture of secondary and tertiary alcohols

**Answer: B**



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84. The Grignard reagent suitable for the preparation of 3-methyl-2-butanol is:

A. 2-Butanone+methyl magnesium bromide

B. Acetone+ethyl magnesium bromide

C. Acetaldehyde+isopropylmagnesium  
bromide

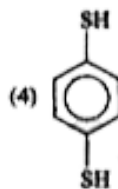
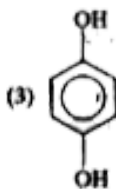
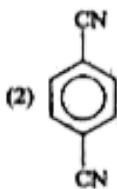
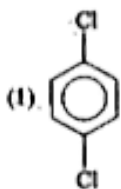
D. Ethyl propionate+methylmagnesium  
bromide

Answer: C



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85. Dipole moment,  $\mu \neq 0$  for



A. (3) and (4)

B. only (1)

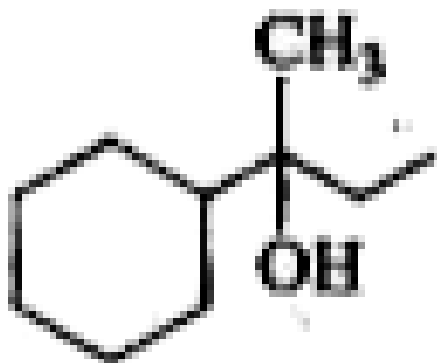
C. (1) and (2)

D. only (3)

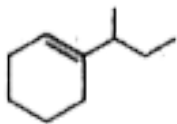
**Answer: A**

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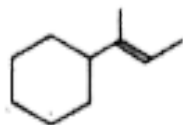
**86.** Which of the following is not the product of dehydration of:



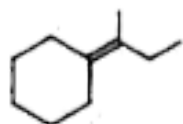
A.



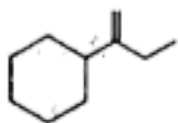
B.



C.



D.



**Answer: A**



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87. The conversion of m-nitrophenol to resorcinol by the sequence

- A. hydrolysis, diazotization and reduction
- B. diazotisation, reduction and hydrolysis
- C. hydrolysis, reduction and diazotization
- D. reduction, diazotization and hydrolysis

**Answer: A**



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**88.** The correct order of acid strength of the given phenols in aqueous medium at 298 K is -

A. p-nitrophenol < p-fluorophenol < p-chlorophenol

B. p-chlorophenol < p-fluorophenol < p-nitrophenol

C. p-fluorophenol < p-chlorophenol < p-nitrophenol

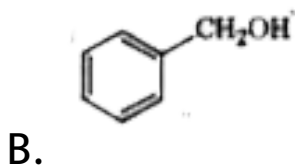
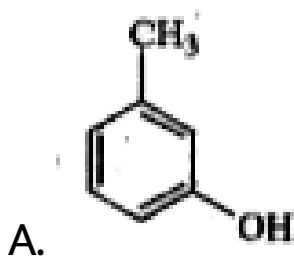
D. p-fluorophenol < p-nitrophenol < p-chlorophenol

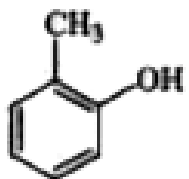
**Answer: C**



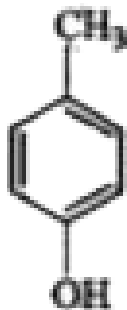
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**89.** The structure of the compound that gives a tribromo derivative on treatment with bromine water is:





C.



D.

**Answer: A**



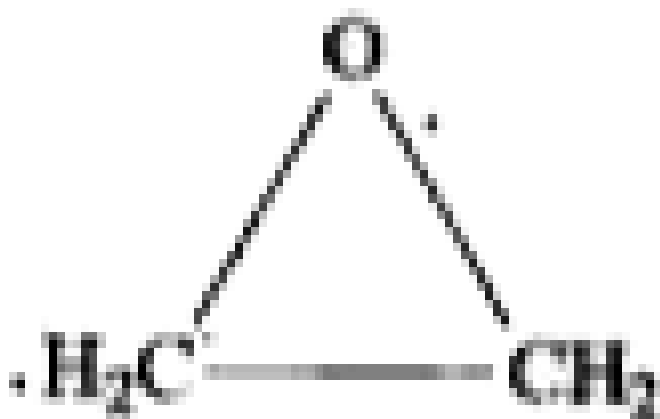
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90.

Reaction

of

RMgX



with

followed by hydrolysis gives:

A. RCHOHR

B. *RCHOHCH<sub>3</sub>*

C. *R<sub>2</sub>CHCH<sub>2</sub>OH*

D. *RCH<sub>2</sub>CH<sub>2</sub>OH*

**Answer: D**



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**91.** Which among the following is Williamson's synthesis of ethoxyethane?

A. heating sodium ethoxide with ethyl bromide

B. passing ethanol vapour over heated alumina

C. treating ethyl alcohol with excess of  
cone.  $H_2SO_4$  at 430-440 K.

D. heating ethanol with dry  $Ag_2O$

**Answer: A**



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92. Which among the following sets of reagents can produce anisole?

A.  $CH_3CHO, RMgX$

B.  $C_6H_5OH$ ,  $NaOH$ ,  $CH_3I$

C.  $C_6H_5OH$ , neutral  $FeCl_3$

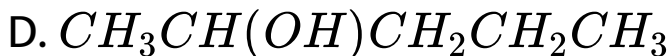
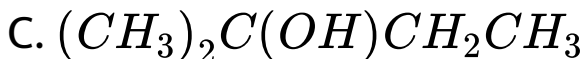
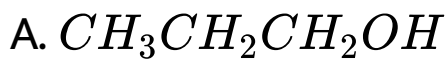
D.  $C_6H_5CH_3$ ,  $CH_3COCl$ ,  $AlCl_3$

**Answer: B**



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**93.** The alcohol among the following that can give  $CH_3COOH$  and  $CH_3CH_2COOH$  on oxidation with acidified dichromate is:



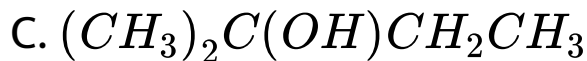
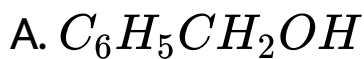
**Answer: D**



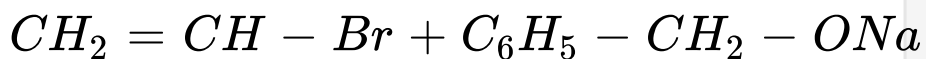
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**94.** Allyl phenyl ether can be prepared by heating:





D.



**Answer: B**



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95. The function of  $ZnCl_2$  in Lucas test for alcohols is:

A. to act as acid catalyst and react with HCl

to form  $H_2ZnCl_4$

B. to act base catalyst and reacts with

NaOH to form

C. to act as amphoteric catalyst

D. to act as neutral catalyst

**Answer: A**



96. o-Nitrophenol is less soluble in water than p - and m - nitrophenols because

A. o-nitrophenol is more volatile in steam than those of m - and p - isomers

B. o-nitrophenol shows intramolecular H - bonding

C. o-nitrophenol shows intermolecular H - bonding

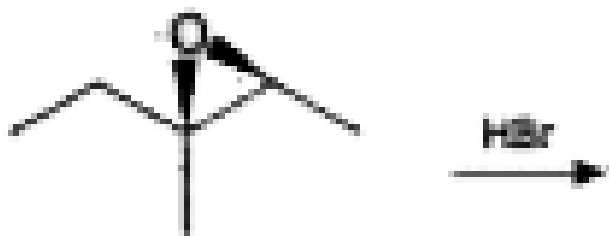
D. melting point of o - nitrophenol is lower than those of m - and p - isomers

**Answer: B**

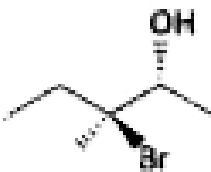


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97. The product of the following reaction is:



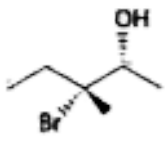
A.



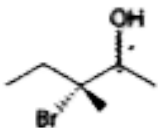
B.



C.



D.

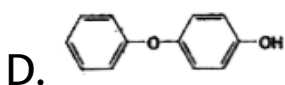
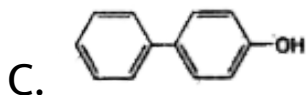
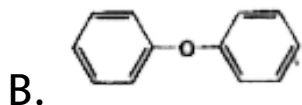
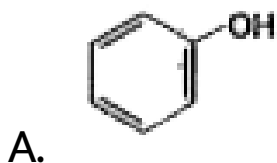


**Answer: A**



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98. Which of the following compound is not possible in the Dow's process?



**Answer: D**



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99. Reaction of phenol with chloroform in presence of dilute sodium hydroxide finally introduces which one of the following functional group?

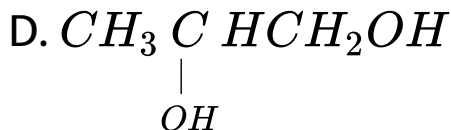
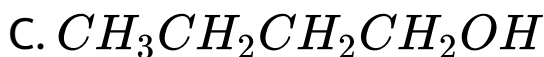
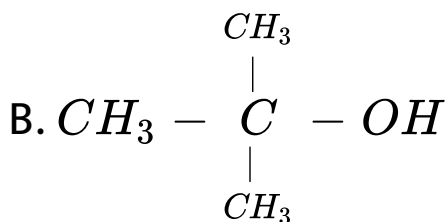
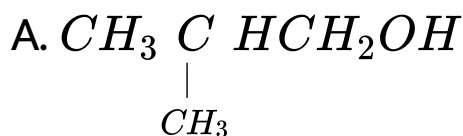


**Answer: C**



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100. The compound which gives the most stable carbonium ion on dehydration is:



**Answer: B**

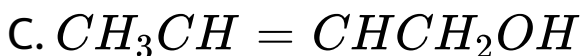
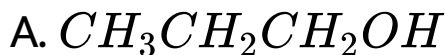


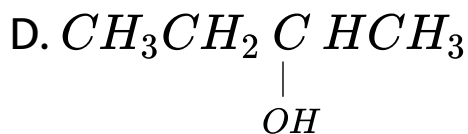


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Level II

1. An alkene, obtained by the dehydration of an alcohol, on ozonolysis gives acetaldehyde only as the product. The alcohol is:





**Answer: D**



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2. o-Methoxybromobenzene is treated with sodamide followed by ammonia. The major product formed is:

A. o-Methoxyaniline

B. Aniline

C. Methoxybenzene

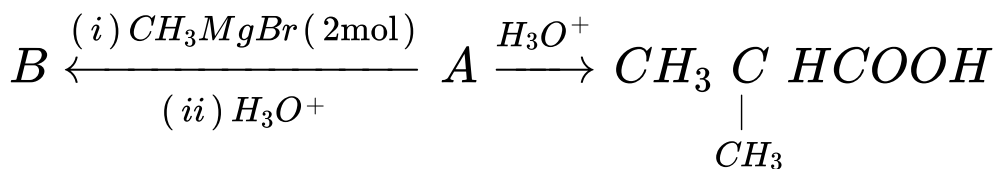
D. m-Methoxyaniline

**Answer: D**



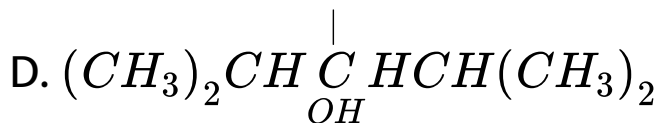
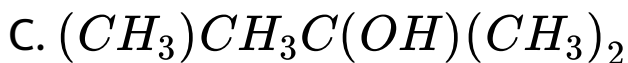
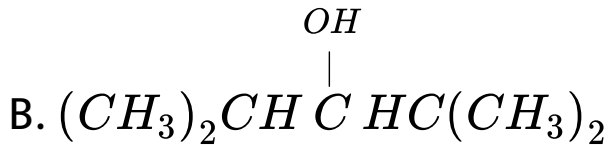
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**3.**



as one of the product b is:





**Answer: B**



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4. Which among the following statement is correct regarding the reaction of PCC with  $\text{RCH}_2\text{CH}_2\text{OH}$  ?

