CHEMISTRY

BOOKS - BRILLIANT PUBLICATION

ALCOHOLS, PHENOLS AND ETHERS

Level I

1. Major product of dehydration of 1-butanol is

A. 1-butene

B. 2-butene

C. isobutene

D. isobutane

Answer: B

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2. Identify Z in the following sequence of reactions.

$$\text{Ethanol} \xrightarrow{PBr_2} X \xrightarrow[\Delta]{alc.KOH} Y \xrightarrow{dil.H_2SO_4} Z$$

A. $CH_2 = CH_2$

B. $CH_3 - CH_2 - OH$

C. $CH_3 - CH_2 - O - CH_2\_CH_3$

D. $CH_3 - CH_2 - O - CH_3$

Answer: B

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3. o-Methoxybromobenzene is treated withg sodamic followed by ammonia. The major product formed is

A. o-Methoxyaniline

B. Aniline

C. Methoxybenzene

D. m-Methoxyaniline

Answer: D

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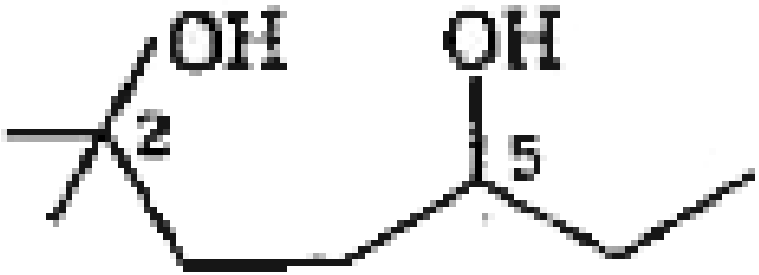

4. In this diol

A. OH at C_2 is more basic than that of at C_3

B. OH at C_2 is more basic than that 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.

$$C_6H_5CH_2\overset{\overset{O}{||}}{C}OH + CH_3CH_2\overset{18}{O}H \xrightarrow[\text{Heat}]{H^+}$$

A. $C_6H_5CH_2\overset{\overset{O}{||}}{C}OCH_2CH_3$

B. $C_6H_5CH_2\overset{\overset{O}{||}}{C} - \overset{18}{O}CH_2CH_3$

C. $C_6H_5CH_2\overset{\overset{18}{O}}{\overset{||}{C}} - {}^{18}OCH_2CH_3$

D. $CH_3CH_2\overset{\overset{18}{O}}{\overset{||}{C}}OCH_2C_6H_5$

Answer: B

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

A. Ethanol

B. Methanol

C. Ethanoic acid

D. Benzene

Answer: A

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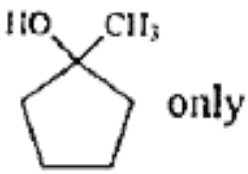
8. Oxymercuration-demercuration of 3-methylcyclopentene produces this/these product(s)

A. 

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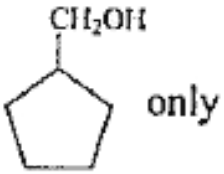
B. 

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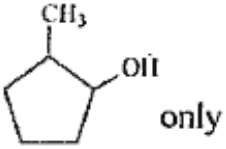
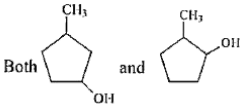
C. 

D. 

Answer: D

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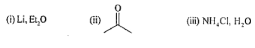
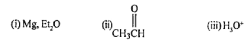
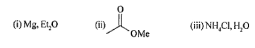
9. Stepwise reaction of which set of reagents with isobutyl bromide produce a primary alcohol?

A. 

B. 

C. 

D. 

Answer: D

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10. In the following sequence of reactions.

$CH_3CH_2OH \xrightarrow{P+I_2} A \xrightarrow[\text{ether}]{Mg} B \xrightarrow{HCHO} C \xrightarrow{H_2O} D$ the compound D is

A. butanol

B. n-butyl alcohol

C. n-propyl alcohol

D. propanal

Answer: C

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11. The acid catalysed hydration of alkene involves the following three steps.

I. Nucleophilic attack of water on carbocation

II. Protonation of alkene to form carbocation by the electrophilic attack of

H_2O

III. Deprotonation to form an alcohol

Identify the sequence for the mechanism of reaction in the acid catalysed hydration of alkenes.

A. I, II and III

B. II, I and III

C. III, I and II

D. III, II and I

Answer: B

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

A. Teritary alcohol by S_N1

B. Secondary alcohol by S_N2

C. Teritary alcohol by S_N2

D. Secondary alcohol by S_N1

Answer: A

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13. The pair of alcohols that can be distinguishes 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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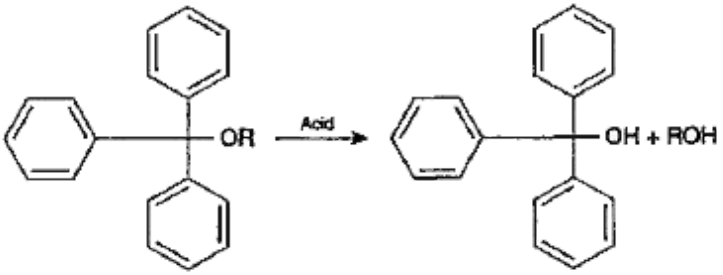
14. The acidic hydrolysis of ether (X) shown below is fastest when



A. one phenyl group is repalced by a methyl group

B. one phenyl group is repalced by a para-methoxyphenyl group

C. two phenyl groups are repalced by two para-methoxyphenyl groups

D. no structural change is made to X

Answer: C

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15. Power alcohol is a mixture of

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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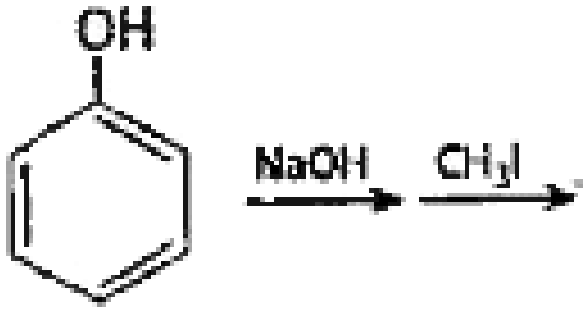
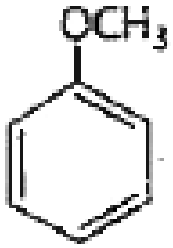
17. The major product formed in the following reaction is



A.



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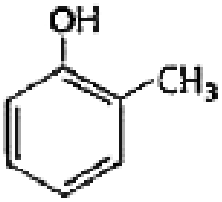
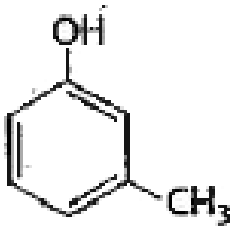
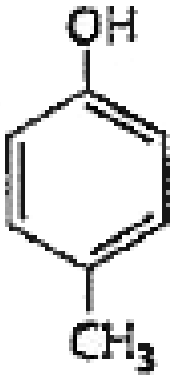




C.



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

A. metallic sodium

B. aqueous $NaHCO_3$

C. dil. HCl

D. Iodine and alkali

Answer: B

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19. In Victor meyer test the colour produced by isoproppyl alcohol and isobutyl alcohol are respectively

A. red and blue

B. blue and colourless

C. blue and red

D. ren and colourless

Answer: C

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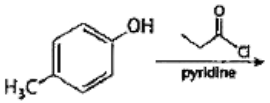
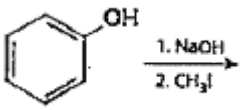
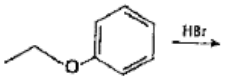
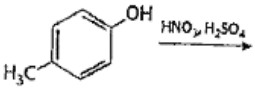
20. Which among the following is an electrophillic substitution reaction.

A. 

B. 

C. 

D. 

Answer: D

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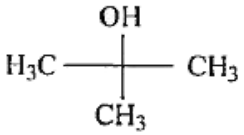
21. Among the following alcohols, which one is most acidic?

A. $CH_3CH_2CH_2OH$

B. $CH_3 - OH$

C. $CH_3 - CH_3 - OH$



D.

Answer: B

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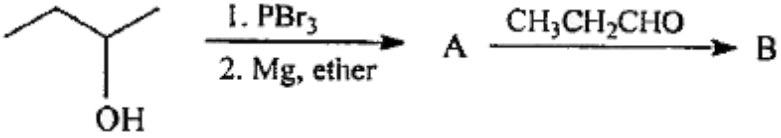
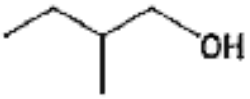
22. In the reaction

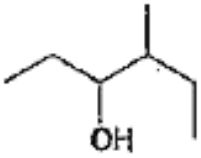


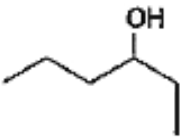
. The final product 'B' is

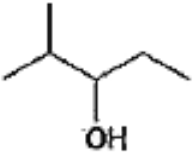
A.



B.



C. 

D. 

Answer: B

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23. An organic compound X on treatment with K_2CrO_4 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. CH_3CHO

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. $H_2 / Ni / \Delta$

B. Pt / H_2

C. $NaBH_4$

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. $CH_3CH_2CH_2CH_2CH_2OH$

C. $CH_3CH_2CH_2CH(CH_3)OH$

D. $CH_3CH_2C(CH_3)_2OH$

Answer: B

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26. 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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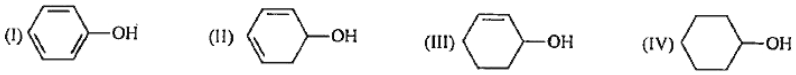
27. The stability towards dehydration of the folloowing compounds decreases in the order



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

A. Butan-2-ol

B. Butan-1-ol

C. 2-Methyl propan-1-ol

D. 2-Methyl propan-2-ol

Answer: D

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29. In the following reaction,

I. $CH_3-\overset{CH_3}{\underset{|}{C}}H-\underset{OH}{\underset{|}{C}}HCH_3 \xrightarrow{H^+ / \text{Heat}} \underset{\text{Major product}}{A} + \underset{\text{Minor product}}{B}$ II.

