CHEMISTRY

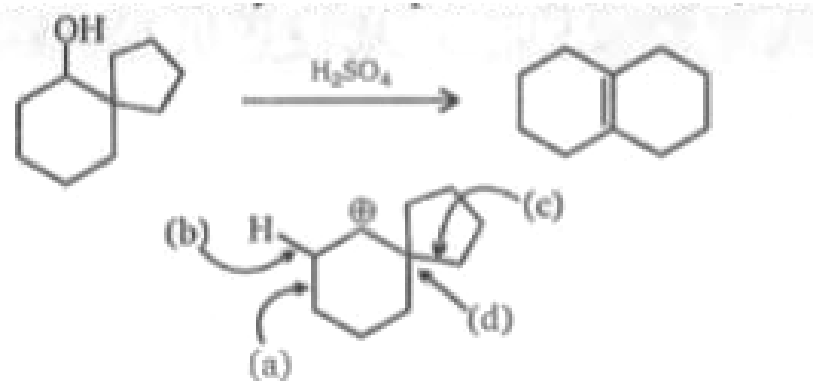
BOOKS - MS CHOUHAN

ALCOHOL,ETHERS AND EPOXIDES

Level 1

1. The following transfonnation involves a carbocation rearrangement. The carbocation is generated by protonation of the hydroxyl group, followed by the loss of water. Which bond has to migrate in the

carbocation to yield the product indicated (after the deprotonation)



A. a

B. b

C. c

D. d

Answer:

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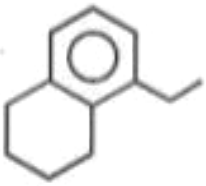
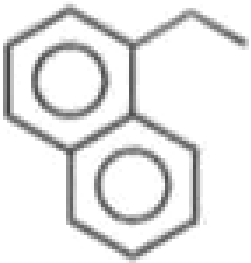
2. Identify the major product.



A.



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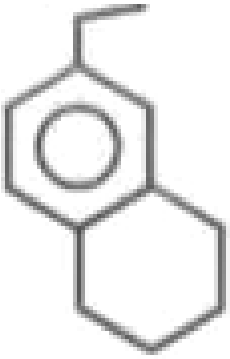
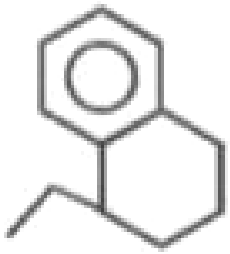


C.



D.

Answer:

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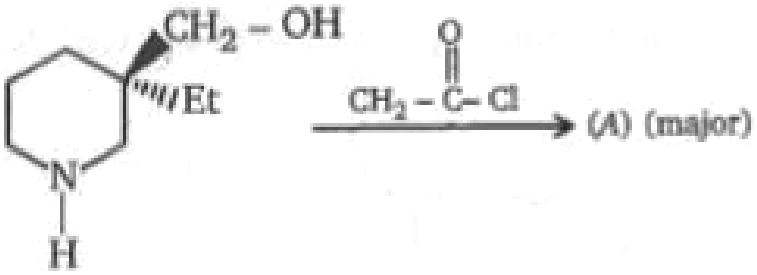
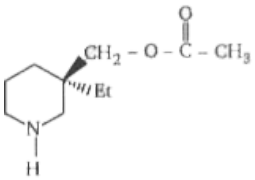
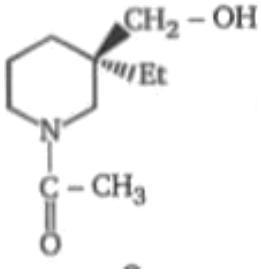
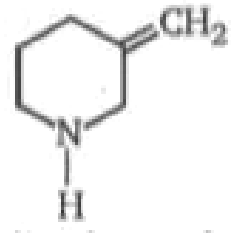
3. Complete the following reaction

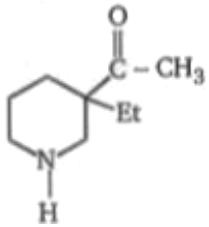




A.

B. 

C. 

D. 

Answer:

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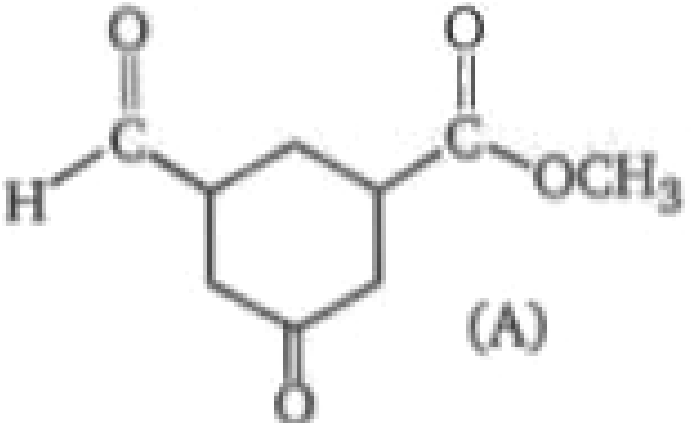
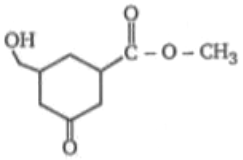
4. Predict the product when given compound reacts with $LiAlH_4$.



A.



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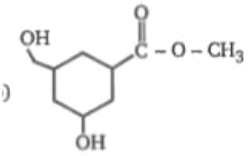

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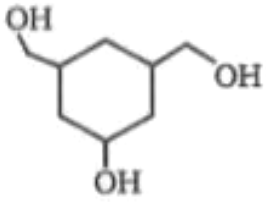

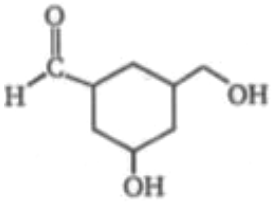

D.

Answer: C

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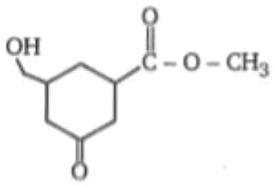
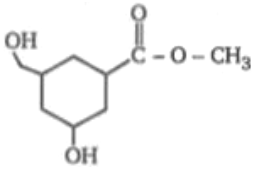
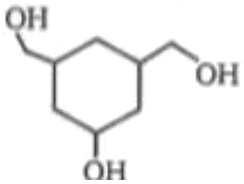
5. Predict the product when given compound (A, in the above question 4) reacts with $NaBH_4$



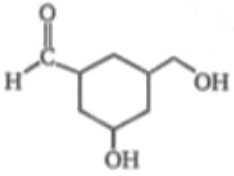
A.