A. A. The alcohol is oxidised to an acid and the Cr(VI) is reduced

B. B. The alcohol is oxidised to an aldehyde and the Cr(VI) is reduced

C. C. The alcohol is reduced to an aldehyde and the Cr(III) is oxidised

D. D. The alcohol is oxidised to a ketone and the Cr(VI) is reduced

**Answer: B**



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5. How many structural isomers are possible for  $C_3H_6O$

A. A. 11

B. B.4

C. C.7

D. D. 8

**Answer: C**



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6. Select the incorrect statement regarding Kolbe's reaction.

A. A. Peroxide ion is less reactive than phenol

B. B. A weak electrophile  $CO_2$  is used in this reaction

C. C. Ortho-hydroxybenzoic acid is formed as the major product

D. D. Salicylic acid is formed as the major product and para hydroxy benzoic acid is formed as the minor product

**Answer: A**

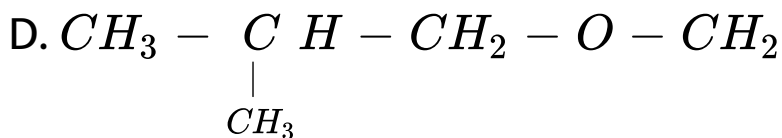
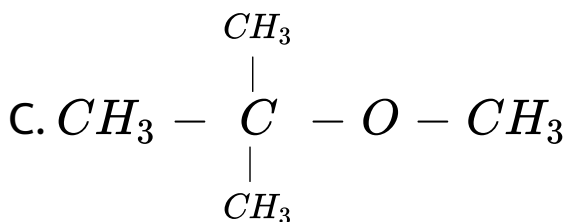
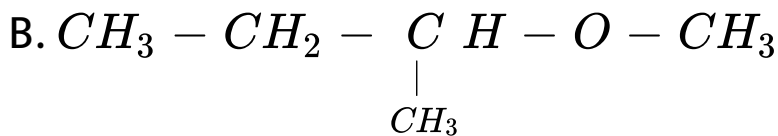
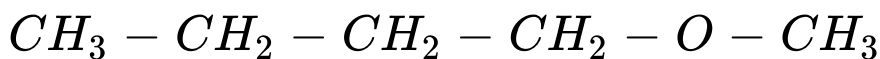


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7. Among the following ethers, which one will produce methyl alcohol on treatment with hot concentrated HI?



A.

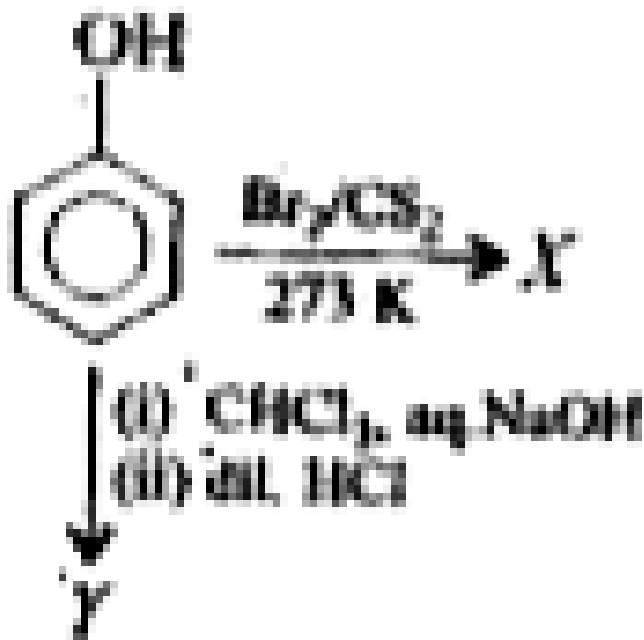


**Answer: C**



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8. In the given reactions,



X and Y

are :

A. X = Bromobenzene, Y=Acetophenone

B. X=o-and p-Bromophenol, Y=

Salicylaldehyde

C. X=o-Bromophenol, Y=Salicylic acid

D. X= o-Bromophenol, Y- Benzoic acid

**Answer: B**



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9. Cumene on reaction with oxygen followed by treatment with  $H_2SO_4$  gives

A.  $CH_3OH$  and  $C_6H_3COCH_3$

B.  $C_6H_5OH$  and  $(CH_3)_2O$

C.  $C_6H_5OCH_3$  and  $CH_3OH$

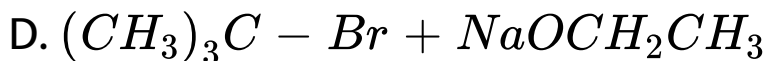
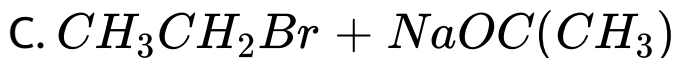
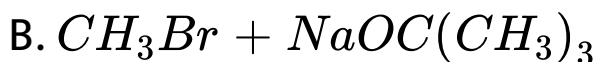
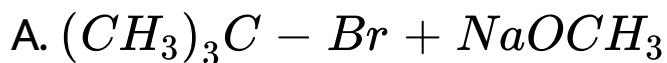
D.  $C_6H_5OH$  and  $CH_3COCH_3$

**Answer: D**



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10. Which among the following reagent will give methyl tert-butyl ether as the reaction product?



**Answer: B**

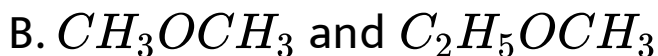
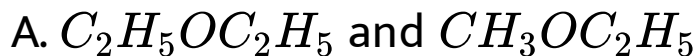


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**11.** Compound  $C_2H_6O$  has two isomers X and Y. On reaction with HI, X gives alkyl iodide and

water while Y gives alkyl iodide and alcohol.

Compounds X and Y are respectively:

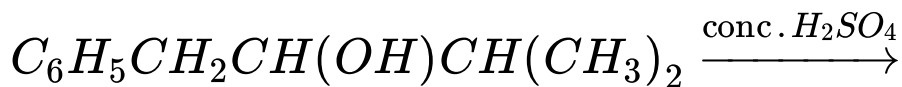


**Answer: C**

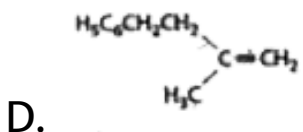
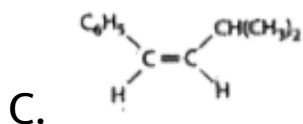
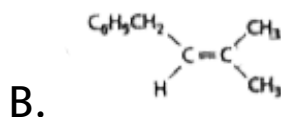
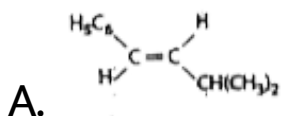


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12. The major product of the reaction

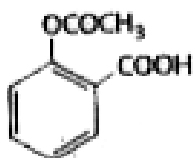


Product is:

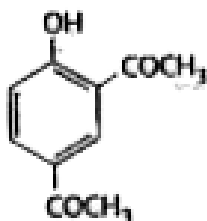


**Answer: A**

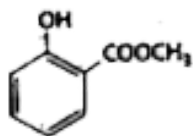
13. Sodium phenoxide is heated with  $CO_2$  under pressure at  $125^\circ C$  to yield a product which on acetylation gives:



A. A.

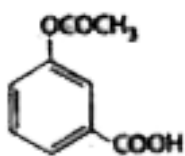


B. B.



C. C.



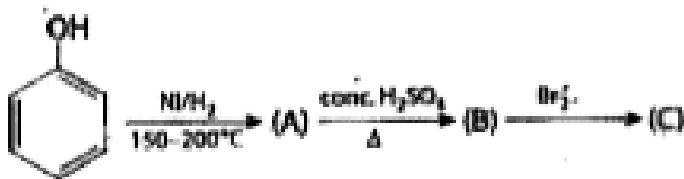


D. D.

**Answer: A**

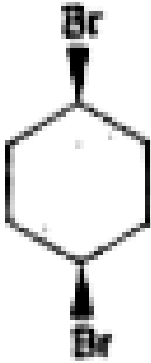
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**14. Identify (C) in the following reaction:**

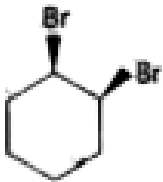




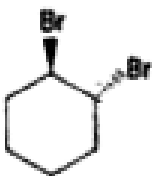
A.



B.



C.



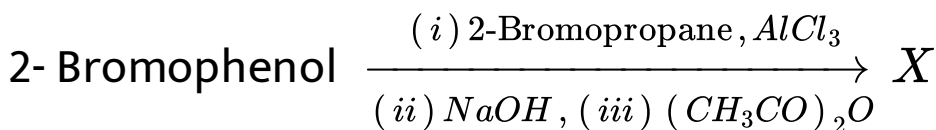
D.

**Answer: D**



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15. The final product X in the following reaction sequence is?



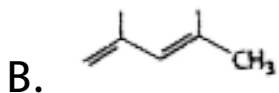
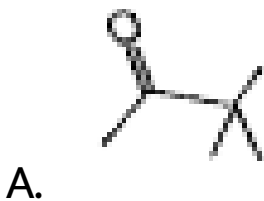
- A. 1-Isopropyl-3-bromo-4-acetylbenzene
- B. 2-Bromo-4-isopropyl-acetophenone
- C. 3-Bromo-1-isopropyl-4-phenyl ethanoate
- D. 2-Bromo-4-isopropyl phenyl ethanoate

Answer: D



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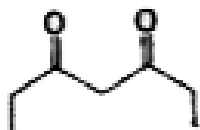
16. The final product in the given reaction is.



C.



D.

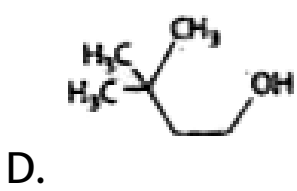
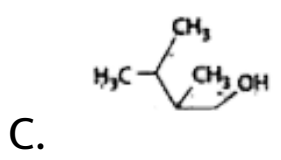
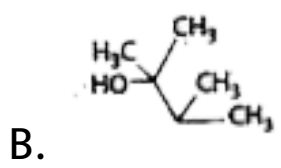
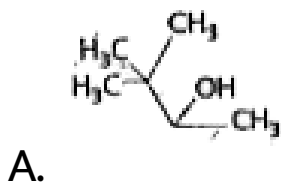
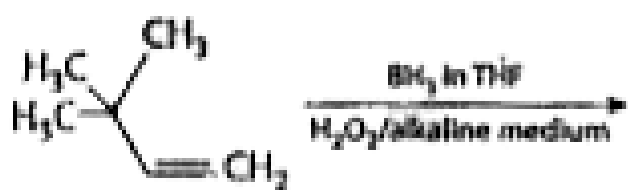


**Answer: A**



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**17.** Identify the product in the following reaction.