$A \xrightarrow[\text{in absence of peroxide}]{\text{HBr. dark}} \underset{\text{Major product}}{C} + \underset{\text{Minor product}}{D}$

The major products (A) and (C) are, respectively

A. $CH_2=\overset{CH_3}{\underset{|}{C}}-CH_2CH_3$ and $CH_3-\underset{Br}{\overset{CH_3}{\underset{|}{\overset{|}{C}}}}-CH_2CH_3$

B. $CH_2=\overset{CH_3}{\underset{|}{C}}-CH_2CH_3$ and $\underset{Br}{\underset{|}{CH_2}}-\overset{CH_3}{\underset{|}{C}}H-CH_2CH_3$

C. $CH_3 - \overset{CH_3}{\overset{|}{C}} = CH - CH_3$ and $CH_3 - \overset{CH_3}{\overset{|}{\underset{Br}{\underset{|}{C}}}} - CH_2CH_3$

D. $CH_3 - \overset{CH_3}{\overset{|}{C}} = CHCH_3$ and $CH_3 - \overset{CH_3}{\overset{|}{C}}H - \underset{Br}{\underset{|}{CH}} - CH_3$

Answer: C

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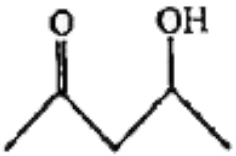
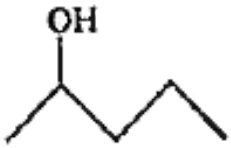
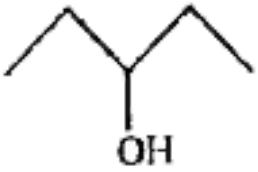
30. Which of the following will be most readily dehydration in acidic conditions?

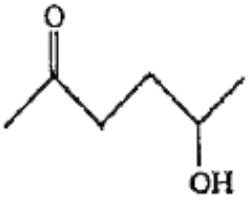
A. 

B. 

C.



D.



Answer: A

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31. Phenyl magensium bromide reacts withg t-butanol to gives

A. Benzene

B. Phenol

C. t-Butyl benzene

D. t-Butyl phenyl ether

Answer: A

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

A. $CH_3CH_2CH = CH_2$

B. $CH_3CH = CHCH_3$

C. $(CH_3)_2C = CH_2$

D. $CH_3CH = CH_2$

Answer: C

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

A. primary alcohol

B. secondary and teritary alcohol

C. mixture of primary and secondary alcohols

D. mixture of secondary and teritary alcohols

Answer: B

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

A. 2-Butanone + methylmagnesium bromide

B. Acetone + ethymagnesium bromide

C. Acetadehyde + isopropylmagnesium bromide

D. Ethyl propionate + methylmagnesium bromide

Answer: C

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35. Dipolemoment, $\mu \neq 0$ for

(1) 

(2) 

(3) 

(4) 

A. (3) and (4)

B. only (1)

C. (1) and (2)

D. only (3)

Answer: A

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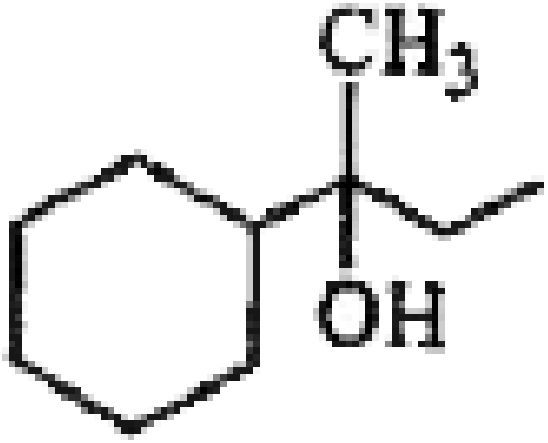
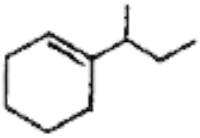
36. Which of the following is not the product of dehydration of



A.



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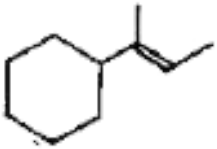
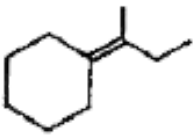
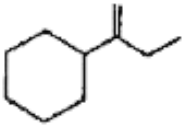


C.





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 diazotisation

D. reduction, diazotization and hydrolysis

Answer: D

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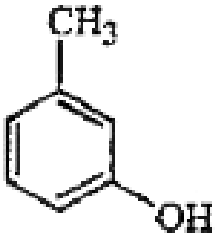
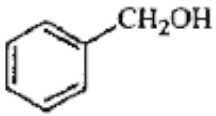
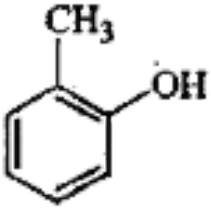
39. The structure of the compound that gives a tribromo derivative on treatment with bromine water is



A.

B. 

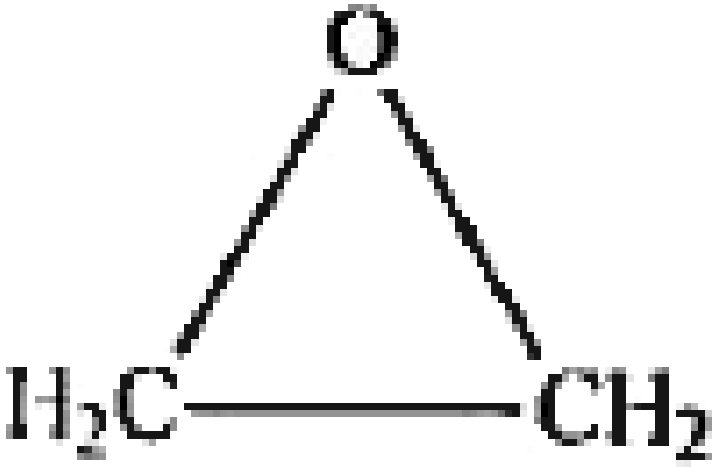
C. 

D. 

Answer: A

View Text Solution

40. Reaction of RMgX with



followed by hydrolysis gives

A. RCHOHR

B. $RCHOHCH_3$

C. R_2CHCH_2OH

D. RCH_2CH_2OH

Answer: D

View Text Solution

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 conc. H_2SO_4 at 430-440 K.

D. heating ethanol with dry Ag_2O

Answer: A

View Text Solution

42. Which among the following stes 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

View Text Solution

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

A. $CH_3CH_2CH_2OH$

B. $CH_3CH(OH)CH_2CH_2$

C. $(CH_3)_2C(OH)CH_2CH_3$

D. $CH_3CH(OH)CH_2CH_2CH_3$

Answer: D

View Text Solution

44. Allyl phenyl ether can be preapared by heating:

A. $C_6H_5Br + CH_2 = CH - CH_2 - ONa$

B. $CH_2 = CH - CH_2Br + C_6H_5ONa$

C. $C_6H_5 - CH = CH - Br + CH_3 - ONa$

D. $CH_2 = CH - Br + C_6H_5 - CH_2 - ONa$

Answer: B

View Text Solution

45. How many structural isomers are possible for C_3H_6O

A. 3

B. 4

C. 7

D. 8

Answer: C

View Text Solution

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

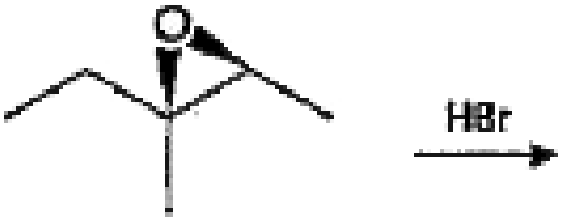
C. o-nitrophenol shows intermolecular H-bonding

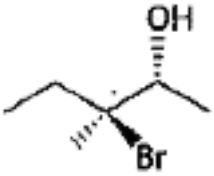
D. melting point of o-nitrophenol is lower than those of m - and p - isomers

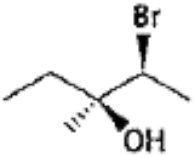
Answer: B

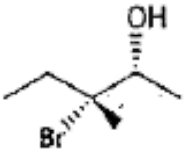
View Text Solution

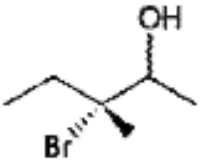
47. The product of the following reaction is



A. 

B. 

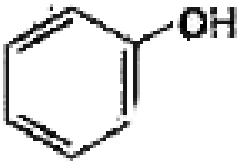
C. 

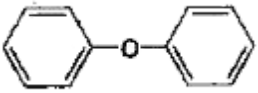
D. 

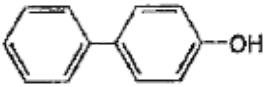
Answer: A

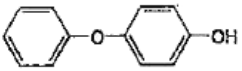
View Text Solution

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

A. 

B. 

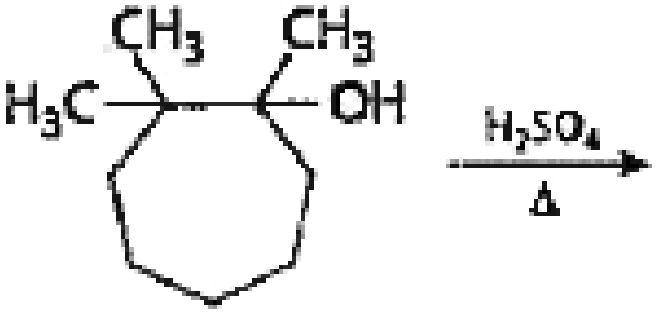
C. 

D. 