B.



C.

D. 

Answer: b

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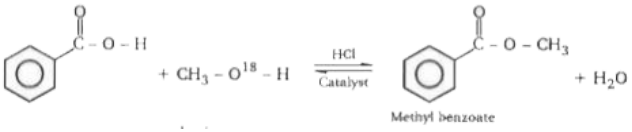
6. 

The labelled $-O^{18}$ will be in :

A. H_2O

B. Methyl benzoate

C. Both (a) and (b)

D. Benzoic acid

Answer:

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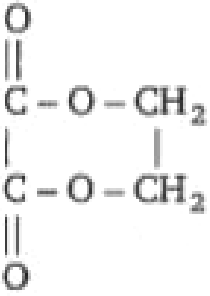
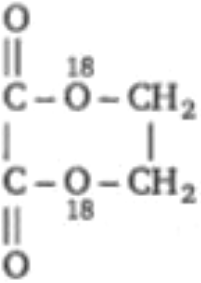
7. $\begin{matrix} CO_2H \\ | \\ CO_2H \end{matrix} + \begin{matrix} CH_2-{}^{18}OH \\ | \\ CH_2-{}^{18}OH \end{matrix} \xrightarrow[\Delta]{H^+}$ (A) Product (A) is :

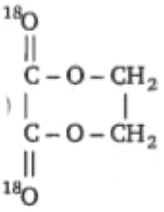
A.



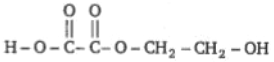
B.



C.



D.



Answer:

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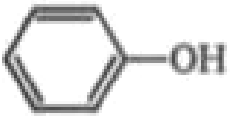
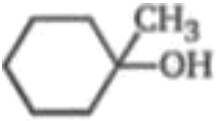
8. Which is oxidized most easily?

A. $CH_3 - CHOH - CH_3$

B. 

C. $CH_3 - CH_2 - O - CH_2 - CH_3$

D. 

Answer:

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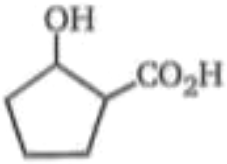
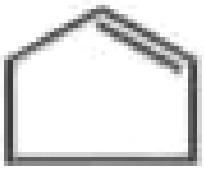
9. 

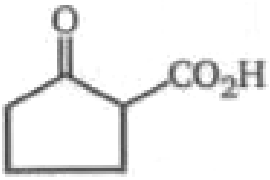
$\xrightarrow[\Delta]{K_2Cr_2O_7}$ (P); Product (P) is :

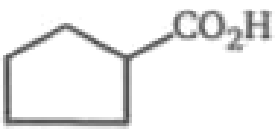
(P) :

Product (P) is :

A. 

B. 

C. 

D. 

Answer:

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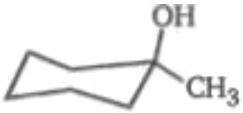
10. Which of the following react with HBr at faster rate?

A. 

B. 

C. 

D. 

Answer:

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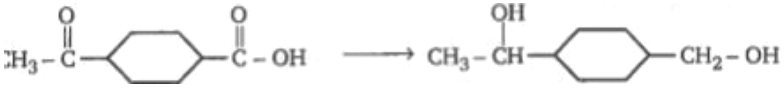
11. 

Above conversion can be done by :

A. $NaBH_4$

B. $LiAlH_4$

C. PCC

D. $KMnO_4$

Answer:

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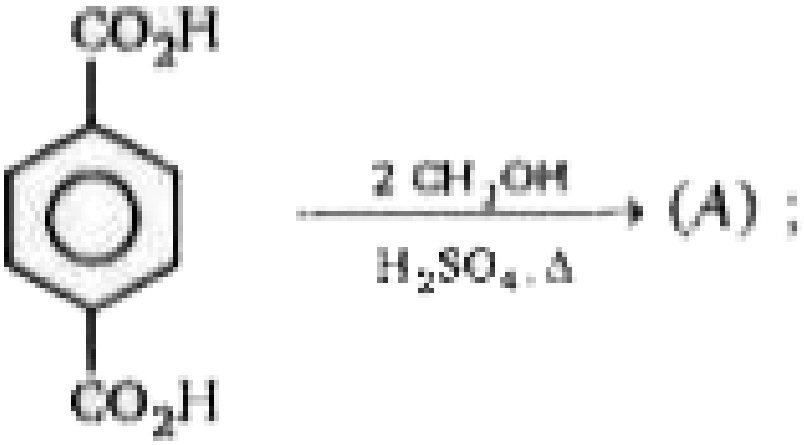
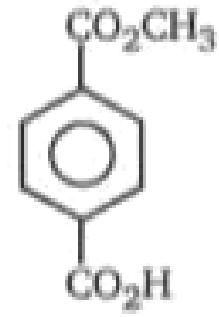
12.



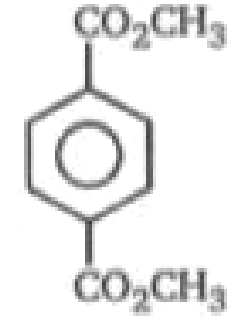
(A) ,

product (A) is :

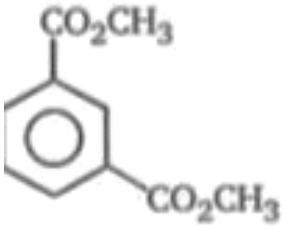
A.

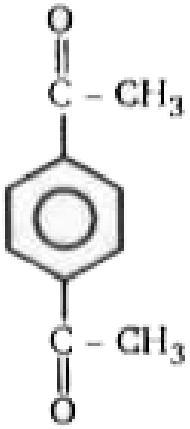


B.



C.





D.

Answer:

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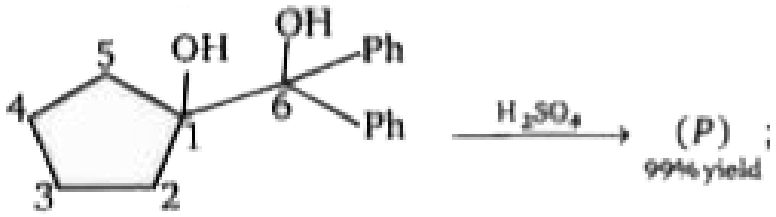
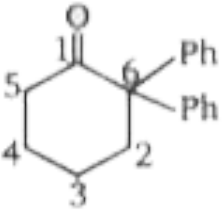
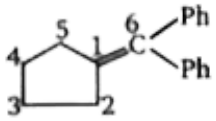
13. 