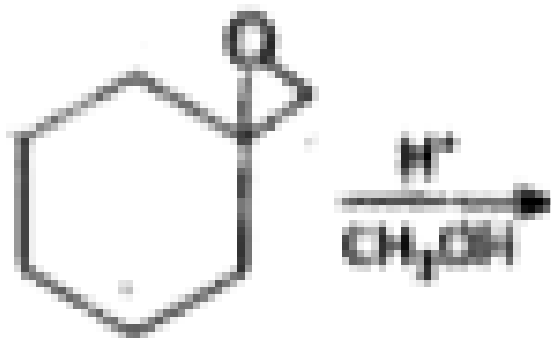


**Answer: D**



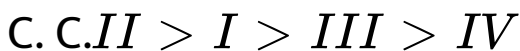
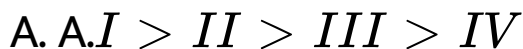
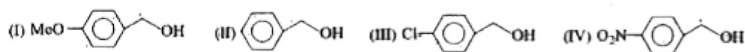
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18. The major product of the given reaction is-



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19. The correct decreasing order of the reaction rates of the following compounds with HBr is:



**Answer: A**



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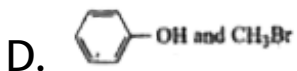
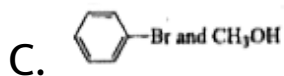
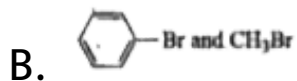
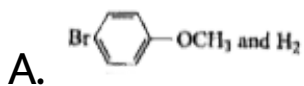


20. In the reaction



the

product are:

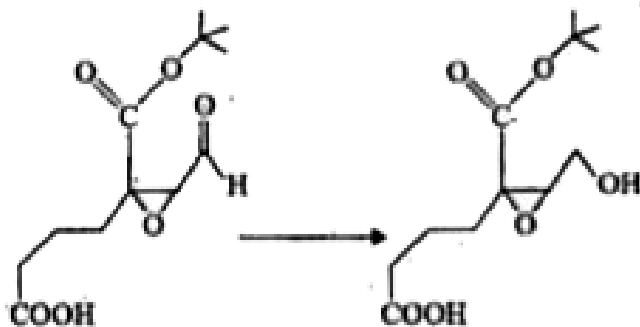


Answer: D



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21. Reagent(s) which can be used to bring about the following transformation is (are) :



A. A.  $\text{LiAlH}_4$  in  $(\text{C}_2\text{H}_5)_2\text{O}$

B. B.  $\text{BH}_3$  in THF

C. C.  $\text{NaBH}_4$  in  $\text{C}_2\text{H}_5\text{OH}$

D. D.Rancy  $\text{Ni} / \text{H}_2$  in THF

**Answer: C**



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22. 375 mg of an alcohol reacts with required amount of methyl magnesium bromide and releases 140 mL of methane gas at STP The alcohol is,

A. ethanol

B. n-butanol

C. methanol

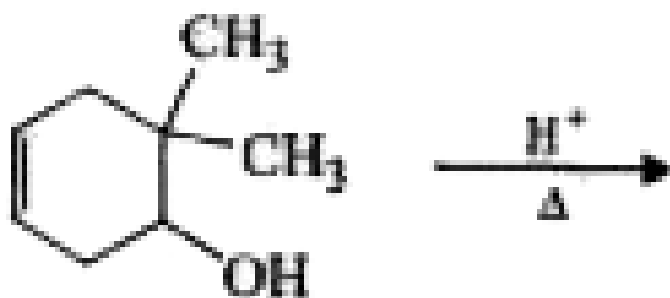
D. n-propanol

**Answer: D**

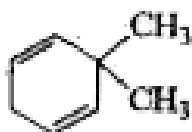


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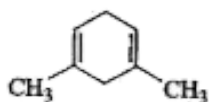
23. Find the product of the given reaction?



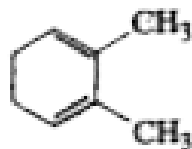
A.



B.



C.





D.

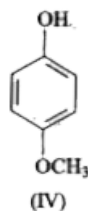
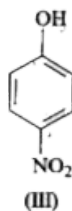
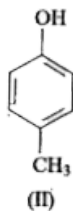
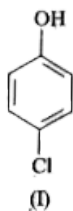
**Answer: D**



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**24.** The correct order of decreasing acidity for

I, II, III and IV is-



A.  $IV > III > I > II$

B.  $II > IV > I > III$

C.  $I > II > III > IV$

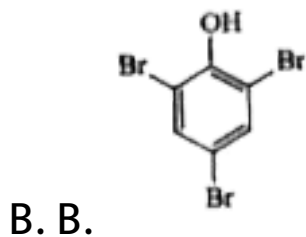
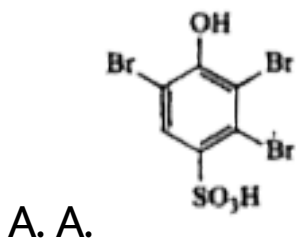
D.  $III > I > II > IV$

**Answer: D**

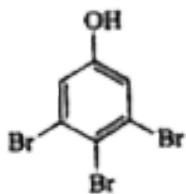


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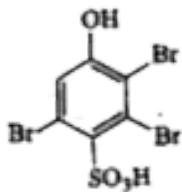
25. The major product of the given reaction is:







C. C.



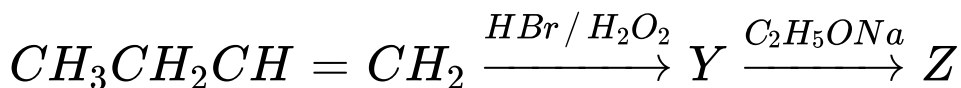
D. D.

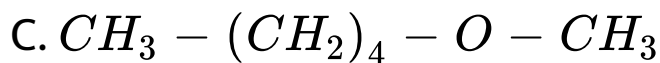
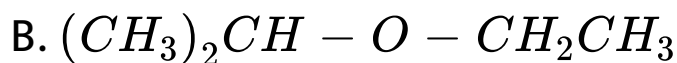
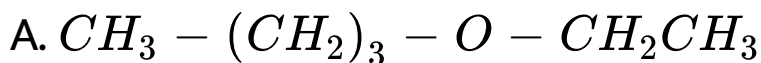
**Answer: B**



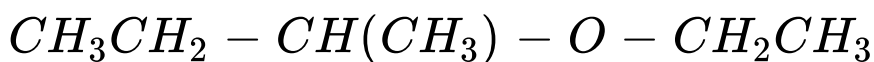
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**26.** Identify Z in the sequence of reaction:





D.



**Answer: A**



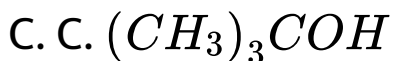
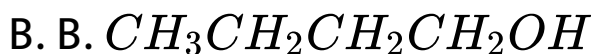
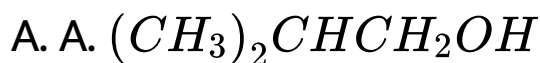
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27.

A, A

is:



**Answer: C**



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**28.** Which among the following statements is correct?

(i) Glycerol on reaction with oxalic acid at  $110^{\circ}\text{C}$  (383 K) and followed by heating and hydrolysis gives formic acid and glycerol.

(ii) Glycerol on reaction with oxalic acid at  $230^{\circ}\text{C}$  (503 K) and followed by heating gives allyl alcohol. (iii) Glycerol on oxidation with dil.

$\text{HNO}_3$  gives a mixture of glyceric and tartronic acid,

(iv) Glycerol on oxidation with conc.  $HNO_3$  gives glyceric acid.

A. A. i and ii

B. B.i and iii

C. C. iii and iv

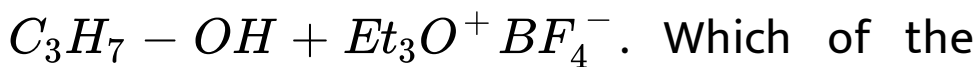
D. D. I,ii, iii iv

**Answer: D**



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29. Consider the reaction



following, statements is wrong?

A. A. The nucleophile in the reaction is



B. B. The nucleophile in the reaction is  $BF_3$

C. C. The leaving group is  $Et_2O$

D. D.  $S_N^2$  reaction occurs

**Answer: B**





30. The reaction of neopentyl alcohol with  $SOCl_2$  gives-

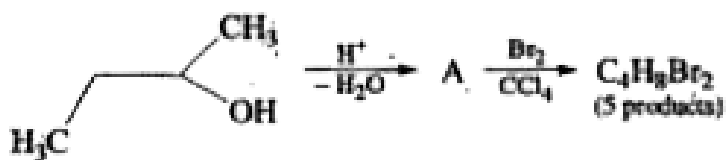
- A. A. neopentyl chloride
- B. B. 2-chloro-2-methylbutane
- C. C. 2-methyl-2-butene
- D. D. a mixture of neopentylchloride and 2-methyl-2-butene

**Answer: A**



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31. In the reaction



The

number of isomers of A is:

A. 2

B. 3

C. 5

D. 6



**Answer: B**



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**32.** Given are the following reactions:

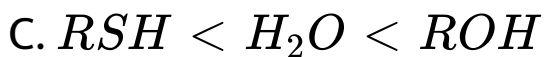
$\text{RSH} + \text{OH}^-$  Which of the following order of acid strength and base strength is correct?

A.  $\text{RSH} > \text{H}_2\text{O} > \text{ROH}$  and

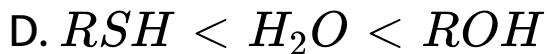


B.  $\text{RSH} > \text{H}_2\text{O} > \text{ROH}$  and





and



and



**Answer: B**



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**33.** Iodoform test is not answered by:





C. 1-methylcyclohexanol



**Answer: B**



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**34.** The formation of peroxide-linkage in ether due to the exposure in air can be detected by treating it with

A. sodium

B. dilute hydrochloric acid

C. aqueous ferrous ammonium sulphate

followed by addition of potassium  
thiocyanate

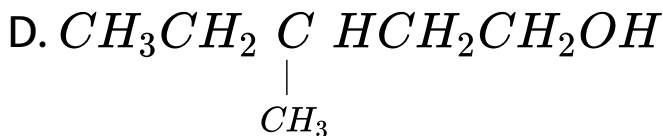
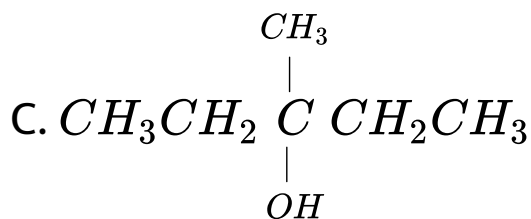
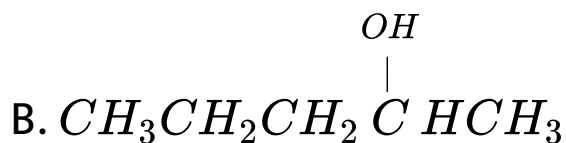
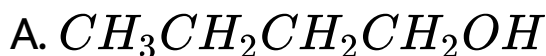
D. dilute sodium hydroxide

**Answer: C**



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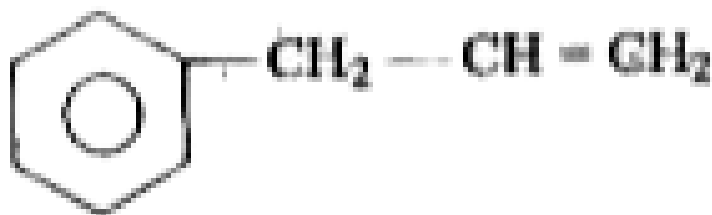
35. Among the following compounds which can be dehydrated very easily is  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{OH}$ ,  $\text{CH}_3\text{CH}_2\text{CH}_2\text{-CHOH-CH}_3$ ,  $\text{CH}_3\text{CH}_2\text{C(OH)(CH}_3\text{)CH}_2\text{CH}_3$ ,  $\text{CH}_3\text{CH}_2\text{CH(CH}_3\text{)-CH}_2\text{CH}_2\text{OH}$