Answer: D

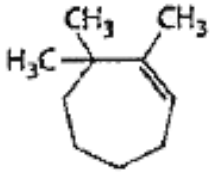
View Text Solution

49. When the following seven-membered ring alcohol is dehydrated, three alkenes are formed:

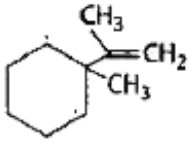


Which of the following compounds is not a possible produc of this reaction?

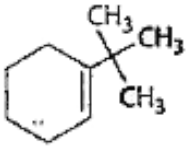
A.



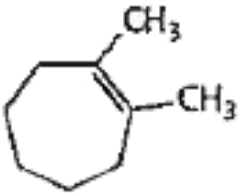
B.



C.



D.



Answer: D

View Text Solution

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

A. $CH_3\underset{\underset{CH_3}{|}}{C}HCH_2OH$

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

C. $CH_3CH_2CH_2CH_2OH$

D. $CH_3\underset{\underset{OH}{|}}{C}HCH_2CH_3$

Answer: B

View Text Solution

Level Ii

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

A. $CH_3CH_2CH_2OH$

B. CH_3CH_2OH

C. $CH_3CH=CHCH_2OH$

D. $CH_3CH_2\underset{\underset{OH}{|}}{C}HCH_3$

Answer: D

View Text Solution

2. An oxygen containing organic compound upon oxidation forms a carboxylic acid as the only organic product with its molecular mass higher by 14 units. The organic compound is

A. an aldehyde

B. a primary alcohol

C. a secondary alcohol

D. a teritary alcohol

Answer: B

View Text Solution

3. $B \xrightarrow[(ii)\, H_3O^+]{(i)\, CH_3MgBr\,(2mol)} A \xrightarrow{H_3O^+} CH_3\underset{\underset{CH_3}{|}}{C}HCOOH$ as one of the product.

B is

A. $(CH_3)_2CHCOCH_3$

B. $(CH_3)_2CH\underset{\underset{OH}{|}}{C}(CH_3)_2$

C. $(CH_3)CH_2C(OH)(CH_3)_2$

D. $(CH_3)_2CH\underset{\underset{OH}{|}}{C}HCH(CH_3)_2$

Answer: B

View Text Solution

4. 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

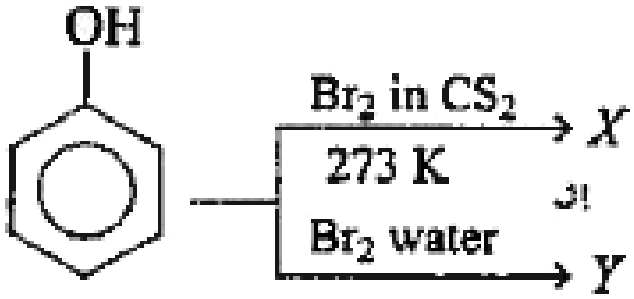
C. The alcohol is reduced to an aldehyde and the Cr(III) is oxidised

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

Answer: B

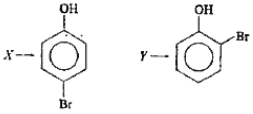
View Text Solution

5. In the given reation,

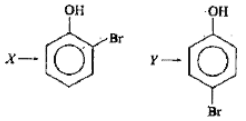


What is X and Y is the above reaction?

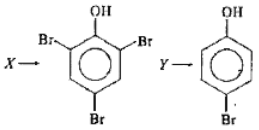
A.



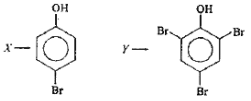
B.



C.



D.



Answer: D

View Text Solution

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

A. Phenoxide ion is less reactive than phenol

B. A weak electrophile CO_2 is used in the reaction

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

D. Salicylic acid is formed as the major product a nd para hydroxy benzoin acid is formed as the minor product

Answer: A

View Text Solution

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

A. $CH_3 - CH_2 - CH_3 - CH_2 - O - CH_3$

B. $CH_3 - CH_2 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}\ H - O - CH_3$

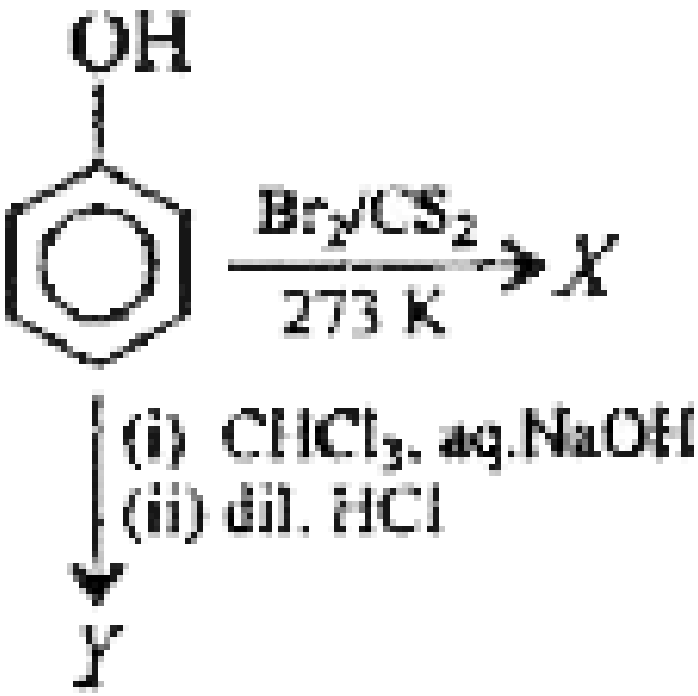
C. $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{\displaystyle |}{\underset{\displaystyle |}{C}}}}\ - O - CH_3$

D. $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{C}}\ H - CH_2 - O - CH_3$

Answer: C

View Text Solution

8. In the given reations,



X and Y are

A. X = Bromobenzene, Y = Acetophenone

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

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

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

Answer: B

View Text Solution

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

A. CH_3OH and $C_6H_5COCH_3$

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

View Text Solution

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

A. $(CH_3)_3C - Br + NaOCH_3$

B. $CH_3Br + NaOC(CH_3)_3$

C. $CH_3CH_2Br + NaOC(CH_3)_3$

D. $(CH_3)_3C - Br + NaOCH_2CH_3$

Answer: B

View Text Solution

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

A. $C_2H_5OC_2H_5$ and $CH_3OC_2H_5$

B. CH_3OCH_3 and $C_2H_5OCH_3$

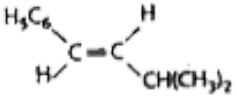
C. C_2H_5OH and CH_3OCH_3

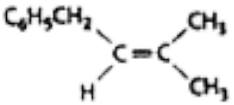
D. CH_3OH and CH_3OCH_3

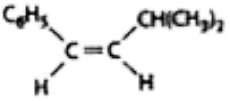
Answer: C

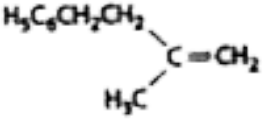
View Text Solution

12. The major product of the reaction $C_6H_5CH_2CH(OH)CH(CH_3)_2 \xrightarrow{\text{conc.}H_2SO_4}$. Product is

A. 

B. 

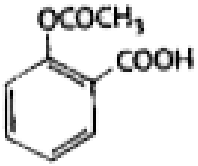
C. 

D. 

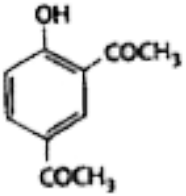
Answer: A

View Text Solution

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



A.



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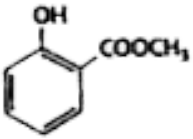
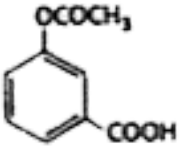


C.

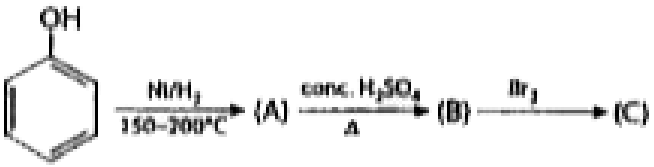


D.

Answer: A

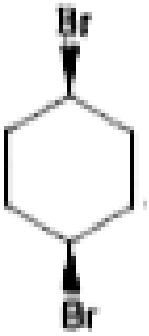
View Text Solution

14. Identify (c) in the following reaction:

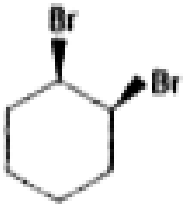


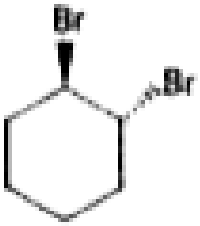
A.

B.



C.



D. 

Answer: D

View Text Solution

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

A. 1-Isopropyl-3-bromo-4-acetylbenzene

B. 2-Bromo-4-isopropyl-1-acetophenone

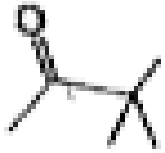
C. 3-Bromo-1-isopropyl-4-phenyl ethanoate

D. (2-Bromo-4-isopropyl) phenyl ethanoate

Answer: D

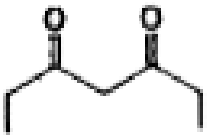
View Text Solution

16. The final product in the given reaction is.

A. 

B. 

C. 

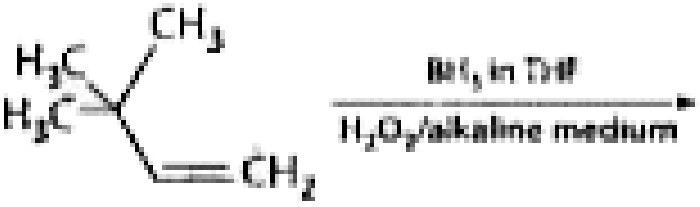


D.

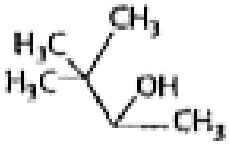
Answer: A

View Text Solution

17. Identify the product in the following reaction.



A.



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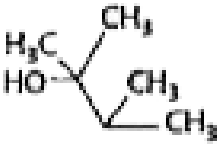
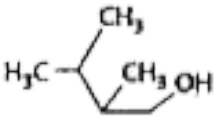


C.