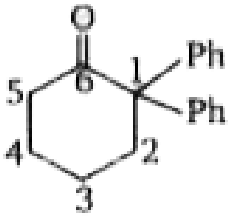
Unknown

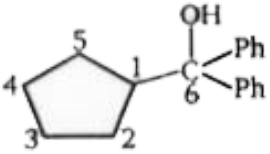
(P) of the reaction is :



A.

B. 

C. 

D. 

Answer:

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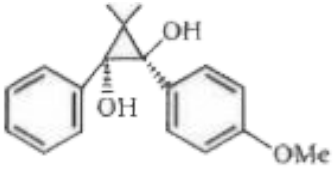
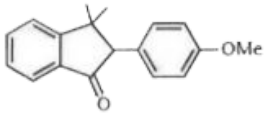
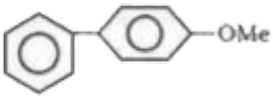
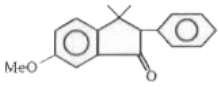
14. Predict the major product ofthe given reaction.

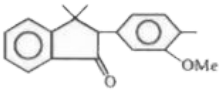


$\xrightarrow{H^+}$ (A); Product (A) is :

A. 

B. 

C. 

D. 

Answer:

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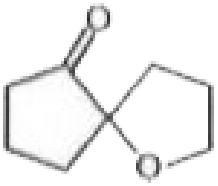
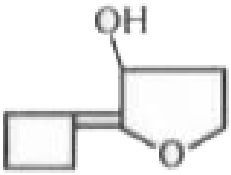
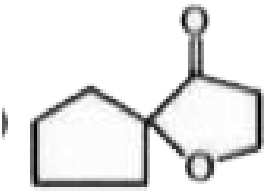
15. Identify the major product ,

A. 

B. 



C.

D. 

Answer:

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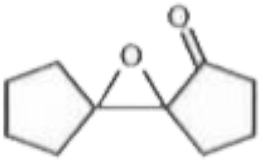
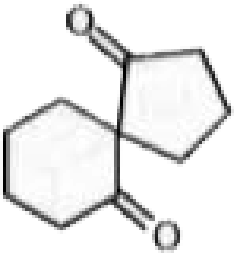
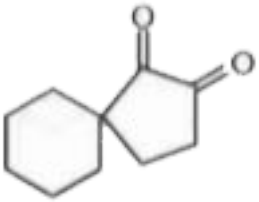
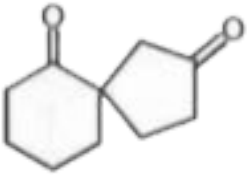
16.  $\xrightarrow{H^+}$ (A); Product (A) is :

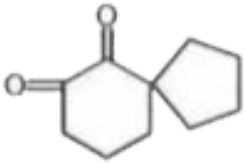
(A) ,

Product (A) is :

A. 

B. 

C. 



D.

Answer:

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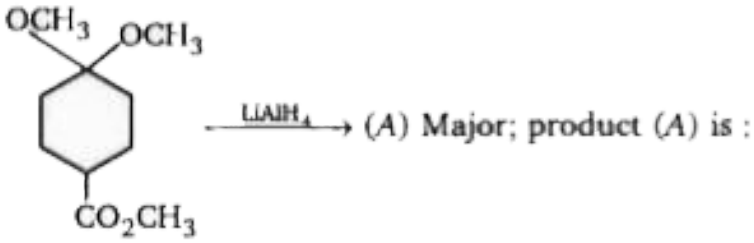
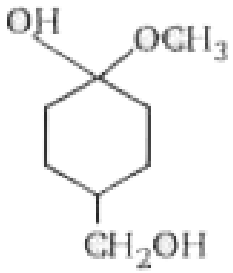
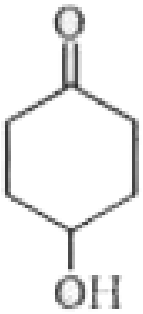
17. 

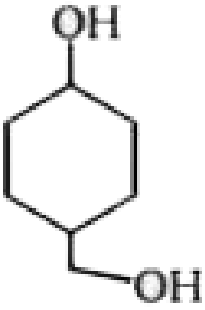
(A) Major , product (A) is :



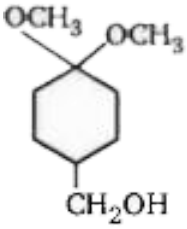
A.



B.



C.



D.

Answer:

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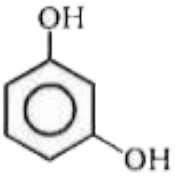
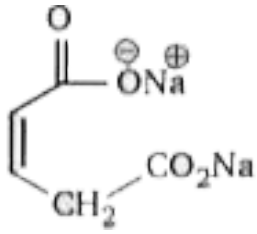
18. Complete the following reaction



(Resorcinol)

$\xrightarrow{I_2+NaOH}$ $\underset{\text{(Iodoform)}}{CHI_3}$ + (A); Compound (A) is :

A.



B. $H-O-\overset{O}{\overset{||}{C}}-(CH_2)_2-\overset{O}{\overset{||}{C}}-OH$

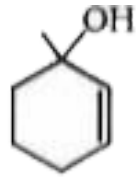
C. $CH_3-CH_2-CH_2-CH_2-\overset{O}{\overset{||}{C}}-OH$

D. $CH_3-(CH_2)_3-\overset{O}{\overset{||}{C}}-ONa$

Answer:

Watch Video Solution

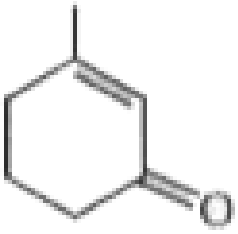
19. Complete the following reaction



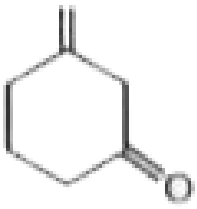
(3° alcohol)

$\xrightarrow{H_2CrO_4}$ (A). Product (A) is :

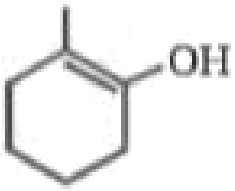
A. No reaction



B.



C.



D.