Answer: C



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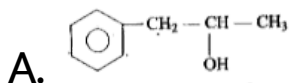
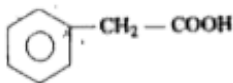
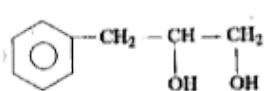
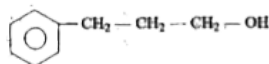
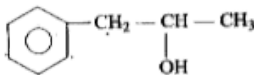


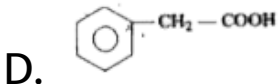
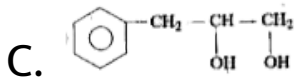
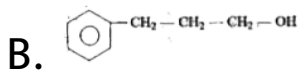
36.

on

oxymercuration-demercuration produces the

major product:



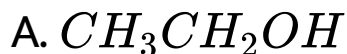


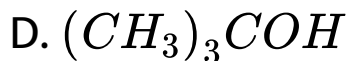
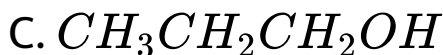
**Answer: A**



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**37.** In the hydroboration-oxidation reaction of propene produces



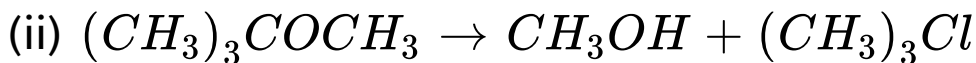
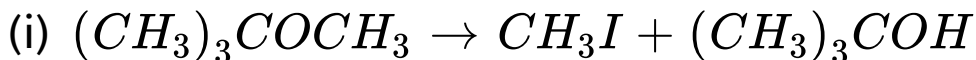


**Answer: C**



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**38.** Consider the reactions:



Which of the following statements is correct?



The reagent used in reaction (i) is anhydrous HI in ether and in reaction (ii) is concentrated HI. The reagent used in reaction (i) is concentrated HI and in reaction (ii) is anhydrous HI in ether, The reagent used both in reaction (i) and (ii) is concentrated HI, The reagent used both in reactions (i) and (ii) is anhydrous HI in ether.

A. The reagent used in reaction (i) is anhydrous HI in ether and in reaction (ii) is concentrated HI.

B. The reagent used in reaction (i) is concentrated HI and in reaction (ii) is anhydrous HI in ether

C. The reagent used both in reaction (i) and (ii) is concentrated HI

D. The reagent used both in reactions (i) and (ii) is anhydrous HI in ether.

**Answer: A**



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39. The reaction of



with

$CH_3OH$  in (i) acid  $H^+$ , and (ii) base  $CH_3O^-$ ,

respectively, give

A.  $(CH_3)_2C(OCH_3)CH_2OH$  and



B.  $(CH_3)_2C(OCH_3)CH_2OH$  and



C.  $(CH_3)_2C(OCH_3)CH_2OCH_3$  and



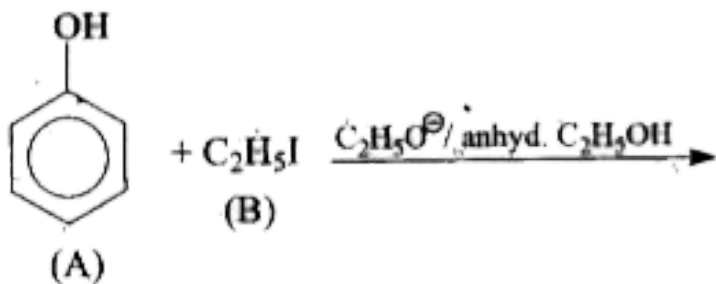
D.  $(CH_3)_2C(OH)(CH_2OH)$  and



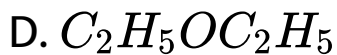
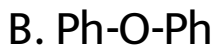
**Answer: A**



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, the product is:



**Answer: D**



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41. When ethylene glycol is heated with acidified potassium permanganate, the main organic compound obtained is-

A. oxalic acid

B. glyoxal

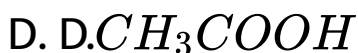
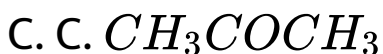
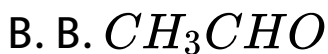
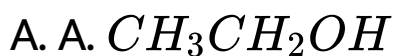
C. formic acid

D. acetaldehyde

**Answer: C**



42. An organic compound X on treatment with pyridinium chlorochromate in dichloromethane gives compound Y. Compound Y reacts with Iodine and alkali to form triiodomethane. The compound 'X' is



**Answer: A**



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**43.** Phthalic acid reacts with resorcinol in the presence of concentrated  $H_2SO_4$  to give

A. phenolphthalein

B. alizarin

C. coumarin

D. fluorescein



**Answer: D**



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**44.** 1-propanol and 2-propanol can be best distinguished by

A. A.oxidation with alkaline  $KMnO_4$

followed by reaction with Fehling solution

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

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

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

**Answer: C**



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45. Which of the following statements is correct?

A. A. Sulphonation of phenol at low

temperature is rate-controlled to give o-



B. B. Sulphonation of phenol at higher

temperature

is

thermodynamically controlled to give o-



C. C.The-OH group is more activating than phenoxide ion towards aromatic electrophilic substitution reactions

D. D.Bromination of phenol in aqueous medium gives monobrominated phenol while in non aqueous medium, tribrominated phenol is formed.

**Answer: A**



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46. When 3-methyl-2-pentene is treated with mercuric acetate,  $Hg(O_2CCH_3)_2$ , in THF-ethanol mixture and the resulting product reacted with  $NaBH_4$  in basic solution, the principal product formed is which of these?

- A. 3-Methyl-3-pentanol
- B. 3-Ethoxy-3-methylpentane
- C. 3-Methyl-2-pentanol

## D. 2-Ethoxy-3-methylpentane

**Answer: B**



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**47.** 1,2-Dihydroxybenzene, 1,3-Dihydroxy benzene, 1,4-Dihydroxy benzene, Hydroxy benzene.

(i), (ii), (iii), (iv)

The increasing order of boiling points of the above mentioned alcohols is,

A.  $I < II < III < IV$

B.  $I < II < IV < III$

C.  $IV < I < II < III$

D.  $IV < II < I < III$

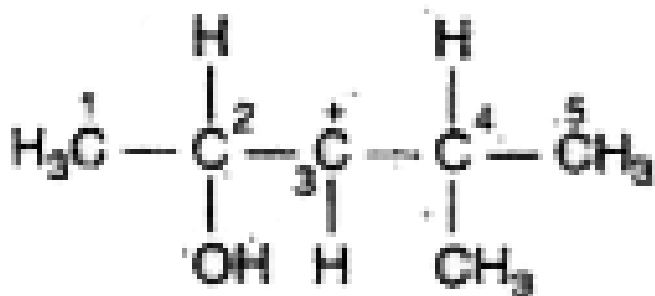
**Answer: C**



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**48.** In the following carbocation,  $H / CH_3$  that is most likely to migrate, to the positively

charged carbon is -



A.  $CH_3$  at C-4

B. H at C-4

C.  $CH_3$  at C-2

D. H at C-2

**Answer: D**



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**49.** Denaturation of alcohol is the-

A. mixing of  $CuSO_4$  (a foul smelling solid) and pyridine (to give the colour) to make the commercial alcohol unfit for drinking.

B. mixing of  $CuSO_4$  (to give the colour) and pyridine (a foul smelling solid) to make the commercial alcohol unfit for drinking

C. mixing of  $Cu(OAc)_2$  and ammonia to make commercial alcohol unfit for drinking

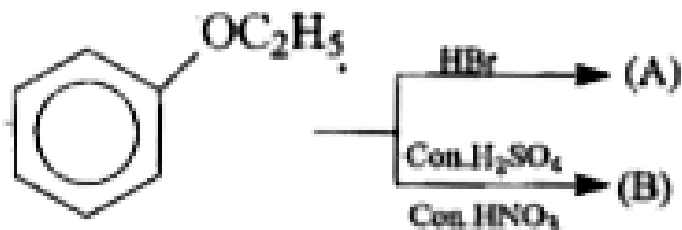
D. mixing of  $Cu(OAc)_2$  and pyridine to make the commercial alcohol unfit for drinking

**Answer: B**

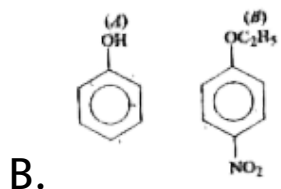
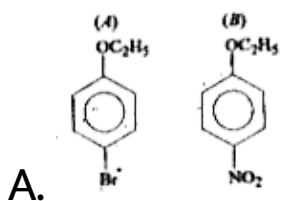


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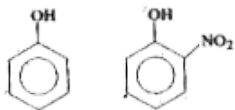
50. Predict the major product of the following reaction:



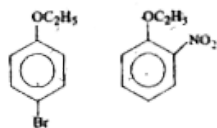
Choose the option with appropriate products from the codes given below.



C.



D.

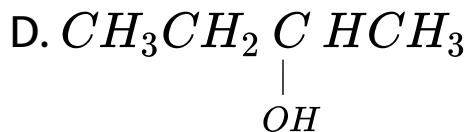
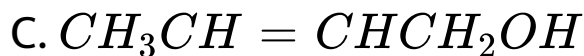
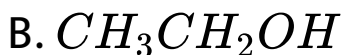
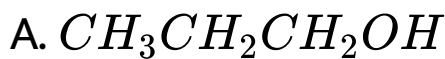


**Answer: B**



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51. An alkene, obtained by the dehydration of an alcohol, on ozonolysis gives acetaldehyde only as the product. The alcohol is:



**Answer: D**



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52. o-Methoxybromobenzene is treated with sodamide followed by ammonia. The

major product formed is:

A. o-Methoxyaniline

B. Aniline

C. Methoxybenzene

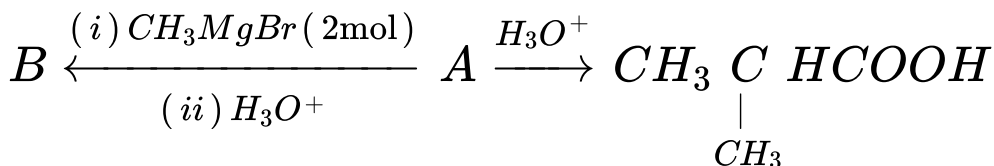
D. m-Methoxyaniline

**Answer: D**

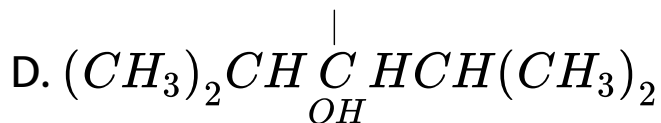
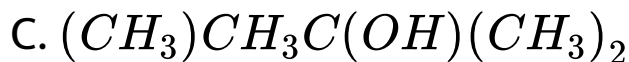
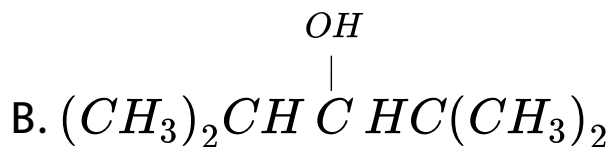


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53.



as one of the product b is:



Answer: B



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54. Which among the following statement is correct regarding the reaction of PCC with  $RCH_2CH_2OH$  ?