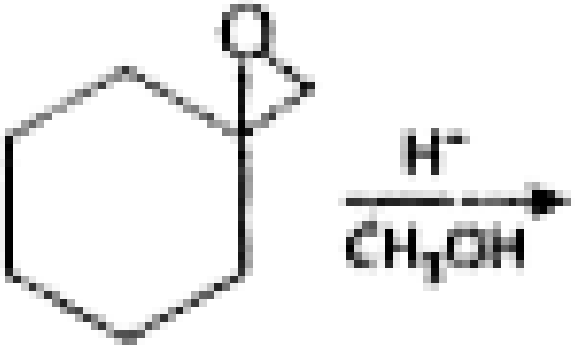


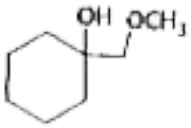
D.

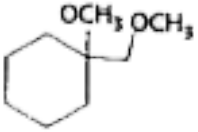
Answer: D

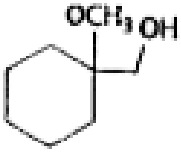
View Text Solution

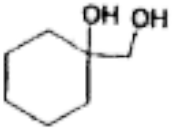
18. The major product of the given reaction is



A. 

B. 

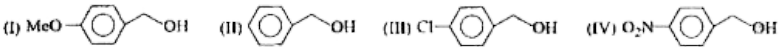
C. 

D. 

Answer: C

View Text Solution

19. 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. $II > I > III > IV$

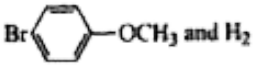
D. $IV > III > I > II$

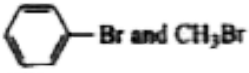
Answer: A

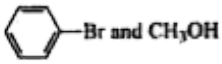
View Text Solution

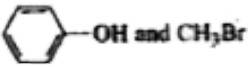
20. In the reaction

the products are:

A. 

B. 

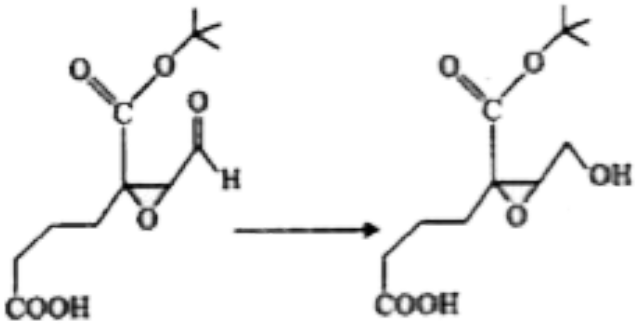
C. 

D. 

Answer: D

View Text Solution

21. Reagents(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

View Text Solution

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

A. ethanol

B. nobutanol

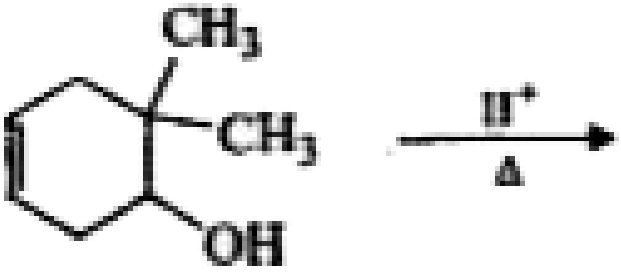
C. methanol

D. n-propanol

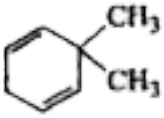
Answer: D

View Text Solution

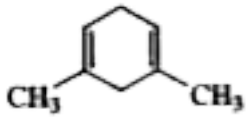
23. Find the product of the given reaction?



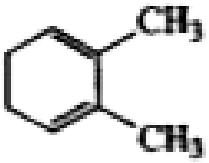
A.



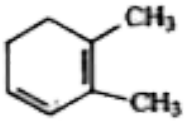
B.



C.



D.



Answer: D

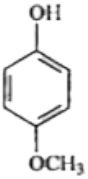
View Text Solution

24. The correct order of decreasing acidity for I, II, III and IV is.

(I)

(II)

(III)



(IV)

A. $IV > III > I > II$

B. $II > IV > I > III$

C. $I > II > III > IV$

D. $III > I > II > IV$

Answer: D

View Text Solution

25. Identify Z in the sequence of reactins: $CH_3CH_2CH = CH_2 \xrightarrow{HBr/H_2O_2} Y \xrightarrow{C_2H_5ONa} Z.$

A. $CH_3 - (CH_2)_3 - O - CH_2CH_3$

B. $(CH_3)_2CH - O - CH_2CH_3$

C. $CH_3 - (CH_2)_4 - O - CH_3$

D. $CH_3CH_2 - CH(CH_3) - O - CH_2CH_3$

Answer: A

View Text Solution

26. Which among the following statements is correct?

(i)n Gilycerol on reaction withj oxalic acis at $110^\circ C$ (383 K) and followed by heating and hydrolysis gives formic acid and glycerol.

(ii) Glycerol on reaction with oxalic acid at $230^\circ C$ (503 K) and followed nu heating gives ailyl alcohol.

(iii) Glycerol on oxidation with dil.HNO_3 gives a mixture of glyceric and

tartonic 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

View Text Solution

27. Consider the reaction $C_3H_7 - OH + Et_3O^+BF_4^- \rightarrow C_3H_7 - O - Et + EtOEt.$ Which of the following statements is wrong?

A. The nucleophile in the reaction is C_3H_7OH

B. The nucelophile in the reaction is BF_3

C. The leaving group is Et_2O

D. S_N^2 reaction occurs

Answer: B

View Text Solution

28. The reaction of neopentyl alcohol with $SOCl_2$ gives

A. nbeopentyl chloride

B. 2-chloro-2-methylbutane

C. 2-methyl-2-butene

D. a mixture of neopentyl chloride and 2-methyl-2-butene

Answer: A

View Text Solution

29. Given are the following reactions:

$RSH + OH^- \Leftrightarrow RS^- + H_2O \quad RO^- + H_2O \Leftrightarrow ROH + OH^-$

`Which of the following order of acid strength and base strength is correct?

A. $RSH > H_2O > ROH$ and $RS^- > OH^- > RO^-$

B. $RSH > H_2O > ROH$ and $RO^- > OH^- > RS^-$

C. $RSH < H_2O < ROH$ and $RS^- < OH^- < RO^-$

D. $RSH < H_2O < ROH$ and $RO^- < OH^- < RO^-$

Answer: B

View Text Solution

30. Iodoform test is not answered by

A. $(CH_3)_2CH(OH)CH_3$

B. $PhCH(OH)CH_2CH_3$

C. 1-methylcyclohexanol

D. $CH_3CH_2CH(OH)CH_3$

Answer: B

View Text Solution

31. 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

View Text Solution

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

A. $CH_3CH_2CH_2CH_2CH_2OH$

B. $CH_3CH_2CH_2\overset{\overset{OH}{|}}{C}HCH_3$

C. $CH_3CH_2\underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}}CH_2CH_3$

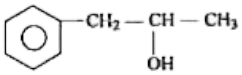
D. $CH_3CH_2\underset{\underset{OH}{|}}{C}HCH_2CH_2OH$

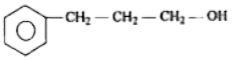
Answer: C

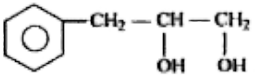
View Text Solution

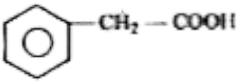
33.  on oxy

mercuration-demercuration produces the major product:

A. 

B. 

C. 

D. 

Answer: A

View Text Solution

34. In the hydroboration - oxidation reaction of propene produces

A. CH_3CH_2OH

B. $CH_3CHOHCH_3$

C. $CH_3CH_2CH_2OH$

D. $(CH_3)_3COH$

Answer: C

View Text Solution

35. Consider the reactions:

(i) $(CH_3)_3COCH \rightarrow CH_3I + (CH_3)_3COH$

(ii) $(CH_3)_3COCH \rightarrow CH_3OH + (CH_3)_3Cl$

Which of the following statement is correct?

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

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

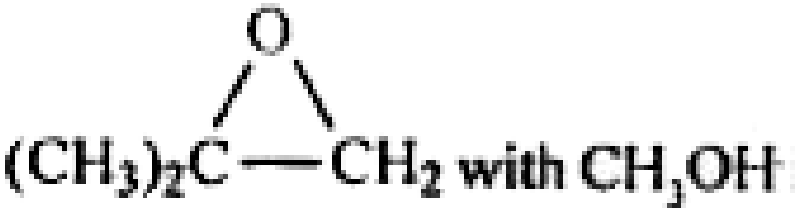
C. The reagent used both in reaction (i) and (ii) is concentrated HI

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

Answer: A

View Text Solution

36. The reaction of



with CH_3OH

(i) acid H^+, and (ii) base CH_3O^-, respectively, give

A. $(CH_3)_2C(OCH_3)CH_2OH$ and $(CH_3)_2CH(OH)CH_2OCH_3$

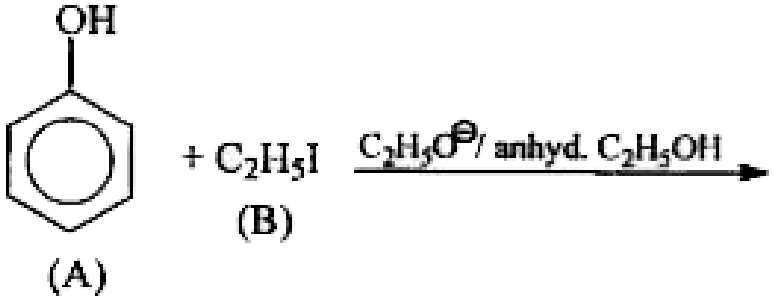
B. $(CH_3)_2C(OCH_3)CH_2OH$ and $(CH_3)_2C(OCH_3)CH_2OH$

C. $(CH_3)_2C(OCH_3)CH_2OCH_3$ and $(CH_3)_2CH(OH)CH_2OH$

D. $(CH_3)_2C(OH)(CH_2OH)$ and $(CH_3)_2C(OCH_3)CH_2OCH_3$

Answer: A

View Text Solution

37. 

the most probable product is:

A. $PhOC_2H_5$

B. $Ph-O-Ph$

C. PhI

D. $C_2H_5OC_2H_5$

Answer: D

View Text Solution

38. 0.218 g of the acetyl derivative of a polyhydric alcohol (molecular mass = 92) requires 0.168 g of KOH for hydrolysis. Calculate the number of (-OH) groups in the alcohol.