Answer:

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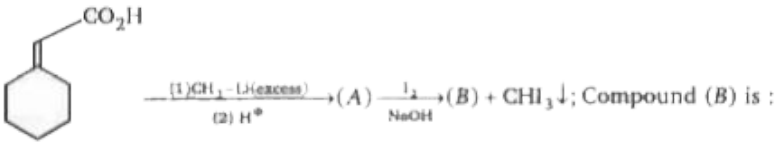
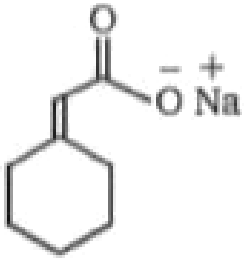
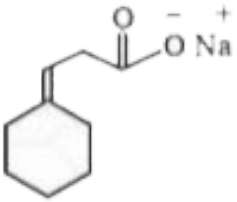
20. Complete the following reaction

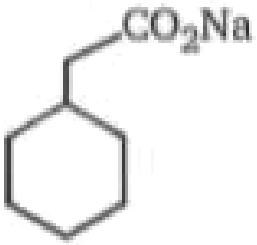


A.

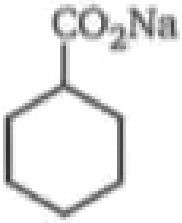


B.





C.



D.

Answer:

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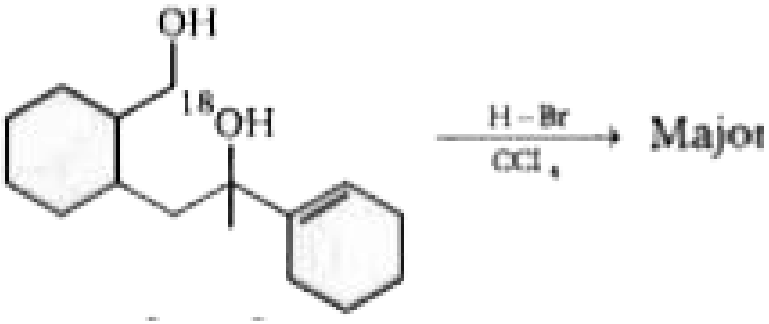
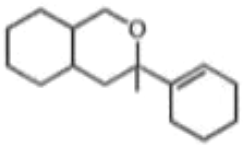
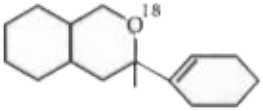
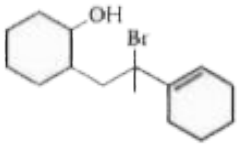


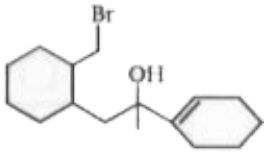
21. Major

product obtained in the reaction is :

A. 

B. 

C. 

D. 

Answer:

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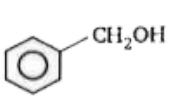
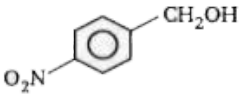
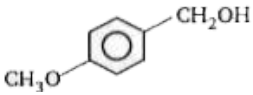
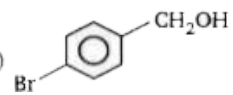
22. Consider the following alchohols,

(I) 

(II) 

(III) 

(IV) 

The order of decreasing reactivities of these alcohols towards nucleophilic substitution with HBr is:

A. $III > I > IV > II$

B. $III > I > II > IV$

C. $I > III > IV > II$

D. $I > III > II > IV$

Answer:

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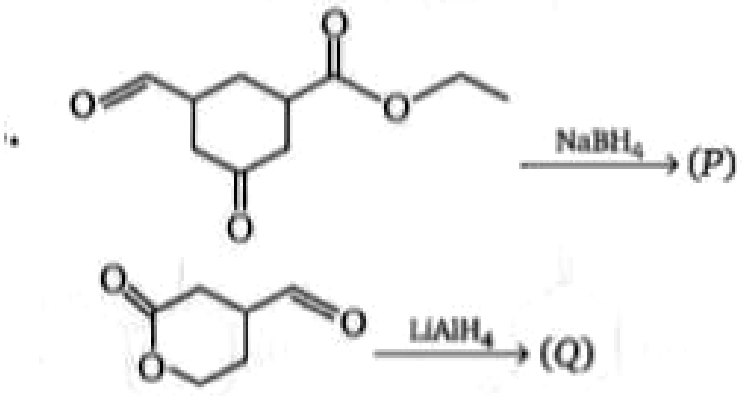
23.



Sum of number of alcoholic groups in product (P) and (Q) is

A. 2

B. 3

C. 4

D. 5

Answer:

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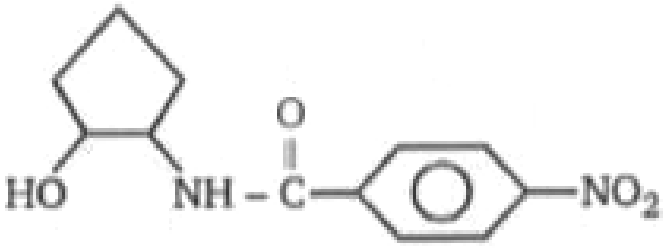
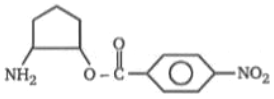
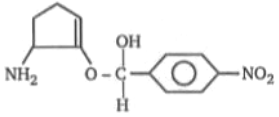
24. In presence of dil. HCl, compound A is converted to a constitutional isomer (B), compound B is:



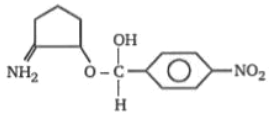
A.



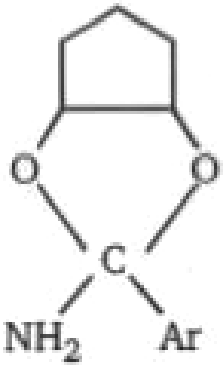
B.



C.



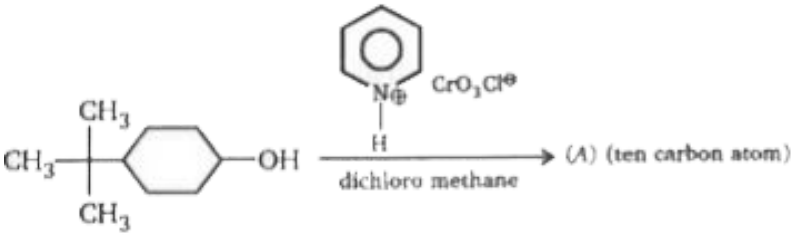
D.