- A. The alcohol is oxidised to an acid and the Cr(VI) is reduced
- B. The alcohol is oxidised to an aldehyde and the Cr(VI) is reduced
- C. The alcohol is reduced to an aldehyde and the Cr(III) is oxidised



D. The alcohol is oxidised to a ketone and  
the Cr(VI) is reduced

**Answer: B**



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**55.** How many structural isomers are possible  
for  $C_3H_6O$

A. 3

B. 4

C. 7

D. 8

**Answer: C**



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**56.** Select the incorrect statement regarding Kolbe's reaction.

A. Peroxide ion is less reactive than phenol

B. A weak electrophile  $CO_2$  is used in this reaction

C. Ortho-hydroxybenzoic acid is formed as the major product

D. Salicylic acid is formed as the major product and para hydroxy benzoic acid is formed as the minor product

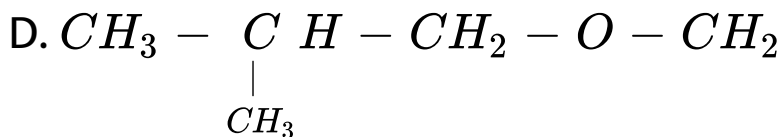
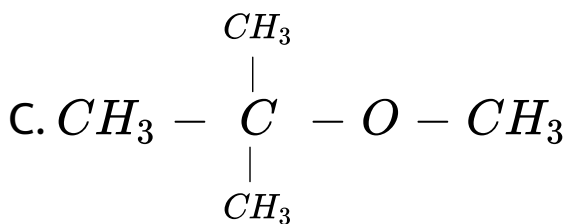
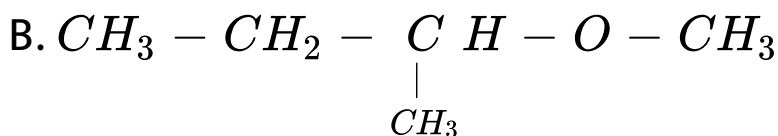
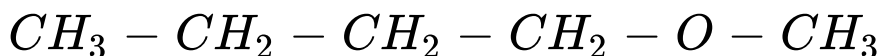
**Answer: A**



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57. Among the following ethers, which one will produce methyl alcohol on treatment with hot concentrated HI?

A.

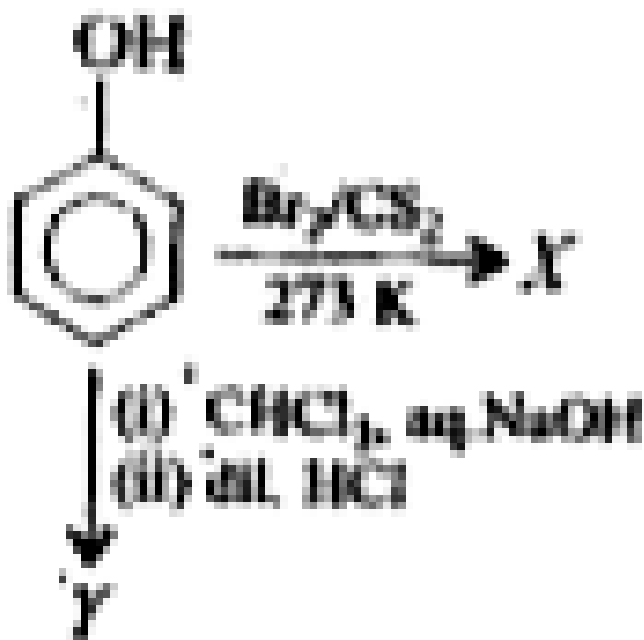


Answer: C



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58. In the given reactions,



X and Y

are :

A. X = Bromobenzene, Y=Acetophenone

B. X=o-and p-Bromophenol, Y=

Salicylaldehyde

C. X=o-Bromophenoi, Y=Salicylic acid

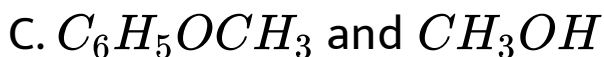
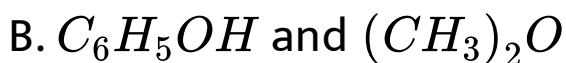
D. X= o-Bromophenol, Y- Benzoic acid

**Answer: B**



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59. Cumene on reaction with oxygen followed by treatment with  $H_2SO_4$  gives

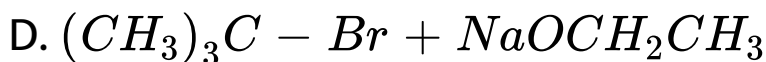
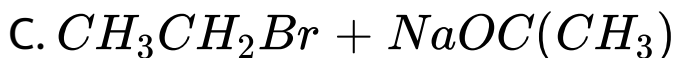
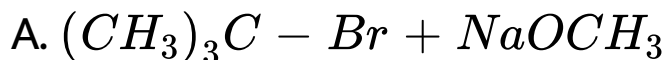


**Answer: D**



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60. Which among the following reagent will give methyl tert-butyl ether as the reaction product?



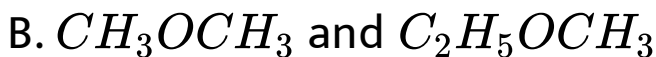
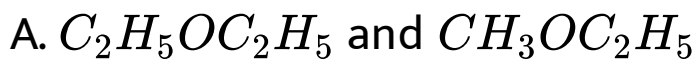
**Answer: B**



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61. Compound  $C_2H_6O$  has two isomers X and Y. On reaction with HI, X gives alkyl iodide and water while Y gives alkyl iodide and alcohol. Compounds X and Y are respectively:

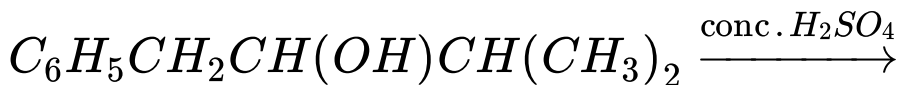


**Answer: C**

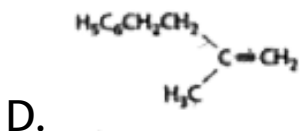
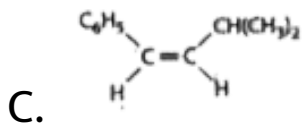
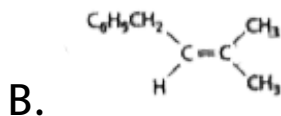
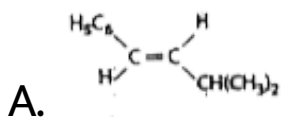


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62. The major product of the reaction



Product is:

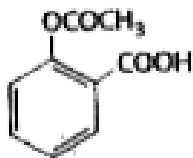


Answer: A

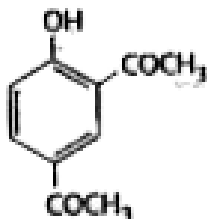


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63. Sodium phenoxide is heated with  $CO_2$  under pressure at  $125^\circ C$  to yield a product which on acetylation gives:

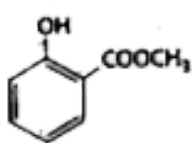


A.

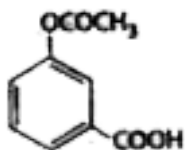


B.

C.



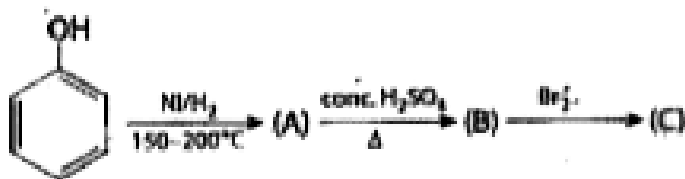
D.

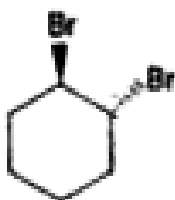
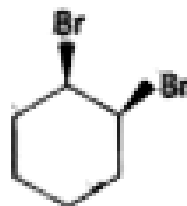
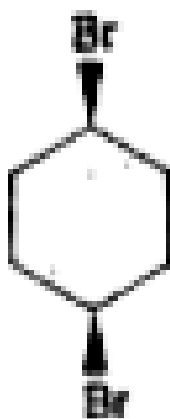


**Answer: A**

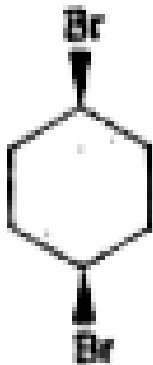
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**64.** Identify (C) in the following reaction:

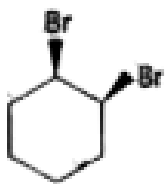




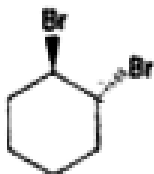
A.



B.



C.



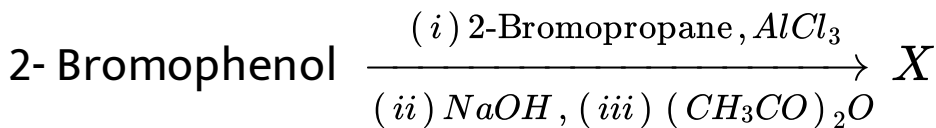
D.

**Answer: D**



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65. The final product X in the following reaction sequence is?



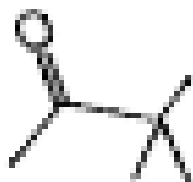
- A. 1-Isopropyl-3-bromo-4-acetylbenzene
- B. 2-Bromo-4-isopropyl-acetophenone
- C. 3-Bromo-1-isopropyl-4-phenyl ethanoate
- D. 2-Bromo-4-isopropyl phenyl ethanoate

**Answer: D**



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66. The final product in the given reaction is.



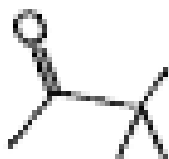
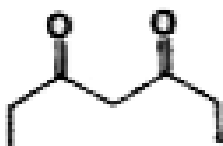
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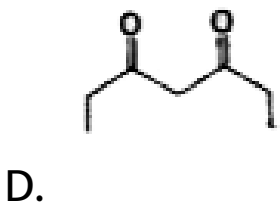
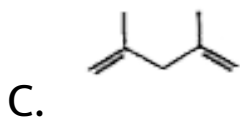
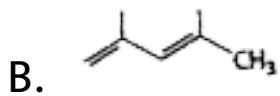


,



A.

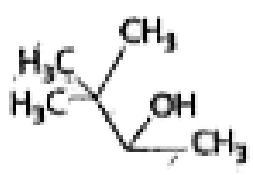
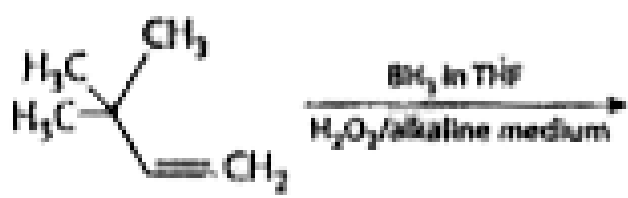




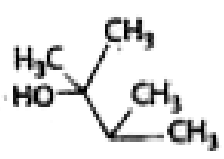
**Answer: A**

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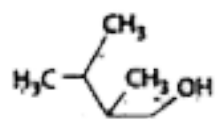
**67.** Identify the product in the following reaction.