A. 1

B. 6

C. 2

D. 3

Answer: D

View Text Solution

39. An organic compound X on treatment with pyridinium chlorochomate in dichloromethane gives compound Y. Compound Y reacts with I_2 and alkali to from triiodomethane. The compound 'X' is

A. CH_3CH_2OH

B. CH_3CHO

C. CH_3COCH_3

D. CH_3COOH

Answer: A

View Text Solution

40. Phthalic acid reacts with resorcinol in the presence of concentrated H_2SO_4 to give

A. phenolphthalein

B. alizarin

C. coumarin

D. flourescein

Answer: D

View Text Solution

41. 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

View Text Solution

42. Which of the following statements is correct?

A. Sulphonation of phenol at low temperature is rate-controlled to give $o - HOC_6H_4SO_3H$.

B. Sulphonation of phenol at higher temperatures is thermodynamically controlled to give $o - HOC_6H_4SO_3H$.

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

D. Bromiantion of phenol in aqueous medium gives monobrominated phenol while in ion aqueous medium, trobrominated phenol is formed.

Answer: A

View Text Solution

43. 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

View Text Solution

44.

1,2-Dihydroxy benzene (I)	1,3-Dihydroxy benzene (II)	1,4-Dihydroxy benzene (III)

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

A. $I < II < III < IV$

B. $I < II < IV < III$

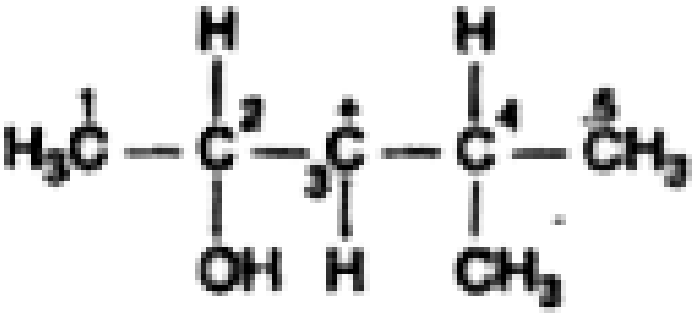
C. $IV < I < II < III$

D. $IV < II < I < III$

Answer: C

View Text Solution

45. 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

View Text Solution

46. 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 the drinking

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

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

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

Answer: B

View Text Solution

Level Iii Single Correct Answer Type

1. In the following reaction,

I. $CH_3 - \underset{}{\overset{CH_3}{\overset{|}{C}}} H - \underset{\underset{OH}{|}}{C} H - CH_3 \xrightarrow{H^+ / \text{Heat}} \underset{\text{(Major product)}}{A} + \underset{\text{(Minor product)}}{B}$

II. $A \xrightarrow[\text{in absence of peroxide}]{\text{HBr\_(2)dark}} \underset{\text{(Major product)}}{C} + \underset{\text{(Minor produc)}}{D}$

The major products (A) and (C) are respectively

A. $CH_2 = \overset{CH_3}{\overset{|}{C}} - CH_2 - CH_3$ and $CH_3 - \underset{\underset{Br}{|}}{\overset{CH_3}{\overset{|}{C}}} - CH_2 - CH_3$

B. $CH_2 = \overset{CH_3}{\overset{|}{C}} - CH_2 - CH_3$ and $\underset{\underset{Br}{|}}{CH_2} - \overset{CH_3}{\overset{|}{C}} H - CH_2 - CH_3$

C. $CH_3 - \overset{CH_3}{\overset{|}{C}} = CH - CH_3$ and $CH_3 - \overset{CH_3}{\overset{|}{\underset{Br}{\underset{|}{C}}}} - CH_2 - CH_3$

D. $CH_3 - \overset{CH_3}{\overset{|}{C}} = CH - CH_3$ and $CH_3 - \overset{CH_3}{\overset{|}{C}}H - \underset{Br}{\underset{|}{CH}} - CH_3$

Answer: C

View Text Solution

2. Compound 'A' of molecular formula $C_4H_{10}O$ on treatment with Lucas reagent at room temperature gives compound 'B'. When compound 'B' is heated with alcoholic KOH, it gives isobutene. Compound 'A' and 'B' respectively.

A. 2-methyl-2-propanol and 2-chloro-2-methyl-propane

B. 2-methyl-1-propanol and 1-chloro-2-methyl-propane

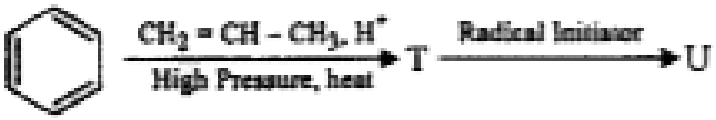
C. 2-methyl-1-propanol and 2-chloro-2-methyl-propane

D. butane-2-ol and 2-chlorobutane

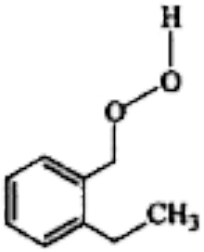
Answer: A

View Text Solution

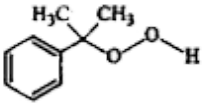
3. The major product U in the foloowing reaction is



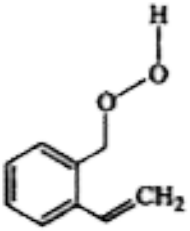
A.

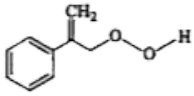


B.



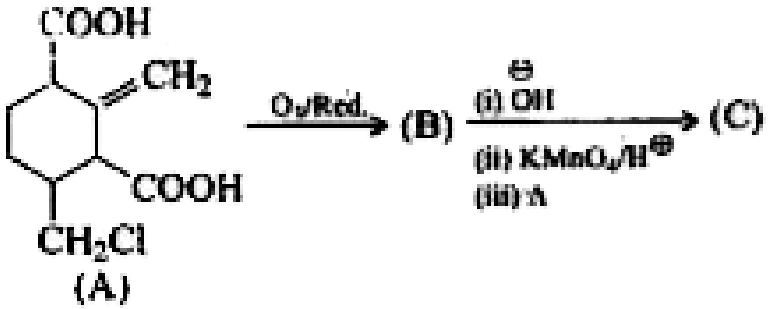
C.



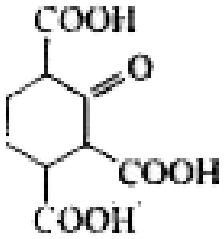
D. 

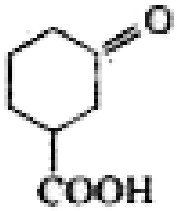
Answer: B

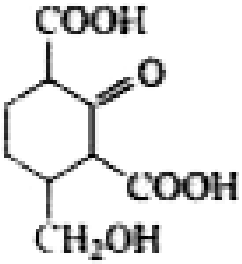
View Text Solution

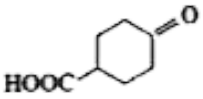
4. 

The compound (C) is:

A. 

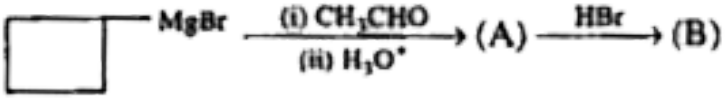
B. 

C. 

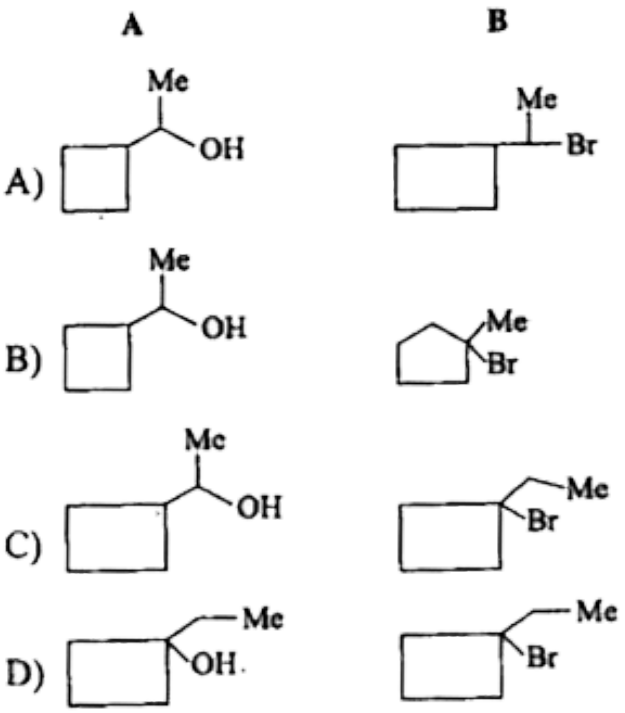
D. 

Answer: B

View Text Solution

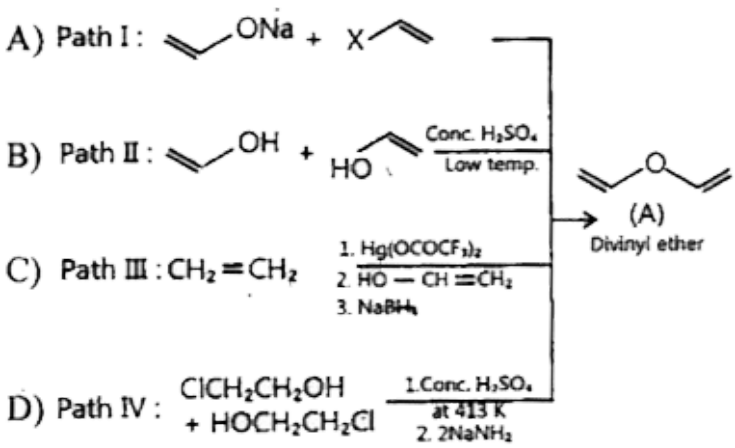
5. 