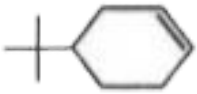
Answer:

Watch Video Solution

25. Complete the following reaction

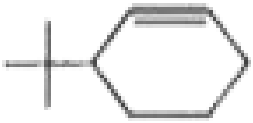


A.

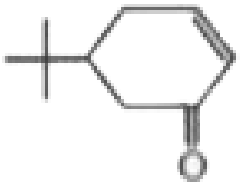


B.

C.



D.



Answer:

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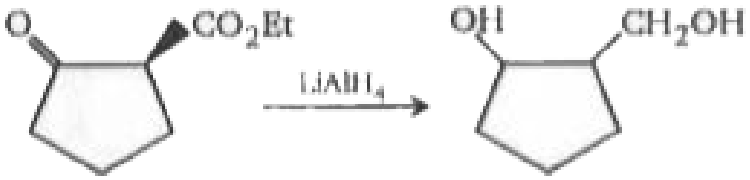

26. Product of the reaction is :

A. Racemic

B. Diastereomer

C. Meso

D. Optically pure

Answer:

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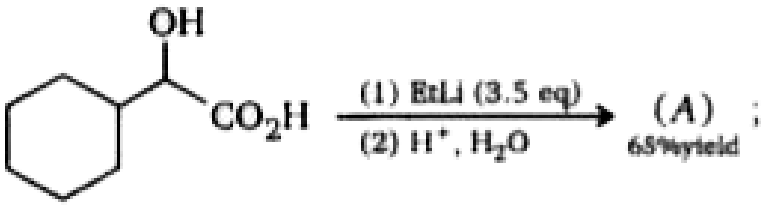
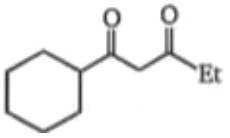
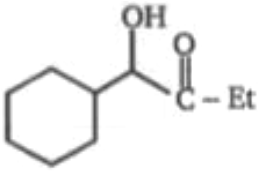
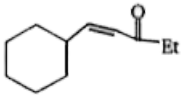
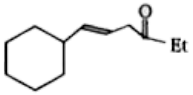


27. Chemist added extra 0.5 mole of Et-Li in above reaction to obtain product (A), which is ?

A. 

B. 

C. 

D. 

Answer:

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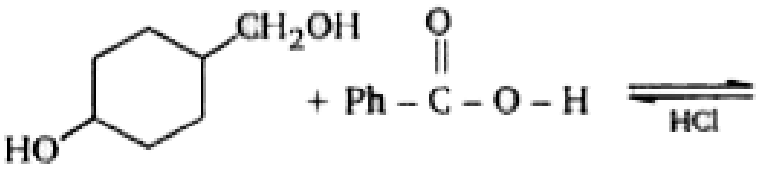
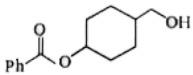
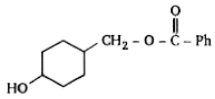
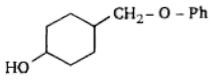
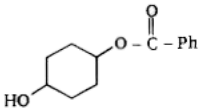


28. Major product of above esterification reaction is:

A. 

B. 

C. 

D. 

Answer:

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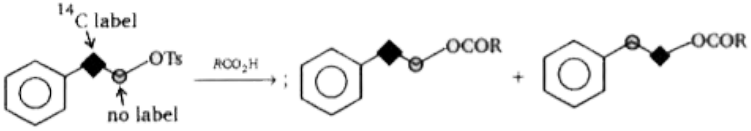
29. Complete the following reaction



A. S_{N^1}

B. S_{N^2}

C. $SN - NGP$

D. $SN - Ar$

Answer:

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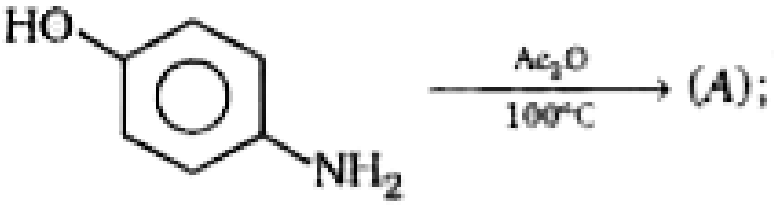
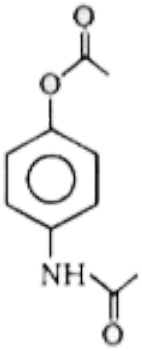
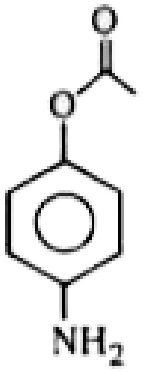
30.



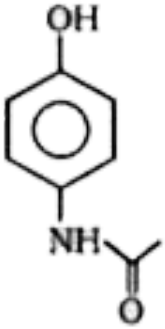
Product (A) of reaction is :

A.

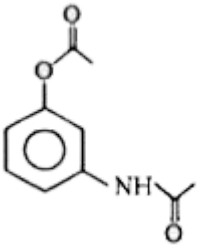




B.



C.



D.

Answer:

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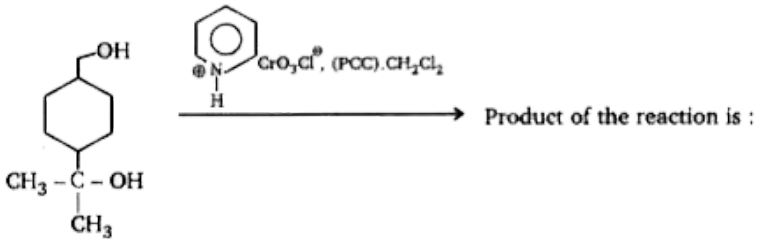
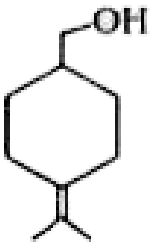
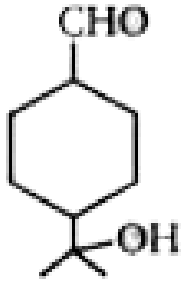
31. Complete the following reaction

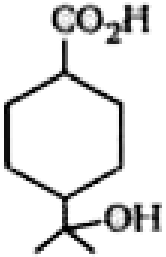


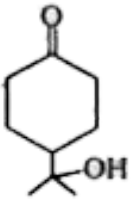
A.



B.



C. 

D. 