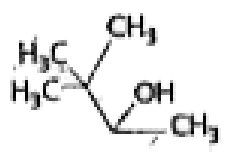
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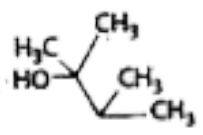
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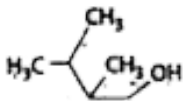


A.



B.





C.



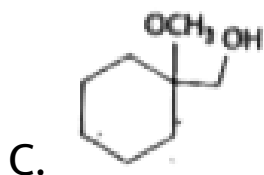
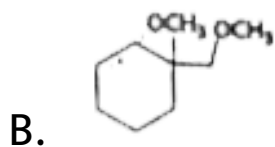
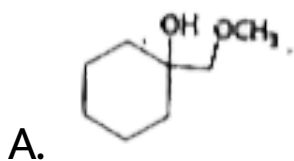
D.

**Answer: D**



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68. The major product of the given reaction is-



D.

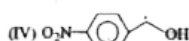
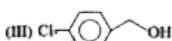
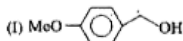


**Answer: C**



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**69.** The correct decreasing order of the reaction rates of the following compounds with HBr is:



**A.  $I > II > III > IV$**

B.  $IV > III > II > I$

C.  $II > I > III > IV$

D.  $IV > III > I > II$

**Answer: A**



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70.

In

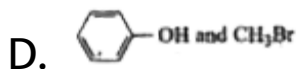
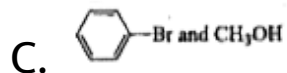
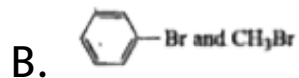
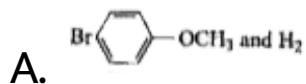
the

reaction



the

product are:

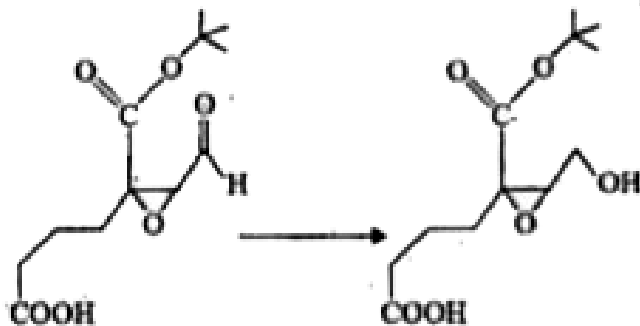


**Answer: D**



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71. Reagent(s) which can be used to bring about the following transformation is (are) :



A.  $LiAlH_4$  in  $(C_2H_5)_2O$

B.  $BH_3$  in THF

C.  $NaBH_4$  in  $C_2H_5OH$

D. Raney  $Ni / H_2$  in THF



**Answer: C**



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**72.** 375 mg of an alcohol reacts with required amount of methyl magnesium bromide and releases 140 mL of methane gas at STP The alcohol is,

A. ethanol

B. n-butanol

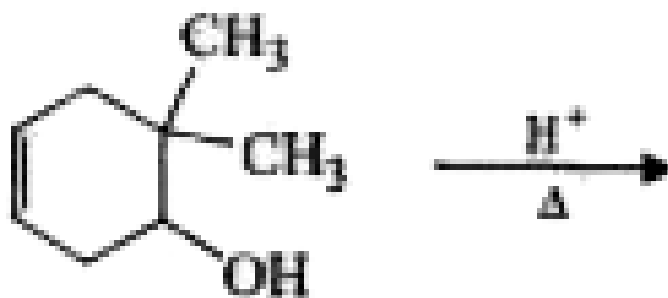
C. methanol

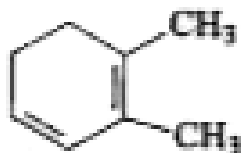
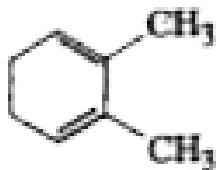
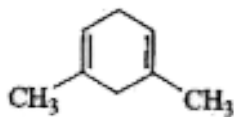
D. n-propanol

Answer: D

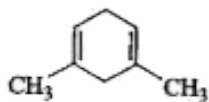
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73. Find the product of the given reaction?

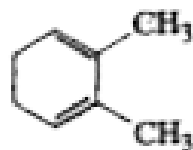




A.



B.



C.



D.

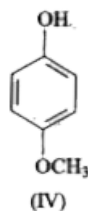
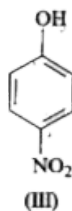
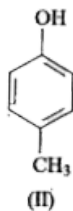
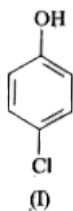
**Answer: D**



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**74.** The correct order of decreasing acidity for

I, II, III and IV is-



A.  $IV > III > I > II$

B.  $II > IV > I > III$

C.  $I > II > III > IV$

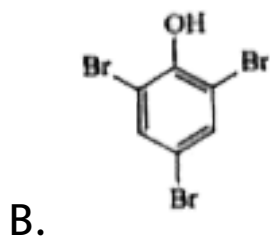
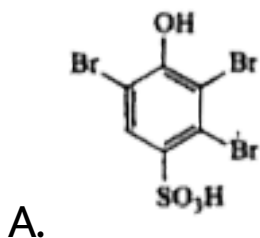
D.  $III > I > II > IV$

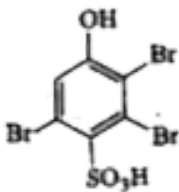
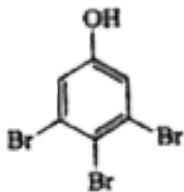
**Answer: D**



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75. The major product of the given reaction is:



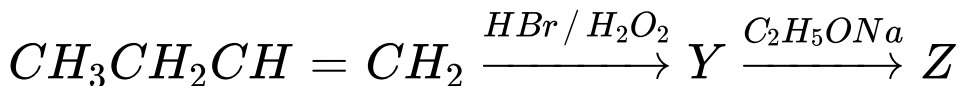


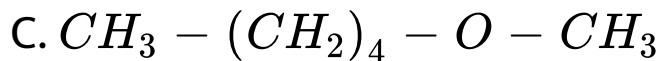
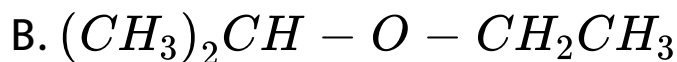
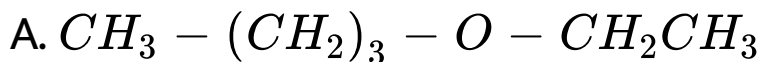
**Answer: B**



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**76.** Identify Z in the sequence of reaction:





D.



**Answer: A**



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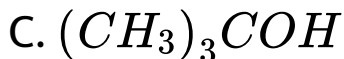
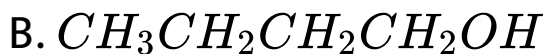




77.

A, A

is:



**Answer: C**



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**78.** Which among the following statements is correct?

(i) Glycerol on reaction with oxalic acid at  $110^{\circ}\text{C}$  (383 K) and followed by heating and hydrolysis gives formic acid and glycerol.

(ii) Glycerol on reaction with oxalic acid at  $230^{\circ}\text{C}$  (503 K) and followed by heating gives allyl alcohol. (iii) Glycerol on oxidation with dil.

$\text{HNO}_3$  gives a mixture of glyceric and tartronic acid,

(iv) Glycerol on oxidation with conc.  $HNO_3$  gives glyceric acid.

A. i and ii

B. i and iii

C. iii and iv

D. i, ii, iii iv

**Answer: D**



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79. Consider the reaction  $C_3H_7 - OH + Et_3O^+ BF_4^-$ . Which of the following, statements is wrong?

A. The nucleophile in the reaction is



B. The nucleophile in the reaction is  $BF_3$

C. The leaving group is  $Et_2O$

D.  $S_N^2$  reaction occurs

**Answer: B**





80. The reaction of neopentyl alcohol with  $SOCl_2$  gives-

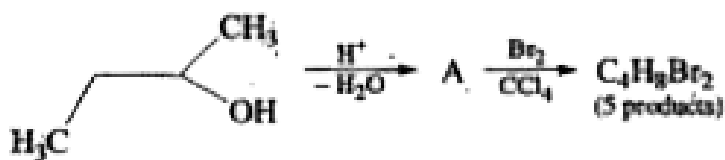
- A. neopentyl chloride
- B. 2-chloro-2-methylbutane
- C. 2-methyl- 2-butene
- D. a mixture Of neopentylchloride and 2-methyl-2-butene

**Answer: A**



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81. In the reaction



The

number of isomers of A is: 2, 3, 5, 6

A. 2

B. 3

C. 5

D. 6

**Answer: B**



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**82.** Given are the following reactions:

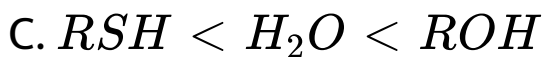
$\text{RSH} + \text{OH}^-$  Which of the following order of acid strength and base strength is correct?

A.  $\text{RSH} > \text{H}_2\text{O} > \text{ROH}$  and

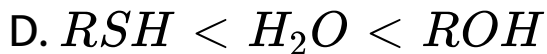


B.  $\text{RSH} > \text{H}_2\text{O} > \text{ROH}$  and





and



and



**Answer: B**



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**83.** Iodoform test is not answered by:







C. l-methylcyclohexanol



**Answer: B**



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**84.** The formation of peroxide-linkage in ether due to the exposure in air can be detected by treating it with

A. sodium

B. dilute hydrochloric acid

C. aqueous ferrous ammonium sulphate

followed by addition of ammonium  
thiocyanate

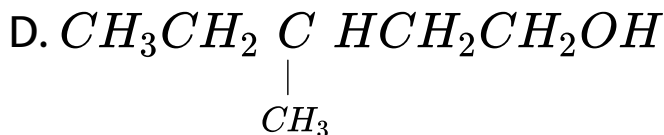
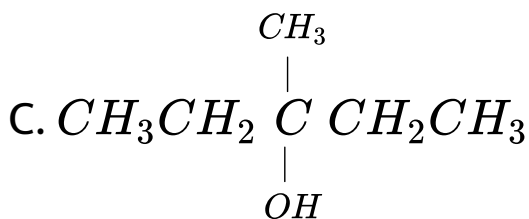
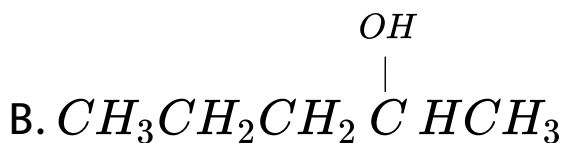
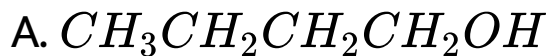
D. dilute sodium hydroxide

**Answer: C**



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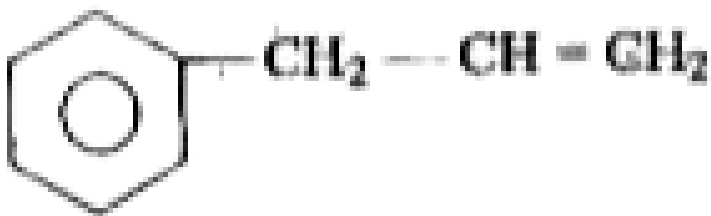
85. Among the following compounds which can be dehydrated most readily is:



**Answer: C**

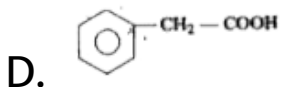
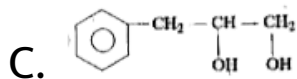
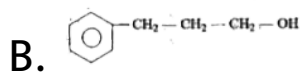
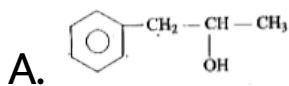


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86.

on oxymercuration-demercuration produces the major product:

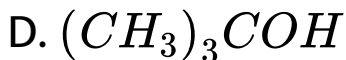
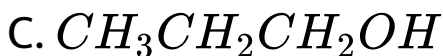
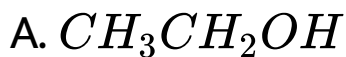


**Answer: A**



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**87.** In the hydroboration-oxidation reaction of propene produces

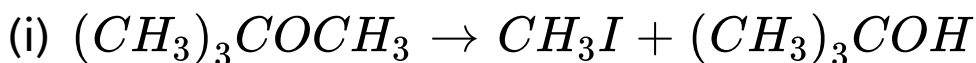


**Answer: C**

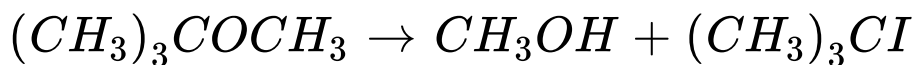


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**88.** Consider the reactions:



(ii)



Which of the following statements is correct?