The compounds (A) and (B) are



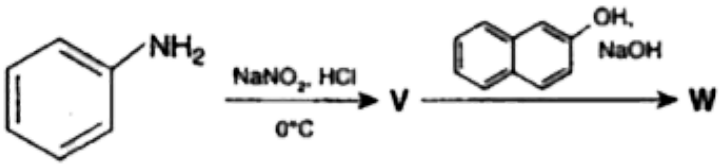
View Text Solution

6. Which of the following path is/are feasible for the preparation of ether (A)?

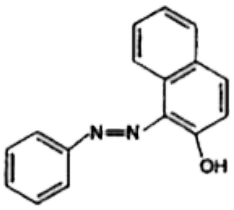


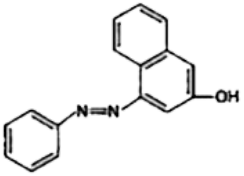
View Text Solution

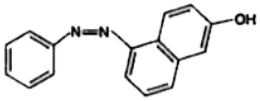
7. In the following reactions, the major product W is

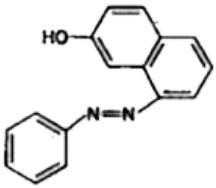


A.



B. 

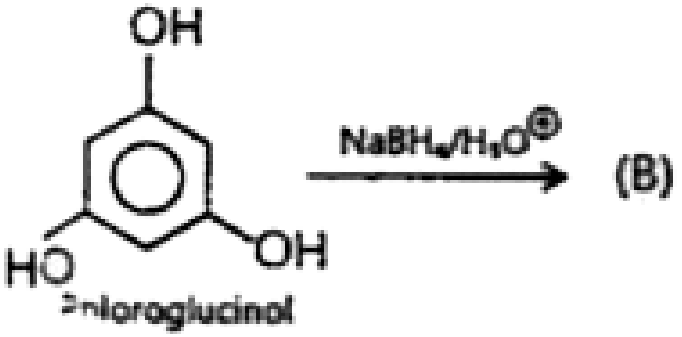
C. 

D. 

Answer: A

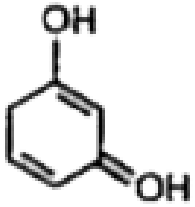
View Text Solution

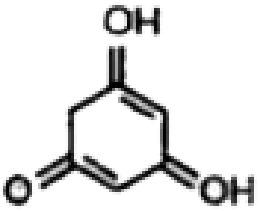
8. Phenols are generally not charged with $NaBH_4 / H_3O^{\oplus}$, 1, 3 - and 1, 4-benzenediols and 1, 3, 5-benzenetriols are ubncharged under these conditions. However, 1, 3 ,5-benzenetriol (phloroglucinol) gives a high yield of product (B).

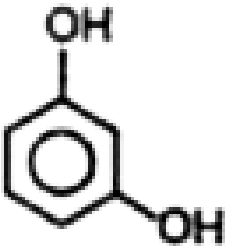


Phloroglucinol

The compound (B) is:

A.


B.


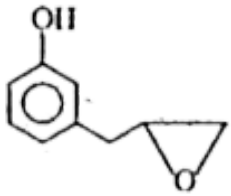
C.


D. Both A and B

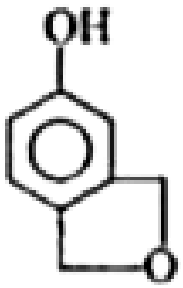
Answer: C

View Text Solution

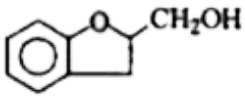
9. Consider the following reaction and identify (B)

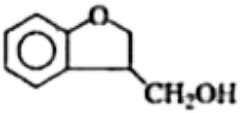


A.



B.

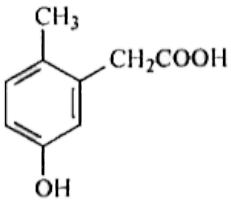
C. 

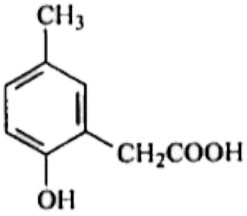
D. 

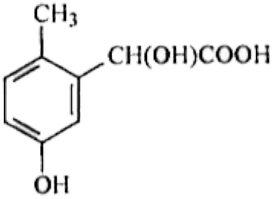
Answer: C

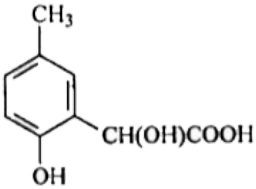
View Text Solution

10. p-cresol reacts with chloroform in alkaline medium to give the compound A which adds hydrogen cyanide to form the compound B. The latter on acidic hydrolysis gives the chiral carboxylic acid. The structure of the carboxylic acid is

A. 

B. 

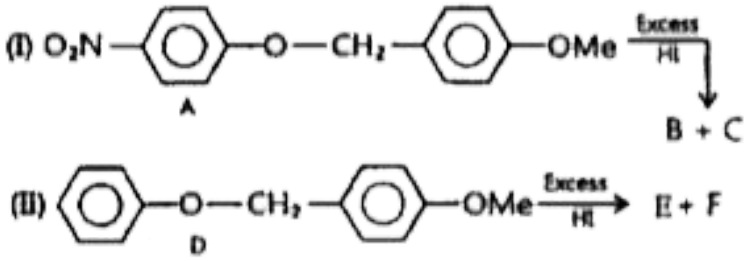
C. 

D. 

Answer: D

View Text Solution

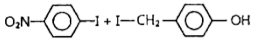
Level Iii Multiple Correct Answer Type



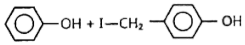
1. (i)

Which of the following statements is/are correct about the above reaction?

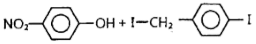
A. The compound (B) and (C), respectively, are:



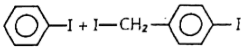
B. The compound (E) and (F), respectively, are:



C. The compound (B) and (C), respectively, are:



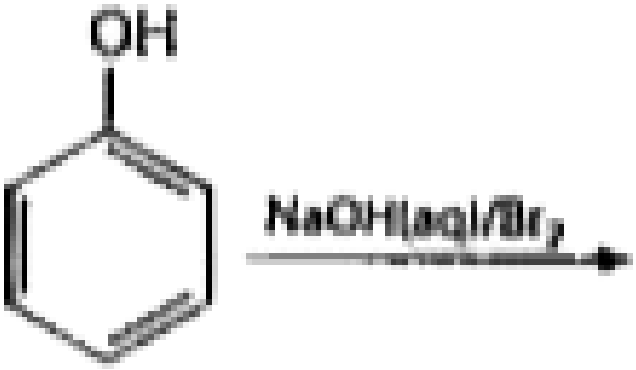
D. The compound (E) and (F), respectively, are:



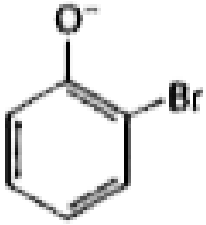
Answer: A::B

View Text Solution

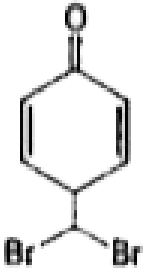
2. In the following reaction, the intermediate(s) is (are)



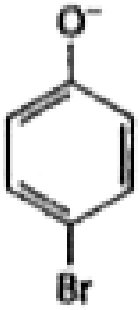
A.



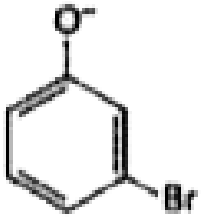
B.



C.



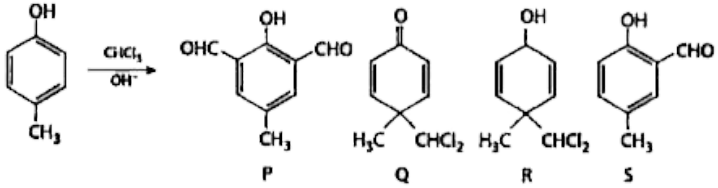
D.



Answer: A::B::C

View Text Solution

3. In the following reaction, the products formed is (are)



A. P (major)

B. Q (minor)

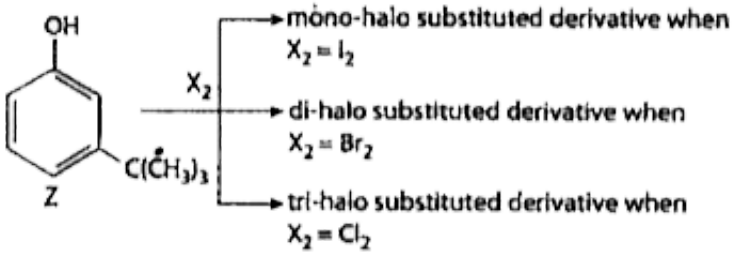
C. R (minor)

D. S (major)

Answer: B::D

View Text Solution

4. The reactivity of compound Z with different halogens under appropriate conditions is given below:



The observed pattern of electrophillic substitution can be explained by

A. the steric effect of the halogen

B. the steric effect of the tert-butyl group

C. the electronic effect of the phenolic group

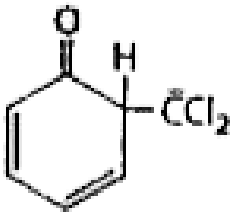
D. the electronic effect of the tert-butyl group

Answer: A::B::C

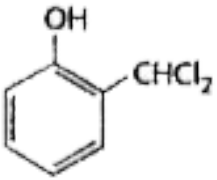
View Text Solution

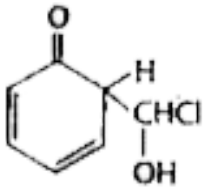
5. When phenol is treated with $CHCl_3$ and NaOH followed by acidification, salicyladehyde is obtained. Which of the following species are involved in this reaction as intermediate?