Answer:

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32. Which is the best reagent to convert isopropyl alcohol 'to isopropyl bromide?

$$CH_3 - \overset{CH_3}{\overset{|}{C}}H - OH \xrightarrow{?} CH_3 - \overset{CH_3}{\overset{|}{C}}H - Br$$

A. HBr

B. $SOBr_2$

C. Br_2

D. CH_3MgBr

Answer:

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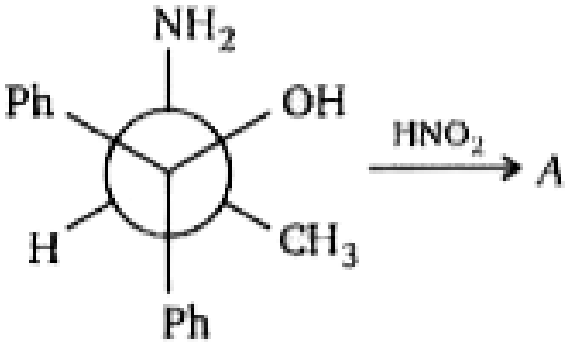
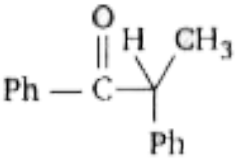
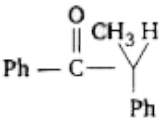


33.

Major product obtained in the above reaction is :

A.



B. 

C. Racemic

D. Diastereomers

Answer:

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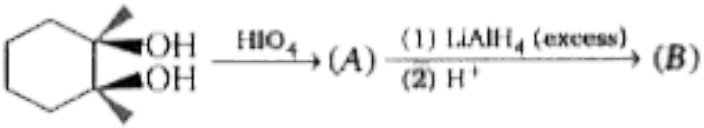
34. 

Total number of stereoisomers of product (B) will be:

A. 2

B. 3

C. 4

D. 5

Answer:

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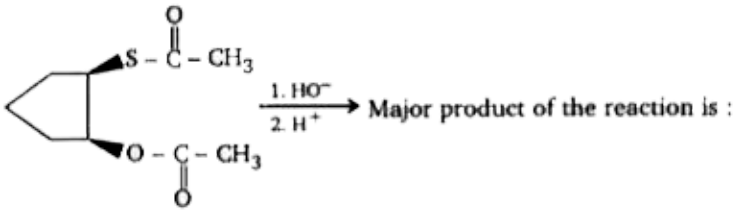
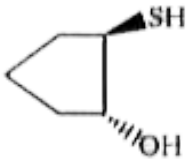
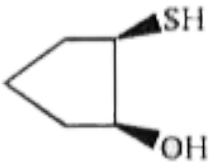
35. Complete the following reaction



A.



B.



C.

D.

Answer:

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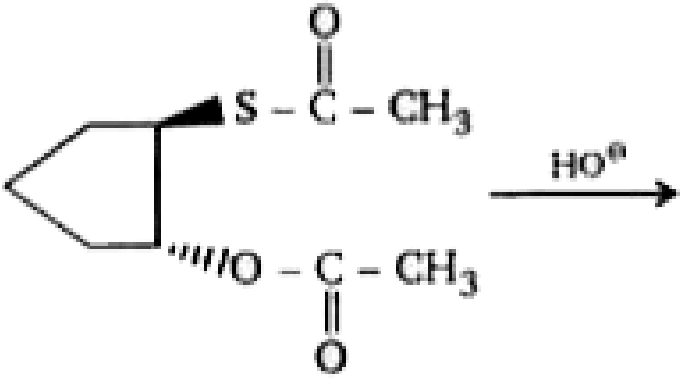
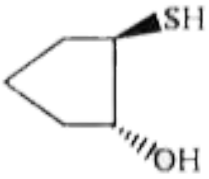
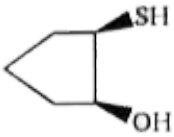
36. Complete the following reaction





A.



B.

C.

D.

Answer:

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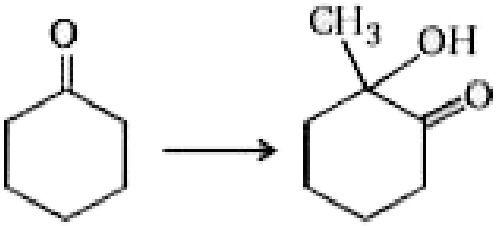

CH_3MgBr/H^+ (1)

$KMnO_4$ (cold dil.) (2)

37.

For the above conversion the correct order of reagents used is :

A. $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$

B. $1 \rightarrow 4 \rightarrow 3rar2$

C. $1 \rightarrow 4 \rightarrow 2 \rightarrow 3$

D. $2 \rightarrow 3 \rightarrow 4 \rightarrow 1$

Answer:

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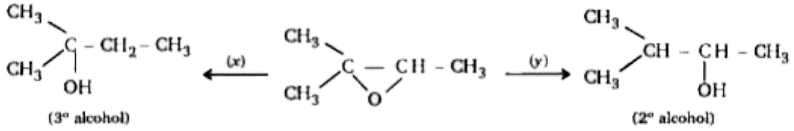
38. 

Find missing reagents .

A. $x = LiAlH_4, y = NaBH_4$

B. $x = LiAlH_4 / AlCl_3, y = LiAlH_4$

C. $x = LiAlH_4, y = LiAlH_4 / AlCl_3$

D. $x = H_2 / Ni, y = H_2 / Pt$

Answer:

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39. In solvolysis of 1,2-dimethyl propyl p-toluene sulfonate in acetic acid at $75^\circ C$, how many (alkene + substitution) products will be formed ?

A. S_{N^2}, E_2

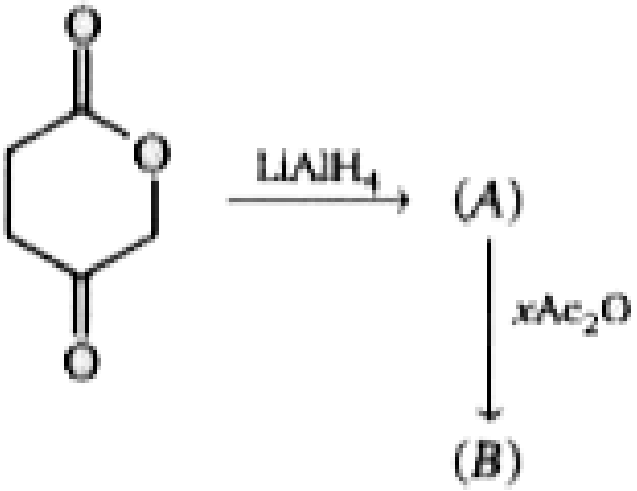
B. S_{N^2}, E_1

C. S_{N^1}, E_2

D. S_{N^1}, E_1

Answer:

Watch Video Solution



40.

x = moles of anhydride consumed is

A. 1

B. 2

C. 3

D. 4

Answer:

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41. Identify product when (R) - and (S) - 2 - butanol reacts with (R,R) tartaric acid in acidic medium.