The reagent used in reaction (i) is anhydrous

HI in ether and in reaction (ii) is concentrated

HI. The reagent used in reaction (i) is

concentrated HI and in reaction (ii) is anhydrous HI in ether, The reagent used both in reaction (i) and (ii) is concentrated HI, The reagent used both in reactions (i) and (ii) is anhydrous HI in ether.

A. The reagent used in reaction (i) is anhydrous HI in ether and in reaction (ii) is concentrated HI .

B. The reagent used in reaction (i) is concentrated HI and in reaction (ii) is anhydrous HI in ether

C. The reagent used both in reaction (i)

and (ii) is concentrated HI

D. The reagent used both in reactions (i)

and (ii) is anhydrous HI in ether.

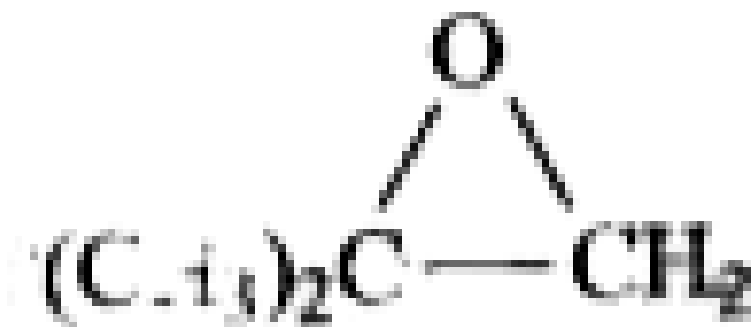
**Answer: A**



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89. The reaction of

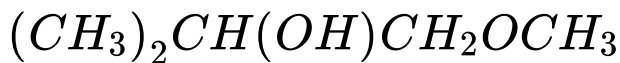


with

$CH_3OH$  in (i) acid  $H^+$ , and (ii) base  $CH_3O^-$ ,

respectively, give

A.  $(CH_3)_2C(OCH_3)CH_2OH$  and



B.  $(CH_3)_2C(OCH_3)CH_2OH$  and



C.  $(CH_3)_2C(OCH_3)CH_2OCH_3$  and



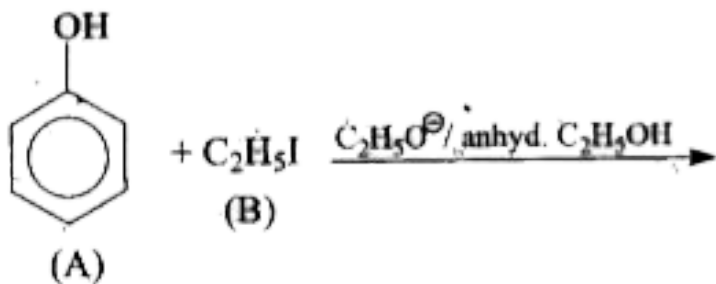
D.  $(CH_3)_2C(OH)(CH_2OH)$  and



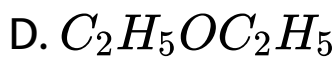
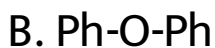
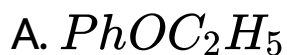
**Answer: A**



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, the product is:



**Answer: D**



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91. When ethylene glycol is heated with acidified potassium permanganate, the main organic compound obtained is-

A. oxalic acid

B. glyoxal

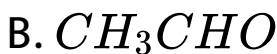
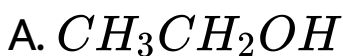
C. formic acid

D. acetaldehyde

**Answer: C**



92. An organic compound X on treatment with pyridinium chlorochromate in dichloromethane gives compound Y. Compound Y reacts with Iodine and alkali to form triiodomethane. The compound 'X' is



**Answer: A**



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**93.** Phthalic acid reacts with resorcinol in the presence of concentrated  $H_2SO_4$  to give

A. phenolphthalein

B. alizarin

C. coumarin

D. fluorescein

**Answer: D**



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**94.** 1-propanol and 2-propanol can be best distinguished by

A. oxidation with alkaline  $KMnO_4$

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**





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95. Which of the following statements is correct?

A. Sulphonation of phenol at low

temperature is rate-controlled to give o-



B. Sulphonation of phenol at higher

temperatures

is

thermodynamically controlled to give o-



C. The -OH group is more activating than phenoxide ion towards aromatic electrophilic substitution reactions

D. Bromination of phenol in aqueous medium gives monobrominated phenol while in non aqueous medium, tribrominated phenol is formed.

**Answer: A**



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96. When 3-methyl-2-pentene is treated with mercuric acetate,  $Hg(O_2CCH_3)_2$ , in THF-ethanol mixture and the resulting product reacted with  $NaBH_4$  in basic solution, the principal product formed is which of these?

- A. 3-Methyl-3-pentanol
- B. 3-Ethoxy-3-methylpentane
- C. 3-Methyl-2-pentanol

## D. 2-Ethoxy-3-methylpentane

**Answer: B**



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**97.** 1,2-Dihydroxybenzene, 1,3-Dihydroxy benzene, 1,4-Dihydroxy benzene, Hydroxy benzene.

(i), (ii), (iii), (iv)

The increasing order of boiling points of the above mentioned alcohols is,

A.  $I < II < III < IV$

B.  $I < II < IV < III$

C.  $IV < I < II < III$

D.  $IV < II < I < III$

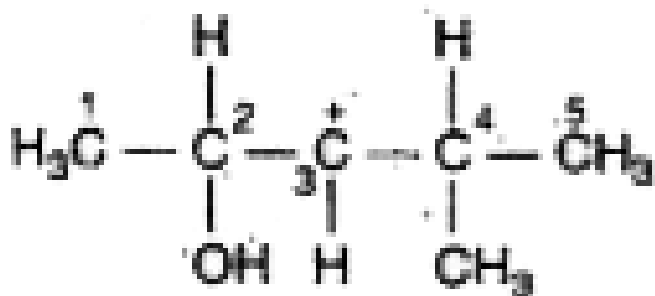
**Answer: C**



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**98.** In the following carbocation,  $H / CH_3$  that is most likely to migrate, to the positively

charged carbon is -



A.  $CH_3$  at C-4

B. H at C-4

C.  $CH_3$  at C-2

D. H at C-2

**Answer: D**



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99. Denaturation of alcohol is the-

A. mixing of  $CuSO_4$  (a foul smelling solid) and pyridine (to give the colour) to make the commercial alc(ohol -unit for drinking. F

B. mixing of  $CuSO_4$  (to give the colour) and pyridine (a foul smelling solid) to make the commercial alcohol unfit for drinking

C. mixing of  $Cu(OAc)_2$  and ammonia to make methanolic solution for drinking

D. mixing of  $Cu(OAc)_2$  and pyridine to make the commercial alcohol unfit for drinking

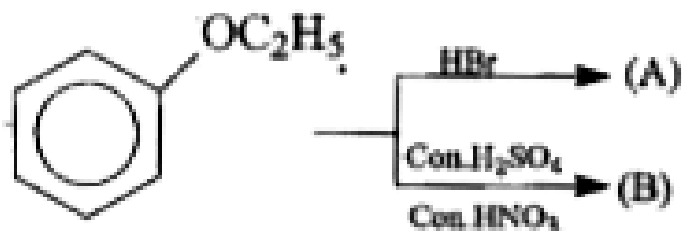
**Answer: B**



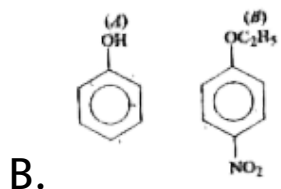
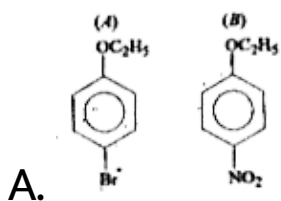
**Watch Video Solution**



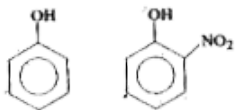
100. Predict the major product of the following reaction:



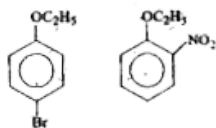
Choose the option with appropriate products from the codes given below.



C.



D.



**Answer: B**



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## Level II Assertion Reason Type

1. Assertion : Carbon oxygen bond length of phenol is slightly less than that in methanol.

Reason : There exist a partial double bond character and carbon to which oxygen is attached in phenol is  $sp^2$  hybridised.

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

B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)

C. If (A) is correct, but (R) is incorrect

D. If both (A) and (R) are incorrect.

**Answer: A**





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2. Assertion : In alcohols, the boiling point decreases with decrease in the branching of the carbon chain.

Reason : -There is the increase in van der Waals/ forces between the number of carbon atoms with decrease in the surface area.

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

B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)

C. If (A) is correct, but (R) is incorrect

D. If both (A) and (R) are incorrect.

**Answer: D**



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**3. Assertion :** Alcohols and water are weaker acids than phenols.

**Reason :** The delocalisation of negative charge

makes the phenoxide ion more stable and favour the ionisation of phenol.

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

B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)

C. If (A) is correct, but (R) is incorrect

D. If both (A) and (R) are incorrect.

**Answer: A**



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4. Assertion : Bromination of phenol takes place even in the absence of Lewis acid.

Reason : In phenol, OH group attached to benzene ring has highly deactivating effect.



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5. Assertion : The cleavage of C-O bond in ethers takes place under drastic condition with excess of hydrogen halides.

Reason : Ethers are the most reactive among all the functional groups.

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

B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)

C. If (A) is correct, but (R) is incorrect

D. If both (A) and (R) are incorrect.

**Answer: C**



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6. Assertion: Dipole moment of phenol is smaller than that of methanol.

Reason: In phenol C-O bond is less polar due to electron withdrawing effect of the benzene ring whereas in methanol, C-O bond is more polar due to electron releasing effect of  $CH_3$  group.

A. A. Both assertion and reason is true R is the correct explanation for A

B. Both A and R is true but R is not the explanation of A

C. Assertion is true but reason is false

D. Both A and R are false

**Answer: A**



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7. Assertion: Neopentyl alcohol on treatment with HCl gives neopentyl chloride.

Reason: Neopentyl alcohol is a tertiary alcohol.

- A. If both (A) and (R) are correct and (R) is the correct explanation of (A).
- B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)
- C. If (A) is correct, but (R) is incorrect
- D. If both (A) and (R) are incorrect.