A.

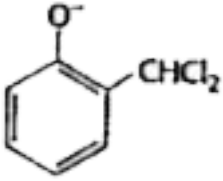


B.





C.



D.

Answer: A::D

View Text Solution

6. Which of the following statements is correct?

A. Hydroboration-oxidation of 2-methyl-2-butene gives 3-methyl-2-butanol

B. The reaction of ethylene oxide with RMgX followed by hydrolysis gives RCH_2CH_2OH.

C. The reaction $HC \equiv C^- Na^+ + ROH \rightarrow RO^- + HC \equiv CH$ lies more to the right. From this, it follows that ROH is stronger acid than acetylene and $RO^- Na^+$ is a weaker base than $HC \equiv C^- Na^+$

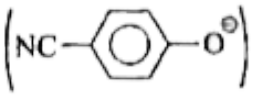
D. The oxidation of an alcohol involves the loss of one or more hydrogen from the carbon bearing the -OH

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

View Text Solution

7. Which of the following statements is/are correct?

A. The nitration of phenol is faster than phenyl acetate.

B. The reaction of PhO^{Θ} is faster than  with $PhCH_2Cl$

C. Base-catalysed hydrolysis of p-nitrophenyl acetate is faster than phenyl acetate.

D. Acid-catalysed esterification of PhOH is faster than p-nitrophenol with MeCOOH.

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

View Text Solution

8. The correct statement(s) about of the following reaction sequence is (are)

$$\text{Cumene}(C_9H_{12}) \xrightarrow[\text{(ii)}H_3O^+]{\text{(i)}O_2} P \xrightarrow{CHCl_3\,/\,NaOH} Q(\text{major}) + R(\text{minor})$$

$$Q \xrightarrow[PhCH_2Br]{NaOH} S$$

A. R is steam volatile

B. Q gives dark violet colouration with 1% aqueous $FeCl_3$ solution

C. S gives yellow precipitate with 2, 4-dimitrophenylhydrazine

D. S gives dark violet colouration with 1% aqueous $FeCl_3$ solution

Answer: B::C

View Text Solution

9. Which among the following statements is/are correct?

A. Alcohols underso dehydration in the presence of protic acids as H_2SO_4, H_3PO_4

B. Dehydration of alcohols is the best method for the preparation of unsymmetrical ethers

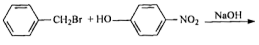
C. Phenols can be easily converted into ethers by Williamson's synthesis

D. Ethers are used as industrial solvents for oils, resins, gums etc.

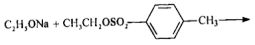
Answer: A::C::D

View Text Solution

10. Which of the following gives ether successfully?

A. 

B. $C_2H_5ONa + (CH_3)_2SO_4 \rightarrow$

C. 

D. $(CH_3)_2CBr + C_2H_5ONa \rightarrow$

Answer: A::B::C

View Text Solution

Level Iii Numerical Type

1. In Zeisel's method for the determination of methoxyl groups, a sample of 2.68 g of a cmpound (A) gave 14.08 g of AgI. If the molecular weight of compound (A) is 134, the number of $(-OCH_3)$ group(s) in the compound (A) is

View Text Solution

2. The crown ethers are hetrocyclic, usually with at least four oxygen atoms. The 12-crown-4 ether contains ..... carbon atoms.

View Text Solution

3. The total number of structural isomeric alcohols having the molecular formula $C_5H_{12}O$ is

View Text Solution

4. How many of the structurally isomeric pentyl alcohols will produce immediate turbidity in Lucas test?

View Text Solution

5. The number of compounds among the following that are less acidic than phenol is .....

m-cresol, o-Cresol, water, p-cresol, methyl alcohol, ethyl alcohol, 2,4-dimethylphenol, dimethylcarbinol, p-ethylphenol

View Text Solution

6. How many ethers are formed when ethyl and methyl alcohols are heated with conc. H_2SO_4 at 413 K?

View Text Solution

Level Iii Matching Column Type

1. Match the name of the reaction with its example.

Column I	Column II
A) Williamson synthesis	p) $C_6H_5Cl + 2NaOH \xrightarrow[\text{High pressure}]{350^\circ C}$
B) Reimer-Tiemann reaction	q) $C_6H_5OH + C_6H_5COCl \xrightarrow{\text{aq. NaOH}}$
C) Dow's process	r) $CH_3CH_2ONa + CH_3X \xrightarrow{\Delta}$
D) Schotten-Baumann reaction	s) $C_6H_5OH + CCl_4 + NaOH \xrightarrow{\Delta}$

View Text Solution

Level Iii Statement Type Questions

1. Statement 1 : The water solubility of the alcohols follow the order, ter-butyl alcohol $>$ sec-butyl alcohol $>$ n-butyl alcohol.

Statement 2 : Alcohols form H-bonding with water to show soluble nature.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: B

View Text Solution

2. Statement 1 : Primary and secondary alcohols can be distinguished by Victor-Meyer's test.

Statement 2 : Primary alcohols form nitrolic acid which dissolve in NaOH to form blood red colouration but secondary alcohols form pseudonitroles which gives blue colouration with NaOH.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: A

View Text Solution

3. Statement 1 : Phenol cannot be converted into ester by direct reaction with carboxylic acid.

Statement 2 : Electron withdrawing groups increase the acidity of phenols.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: B

View Text Solution

4. Statement 1 : $(CH_3)_3 - CONa$ and CH_3CH_2Br react to form $(CH_3)_3 - C - O - CH_2CH_3$.

Statement 2 : Good yields of ethers are obtained when ter-alkyl halides are treated with alkoxides.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: C

View Text Solution

5. Statement 1 : Anisole undergoes electrophillic substitution at o-and p-positions.

Statement 2 : Anisole is less reactive than phenol towards electrophillic substitution reactions.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: B

View Text Solution

6. Statement1 : Reaction of alcohols with $SOCl_2$ is catalysed by the presence of a teriatery amine (R_3N)

Statement 2 : Teritary amine promotes the reaction by reacting with the by product HCl.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: A

View Text Solution

7. Statement 1 : t-Butyl methyl ether is not prepared by the reaction of t-butyl bromide with sodium methoxide.

Statement 2 : Sodium methoxide is a strong mucleophile.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: B

View Text Solution

8. Statement 1 : Solubility of n-alcohol in water decreases with increase in its relative molar mass.

Statement 2 : The relative proportion of the hydrocarbon part in alcohols increases with increasing molar mass which permits enchanced hydrogen bonding with water.

A. Statement 1 is True, statement 2 is True, Statement 2 is Correct explanation for Statement 1.

B. Statement 1 is True, statement 2 is True, Statement 2 is NOT a correct explanation for Statement 1.

C. Statement 1 is True, Statement 2 is False.

D. Statement 1 is False, Statement 2 is True.

Answer: C

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Level Iii Linked Comprehension Type

1. An important route to unsymmetrical ethers is a nucleophilic substitution reaction known as the Williamson synthesis. This synthesis consists of an S_N2 reaction of a sodium alkoxide with an alkyl halide, alkyl sulphonate or alkyl sulphate.

By a proper choice of reagents, both symmetrical and unsymmetrical ethers can be prepared by Williamson synthesis. The reverse process of cleavage of ethers to give back the original alkyl halide and the alcohol can be carried out by heating the ether with HI at 373 K.

Which of the following reagents when heated will give a good yield of ether?

A. Isopropyl bromide and sodium isopropoxide

B. Isopropyl bromide and sodium ethoxide

C. Bromobenzene and sodium phenoxide

D. Sodium tert-butoxide and ethyl bromide

Answer: D

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2. An important route to unsymmetrical ethers is a nucleophilic substitution reaction known as the Williamson synthesis. This synthesis consists of an S_N2 reaction of a sodium alkoxide with an alkyl halide, alkyl sulphonate or alkyl sulphate.

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Which of the following ethers cannot be prepared by Williamson synthesis?

A. Methoxybenzene

B. Benzyl p-nitrophenyl ether

C. tert-Butyl methyl ether

D. Di-ether-butyl ether

Answer: D

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3. An important route to unsymmetrical ethers is a nucleophilic substitution reaction known as the Williamson synthesis. This synthesis consists of an S_N2 reaction of a sodium alkoxide with an alkyl halide, alkyl sulphonate or alkyl sulphate.

By a proper choice of reagents, both symmetrical and unsymmetrical ethers can be prepared by Williamson synthesis. The reverse process of cleavage of ethers to give back the original alkyl halide and the alcohol can be carried out by heating the ether with HI at 373 K.

Benzyl ethyl ether reacts with HI to form

A. p-iodotoulene and ethyl alcohol

B. benzyl alcohol and ethyl iodide

C. phenol and ethyl iodide

D. iodobenzene and ethyl alcohol

Answer: C

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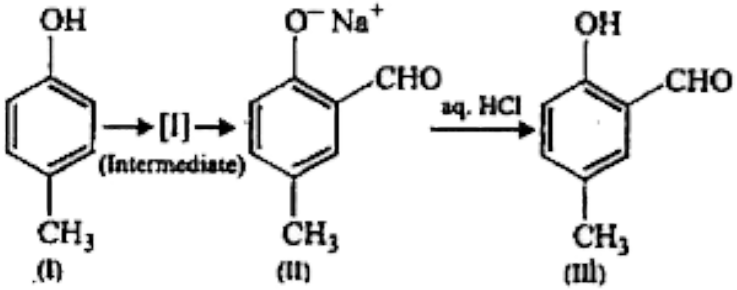
4. Riemer-Tiemann reaction intrduces an aldehyde group, on to the aromatic ring to phenol, ortho to the hydroxyl group. This reaction involves electrophilic aromatic substitution. This is a general method for the synthesis of substituted salicylaldehydes as depicted below.