A. Racemic

B. Diastereomer

C. Meso

D. Pure enantiomer

Answer:

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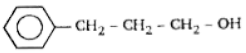
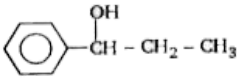
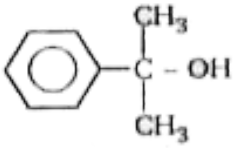
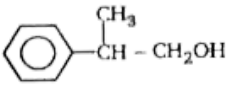
42. An alcohol of formula $C_9H_{12}O$ reacts with $Na_2Cr_2O_7$ to form a compound having formula $C_9H_{10}O$. The original alcohol might be

A. 

B. 

C. 

D. 

Answer:

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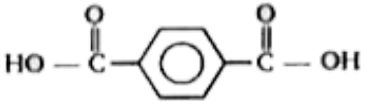
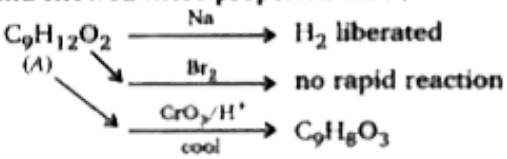
43. An optically active alcohol of formula $C_9H_{12}O_2$ produced the following compound when refluxed with $KMnO_4$

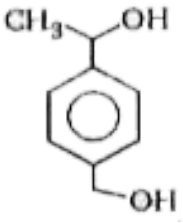


The original compound showed these properties also :

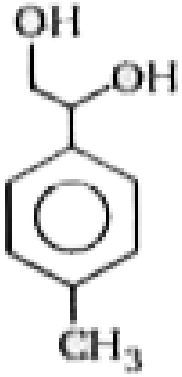


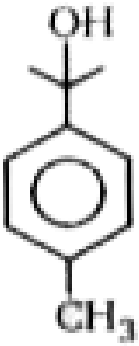
What is structure of (A) ?

A.



B.





C.

D. both (a) and (b)

Answer:

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44. Which are not cleaved by HIO_4 ?

I : glycerol

II : glycol

III : 1,3 - propanediol

IV : methoxy - 2- propanol

A. I,II,III,IV

B. I,II

C. II,III

D. III,IV

Answer:

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45. Which of the following reactions require an oxidising agent?

A. $CH_3 - CH = CH_2 \rightarrow CH_3 - CH_2 - CH_3$

B. $CH_3 - CH_2OH \rightarrow CH_3CHO$

C. $CH_3 - CH_2Cl \rightarrow CH_3 - CH_3$

D. $CH_3 - CH_2OH \rightarrow CH_3 - CH_2Cl$

Answer:

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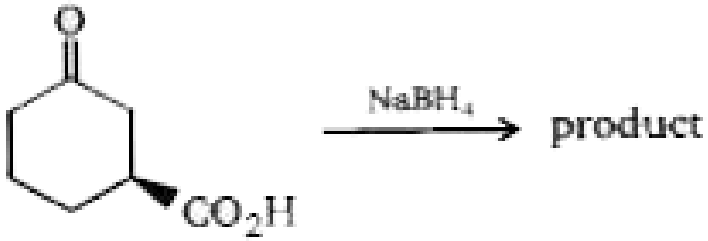
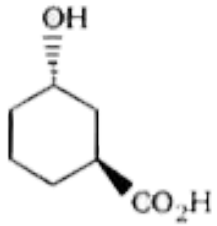
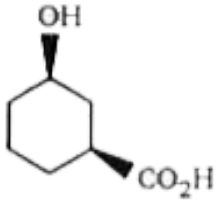
46. What is the major product of the following reaction ?



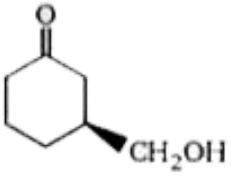
A.



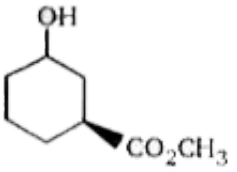
B.



C.



D.



Answer:

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47. Which of the esters shown, after reduction with $LiAlH_4$ and aqueous workup, will yield two molecules of only a single alcohol ?

A. $CH_3CH_2CO_2CH_2CH_3$

B. $C_6H_5CO_2CH_2C_6H_5$

C. $C_6H_5CO_2C_6H_5$

D. None of these

Answer:

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48. For the following reaction, select the statement that best describes the change.

$RCH_2OH + PCC\left[C_5H_5NH^+ClCrO_3^-\right] \rightarrow$

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

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

C. The alcohol is reduced to an aldehyde, and the CrCIII) is oxidized

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

Answer:

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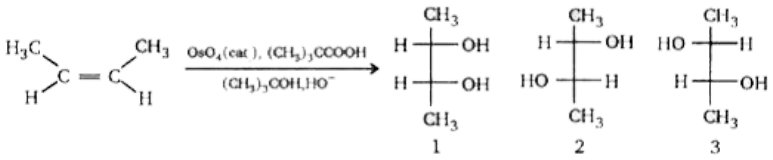
49. What is the product of the following reaction ?



A. Only 1

B. 1:1 mixture of 2 and 3

C. Only 2

D. 1:1: 1 mixture of 1,2, and 3

Answer:

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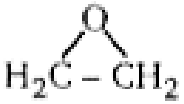
50. An organic compound B is formed by the reaction of ethylmagnesium iodide (CH_3CH_2MgI) with a substance A, followed bytreatment with dilute aqueous acid. Compound B does not react with PCC in dichloromethane. IdentifyA ?

A. $CH_3 - \overset{\overset{O}{||}}{C} - H$

B. $CH_2CH_2\overset{\overset{O}{||}}{C}CH_3$

C. $H_2C = O$

D. 