**Answer: D**



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**8. Assertion:** Phenoxide ion on treatment with an active alkyl halide (e.g.  $\text{CH}_2=\text{CH}-\text{CH}_2\text{Cl}$ ) gives two products-, viz, O-substituted and C-substituted.

**Reason:** Phenoxide ion is an ambident nucleophile. A. If both assertion and reason are true and the reason is the correct explanation of the assertion. B. If both assertion and reason are true but reason is not the correct explanation of the assertion. C. If assertion is true but reason is false. D. If both assertion and reason are false.



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9. Assertion: Phenol forms 2,4,6-tribromophenol on treatment with  $Br_2$  in carbon disulphide at 273 K. Reason: Bromine polarizes in carbon disulphide. A. If both the assertion and reason are true and reason is the correct explanation of the assertion. B. If both assertion and reason are true but reason is not the correct explanation of the assertion. C. If assertion is true but reason is false. D. If both assertion and reason are false.



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**10.** Assertion: Alcohols have higher boiling points than ethers of comparable molecular masses.

Reason: Alcohols and ethers are isomeric in nature.

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

- B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)
- C. If (A) is correct, but (R) is incorrect
- D. If both (A) and (R) are incorrect.

**Answer: B**



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**11.** Assertion: Commercially carboxylic acids are reduced to alcohols by converting them to the esters followed by their reduction using

catalytic hydrogenation.

Reason:  $LiAlH_4$  can also reduce carboxylic acids to primary alcohols but  $LiAlH_4$  is an expensive reagent and used for preparing special chemicals only



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**12. Assertion:** Ethers are not prepared by the dehydration of secondary and tertiary alcohols.

Reason : In the secondary and tertiary alcohols



elimination competes over substitution during dehydration, alkenes are easily formed.

A. A. Both A and R are true and R is the correct explanation of A

B. B. Both A and R are true but R is not the correct explanation for A

C. C. A is true R is false

D. D. both A and R is false

**Answer: A**



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**13.** Assertion:  $CO_2$  is non polar, while ROR is polar in nature.

Reason: The dipole moments of two CO bonds are equal and opposite to each other in  $CO_2$  , while in R-O-R molecules two dipoles of the R-O bonds are inclined to each other at an angle of  $110^\circ$ .

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

- B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)
- C. If (A) is correct, but (R) is incorrect
- D. If both (A) and (R) are incorrect.

**Answer: A**



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**14.** 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.

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

B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)

C. If (A) is correct, but (R) is incorrect

D. If both (A) and (R) are incorrect.

**Answer: B**



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**15. Assertion:** Anisole undergoes electrophilic substitution at o-and p-positions.

**Reason:** Anisole is less reactive .than phenol towards electrophilic substitution reactions.

A. A. Both A and R are correct and R is the correct explanation of A

B. B.Both A and R are true but R is not the correct explanation of A

C. C. A is true but R is false

D. D. Both A and R is false

**Answer: B**



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**16.** Assertion: Acid catalysed dehydration of tert-butanol proceeds faster than that of n-butanol.

Reason: The-acid catalysed dehydration of an alcohol proceeds via the formation of a carbocation.

- A. If both (A) and (R) are correct and (R) is the correct explanation of (A).
- B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)
- C. If (A) is correct, but (R) is incorrect
- D. If both (A) and (R) are incorrect.

**Answer: B**



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17. Assertion: Reaction of alcohols with  $SOCl_2$  is catalysed by the presence of a tertiary amine ( $R_3N$ )

Reason: Tertiary amine promotes the reaction by reacting with the by product HCl. A) Both Assertion and Reason are true and Reason is the correct explanation of Assertion B) Both Assertion and Reason are true and Reason is not the correct explanation of Assertion C) Assertion is true but Reason is false D) Both Assertion and Reason are false



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**18.** Assertion: Solubility of n-alcohol in water decreases with increase in its relative molar mass.

Reason: The relative proportion of their hydrocarbon part in alcohols increases with increasing molar mass which permits enhanced hydrogen bonding with water. A) If both the assertion and reason are true statement and reason is correct explanation of the assertion . B) If both the assertion and reason are true statement but reason is not a

correct explanation of the assertion . C) If the assertion is true but the reason is a false statement. D) If both assertion and reason are false statements.



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19. Assertion: The bond angle



in

alcohols is slightly less than the tetrahedral angle.

Reason: In alcohols, the oxygen of -OH group is

attached to carbon by a sigma bond formed by the overlap of a  $sp^3$  hybridised orbital of carbon with  $sp^3$  hybridised orbital of oxygen.



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**20.** Assertion: Addition reaction of water to but-1-ene in acidic medium yields butan-1-ol.

Reason: Addition of water in acidic medium proceeds through the formation of primary carbocation

- A. If both (A) and (R) are correct and (R) is the correct explanation of (A).
- B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)
- C. If (A) is correct, but (R) is incorrect
- D. If both (A) and (R) are incorrect.

**Answer: D**



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21. Assertion : Carbon oxygen bond length of phenol is slightly less than that in methanol.

Reason : There exist a partial double bond character and carbon to which oxygen is attached in phenol is  $sp^2$  hybridised.

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

B. If both (A) and (R) are correct, but (R) is not the correct explanation of (A)

C. If (A) is correct, but (R) is incorrect

D. If both (A) and (R) are incorrect.

**Answer: A**



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**22.** Assertion : In alcohols, the boiling point decreases with decrease in the branching of the carbon chain.

Reason : -There is the increase in van der Waals/ forces between the number of carbon atoms with decrease in the surface area.



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**23.** Assertion : Alcohols and water are weaker acids than phenols.

Reason : The delocalisation of negative charge makes the phenoxide ion more stable and favour the ionisation of phenol.



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**24.** Assertion : Bromination of phenol takes place even in the absence of Lewis acid.



Reason : In phenol, OH group attached to benzene ring has highly deactivating effect.



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**25. Assertion :** The cleavage of C-O bond in ethers takes place under drastic condition with excess of hydrogen halides.

Reason : Ethers are the most reactive among all the functional groups.



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**26.** Assertion: Dipole moment of phenol is smaller than that of methanol.

Reason: In phenol C-O bond is less polar due to electron withdrawing effect of the benzene ring whereas in methanol, C-O bond is more polar due to electron releasing effect of  $CH_3$  group.



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**27.** Assertion: Neopentyl alcohol on treatment with HCl gives neopentyl chloride.

Reason: Neopentyl alcohol is a tertiary alcohol.



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**28.** Assertion: Phenoxide ion on treatment with an active alkyl halide (e.g.  $\text{CH}_2=\text{CH}-\text{CH}_2\text{Cl}$ ) gives two products-, viz, O-substituted and C-substituted.

Reason: Phenoxide ion is an ambident nucleophile. A. If both assertion and reason are true and the reason is the correct explanation of the assertion. B. If both

assertion and reason are true but reason is not the correct explanation of the assertion. C. If assertion is true but reason is false. D. If both assertion and reason are false.



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**29.** Assertion: Phenol forms 2,4,6-tribromophenol on treatment with  $Br_2$  in carbon disulphide at 273 K. Reason: Bromine polarizes in carbon disulphide. A. If both the assertion and reason are true and reason is

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



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**30.** Assertion: Alcohols have higher boiling points than ethers of comparable molecular masses.

Reason: Alcohols and ethers are isomeric in nature.



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**31.** Assertion: Commercially carboxylic acids are reduced to alcohols by converting them to the esters followed by their reduction using catalytic hydrogenation.

Reason:  $LiAlH_4$  can also reduce carboxylic acids to primary alcohols but  $LiAlH_4$  is an

expensive reagent and used for preparing special chemicals only



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**32. Assertion:** Ethers are not prepared by the dehydration of secondary and tertiary alcohols.

**Reason :** In the secondary and tertiary alcohols elimination competes over substitution during dehydration, alkenes are easily formed.



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**33.** Assertion:  $CO_2$  is non polar, while ROR is polar in nature.

Reason: The dipole moments of two CO bonds are equal and opposite to each other in  $CO_2$ , while in R-O-R molecules two dipoles of the R-O bonds are inclined to each other at an angle of  $110^\circ$ .



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**34.** 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.



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**35.** Assertion: Anisole undergoes electrophilic substitution at o-and p-positions.

Reason: Anisole is less reactive than phenol towards electrophilic substitution reactions.



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**36.** Assertion: Acid catalysed dehydration of tert-butanol proceeds faster than that of n-butanol.

Reason: The acid catalysed dehydration of an alcohol proceeds via the formation of a carbocation.



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**37. Assertion:** Reaction of alcohols with  $SOCl_2$  is catalysed by the presence' of a tertiary amine ( $R_3N$ )

Reason: Tertiary amine promotes the reaction by reacting with the by product HCl. A) Both Assertion and Reason are true and Reason is the correct explanation of Assertion B) Both Assertion and Reason are true and Reason is not the correct explanation of Assertion C) Assertion is true but Reason is false D) Both Assertion and Reason are false



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**38.** Assertion: Solubility of n-alcohol in water decreases with increase in its relative molar mass.

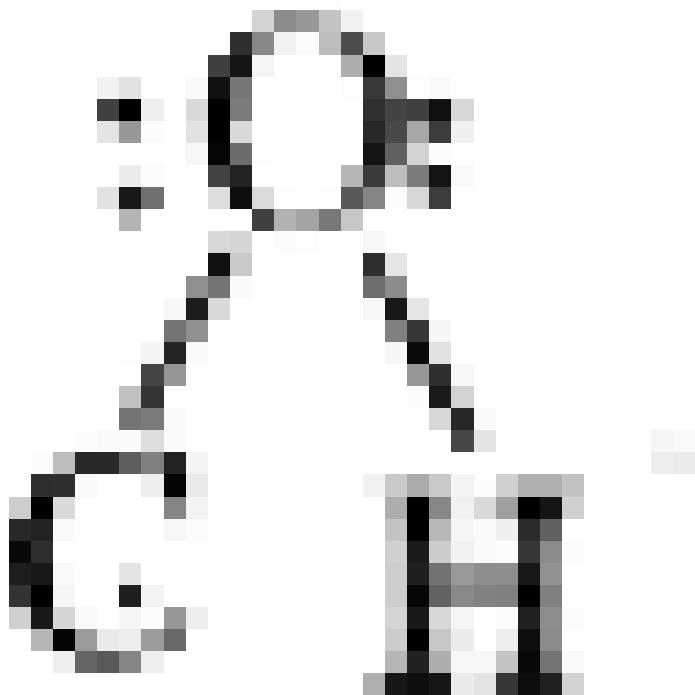
Reason: The relative proportion of their hydrocarbon part in alcohols increases with increasing molar mass which permits enhanced hydrogen bonding with water. A) If both the assertion and reason are true statement and reason is correct explanation of the assertion . B) If both the assertion and

reason are true statement but reason is not a correct explanation of the assertion . C) If the assertion is true but the reason is a false statement. D) If both assertion and reason are false statements.



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39. Assertion: The bond angle



in

alcohols is slightly less than the tetrahedral angle.

Reason: In alcohols, the oxygen of -OH group is

attached to carbon by a sigma bond formed by the overlap of a  $sp^3$  hybridised orbital of carbon with  $sp^3$  hybridised orbital of oxygen.



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**40.** Assertion: Addition reaction of water to but-1-ene in acidic medium yields butan-1-ol.

Reason: Addition of water in acidic medium proceeds through the formation of primary carbocation



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