Which one of the following reagents is used in the above reaction?

A. aq.$NaOH + CH_3Cl$

B. aq.$NaOH + CH_2Cl_2$

C. aq.$NaOH + CHCl_3$

D. aq.$NaOH + CCl_4$

Answer: C

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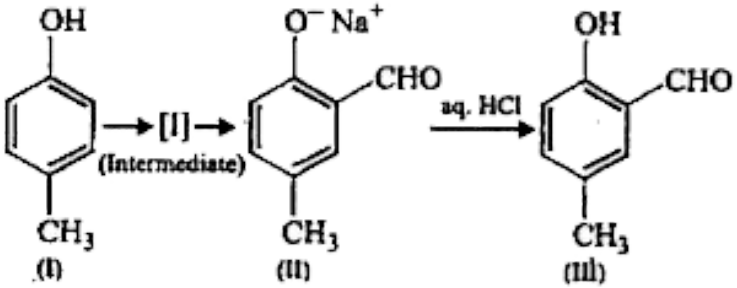
5. Riemer-Tiemann reaction intrduces an aldehyde group, on to the aromatic ring to phenol, ortho to the hydroxyl group. This reaction involves electrophilic aromatic substitution. This is a general method for the synthesis of substituted salicylaldehydes as depicted below.



The electrophile in this reaction is

A. CHCl

B. $\overset{+}{C}HCl_2$

C. CCl_2

D. CCl_2

Answer: C

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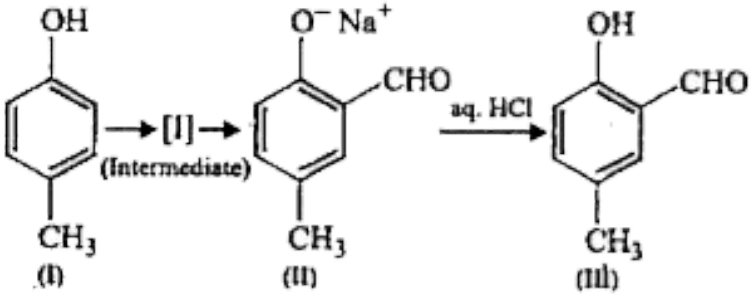
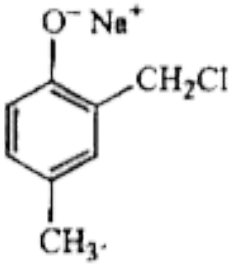
6. Riemer-Tiemann reaction intrduces an aldehyde group, on to the aromatic ring to phenol, ortho to the hydroxyl group. This reaction involves electrophilic aromatic substitution. This is a general method for the synthesis of substituted salicylaldehydes as depicted below.



The structure of the intermediate $[1]^\circ$ is

A.



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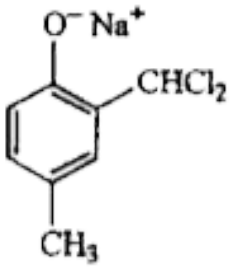
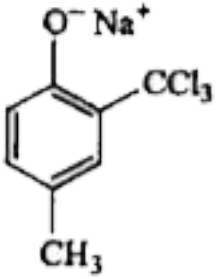
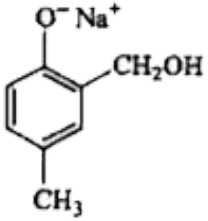


C.



D.



Answer: B

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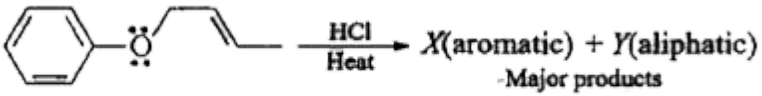
7. Consider the following reaction to answer the next three questions



X and Y are respectively

A. phenol and $ClCH_2CH = CH - CH_3$

B. chlorobenzene and $Cl - CH_2 - CH = CH - CH_3$

C. chlorobenzene and $HO - CH_2 - CH = CH - CH_3$

D. phenol and 3-chloro-butane

Answer: D

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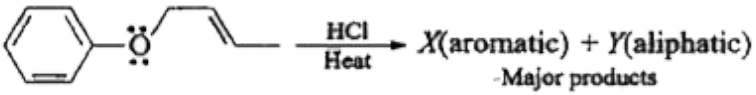
8. Consider the following reaction to answer the next three questions



Which of the following is true regarding Y?

A. It is produced as pure single enantiomer

B. Y is a mixture of pair of geometrical isomers

C. Y is a racemic mixture

D. Y is achiral

Answer: C

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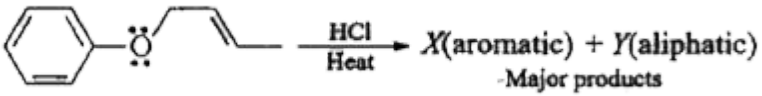
9. Consider the following reaction to answer the next three questions



In the reaction $Y + C_2H_5ONa/C_2H_5OH \rightarrow Z(\text{major})$, Z is

A. 1, 3-butadiene

B. 1, 2-butadiene

C. $CH_3 - CH = CH - OC_2H_5$

D. Y does not react in the given condition

Answer: A

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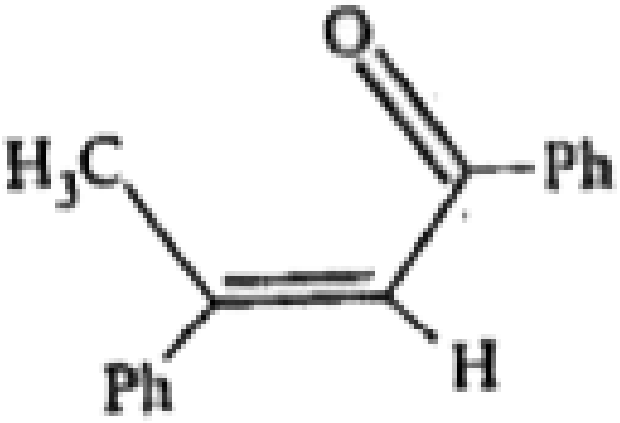
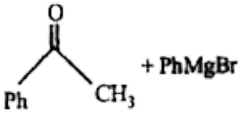
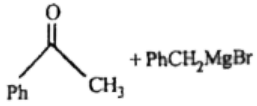
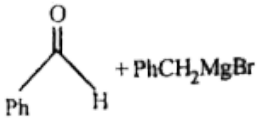
10. A teritary alcohol H upon acid catalysed dehydration gives a product I. Ozonolysis of 1 leads to compounds J and K. Compound J upon reaction wth KOH gives benzyl alcohol and compound L, whereas K on reaction with KOH gives only M, having following structure

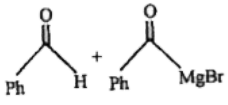


Compound H is formed by the reaction of

A. 

B. 

C. 

D. 

Answer: B

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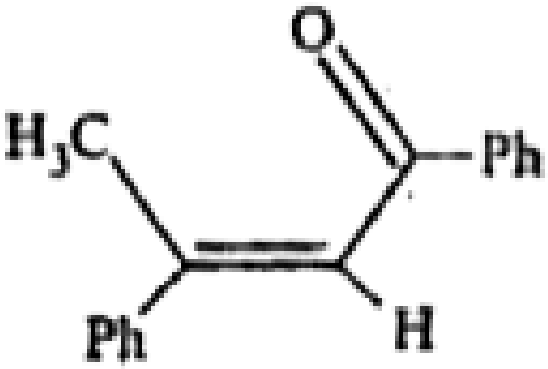
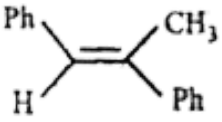
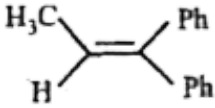
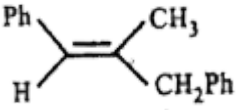
11. A teritary alcohol H upon acid catalysed dehydration gives a product I. Ozonolysis of 1 leads to compounds J and K. Compound J upon reaction wth KOH gives benzyl alcohol and compound L, whereas K on reaction with KOH gives only M, having following structure

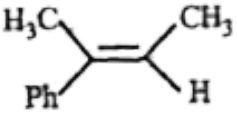


The structure of compound I is

A. 

B. 

C. 

D. 

Answer: A

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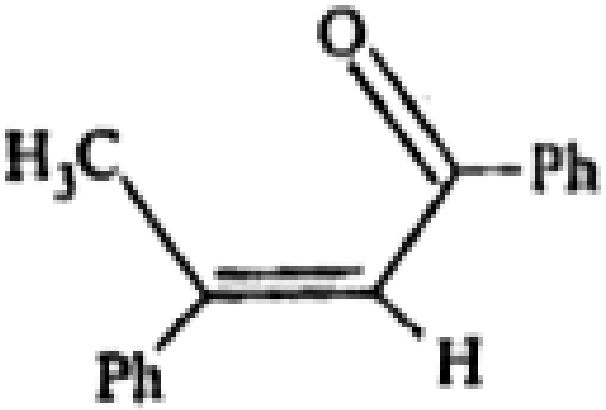
12. A teritary alcohol H upon acid catalysed dehydration gives a product I. Ozonolysis of 1 leads to compounds J and K. Compound J upon reaction wth KOH gives benzyl alcohol and compound L, whereas K on reaction with KOH gives only M, having following structure



The structure of compound J, K and L respectively, are

A. $PhCOCH_3$, $PhCH_2COCH_2$ and $PhCH_2COO^-K^+$

B. $PhCOCH_3$, $PhCH_2CHO$ and $PhCOO^-K^+$

C. $PhCOCH_3$, $PhCH_2CHO$ and $CH_3COO^-K^+$

D. $PhCOCH_3$, $PhCOCH_2$ and $PhCOO^-K^+$

Answer: D

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