Answer:

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51. Which ofthe following reagents would carry out the following transformation? (D = ^2H)

A. $NaBD_4$ in CH_3OH

B. $LiAlH_4, then D_2O$

C. $NaBD_4$ in CH_3OD

D. $LiAlD_4$, thenD_2O

Answer:

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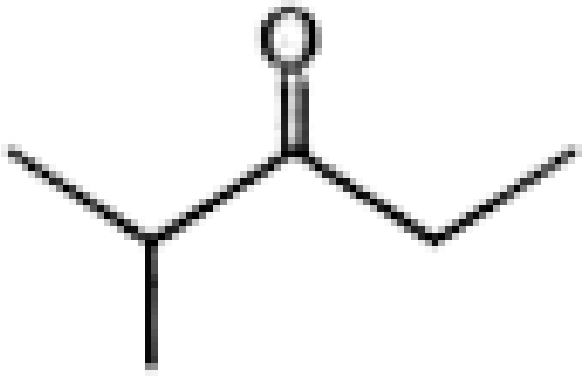
52. Which sequence of steps describes the best synthesis of 2-methyl-3-



pentanone ?

A. (1) 1 - Propanol + $(CH_3)_2$ CHMgBr , diethyl ether

(2) H_3O^+

(3) PCC, CH_2Cl_2

B. (1) 1-Propanol + $Na_2Cr_2O_7$, H_2SO_4, H_2O heat

(2) $SOCl_2$

(3) $(CH_3)_2CHCl$, $AlCl_3$

C. (1) 1- Propanol + PCC, CH_2Cl_2

(2) $(CH_3)_2CHLi$, diethyl ether

(3) H_3O^+

(4) $Na_2Cr_2O_7$, H_2SO_4, H_2O heat

D. (1) 2 - Propanol + $Na_2Cr_2O_7$, H_2SO_4, H_2O, Heat

(2) $CH_3CH_2CH_2Li$, diethyl ether

(3) H_3O^+

(4) PCC, CH_2Cl_2

Answer:

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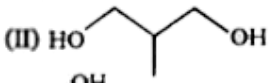
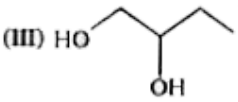
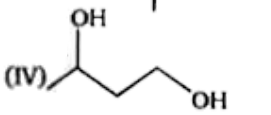
53. Diols (I-IV) which react with CrO_3 in aqueous H_2SO_4 and yield products that readily under go dercarboxylation on heating, are :







A. I and II

B. II and III

C. II and IV

D. I and IV

Answer:

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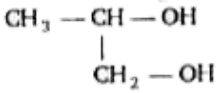
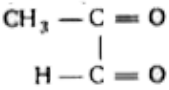
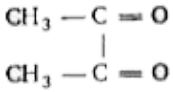
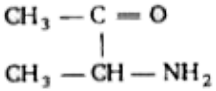
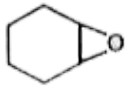
54. Which of following compounds are not oxidized by HIO_4 ?

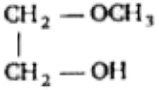
(1) 

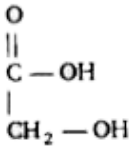
(2) 

(3) 

(4) 

(5) 

(6) 

(7) 

A. 5, 6, 7

B. 4, 5, 6, 7

C. 6, 7

D. 3, 4, 5, 6, 7

Answer:

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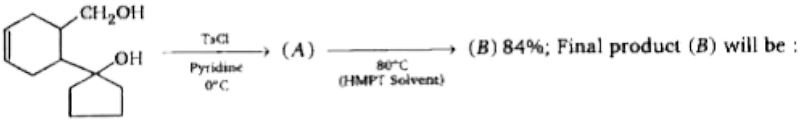
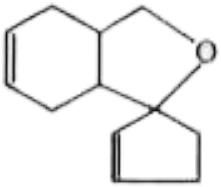
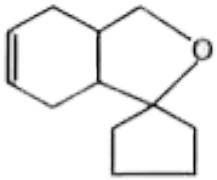
55. Complete the following reaction



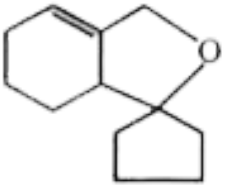
A.

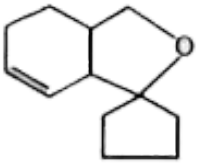


B.



C.





D.

Answer:

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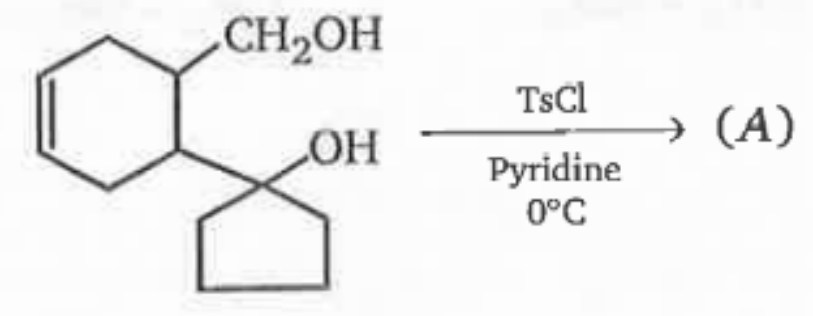
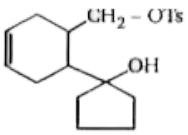
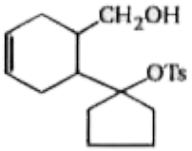
56.

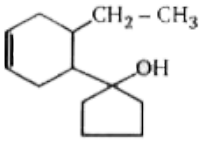


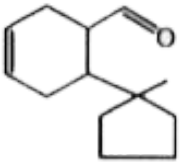
Unknown (A) in the reaction (given in Q. 55) is :



A.

B. 

C. 

D. 

Answer:

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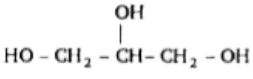
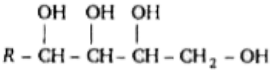
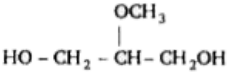
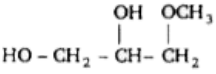
57. In the given table, identify the incorrect option. The digit in box indicate the moles of that substance.

	Reactant	HIO_4 consumed	HCO_2H formed	HCHO formed
(a)		2	1	2
(b)		3	2	1
(c)		0	0	0
(d)		1	1	1

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58. Succinic acid $\xrightarrow{\Delta}(A)\xrightarrow[\Delta]{NH_2}(B)\xrightarrow[KOH]{Br_2}(C)$, Product (C) will be :

A. $\begin{array}{l} CH_2-CO_2H \\ | \\ CH_2-CH_2-NH_2 \\ CH_2-CO_2H \end{array}$

B. $\begin{array}{l} CH_2-NH_2 \\ | \\ CH_2-CO_2^- K^+ \end{array}$

C. $\begin{array}{l} CH_2-NH_2 \\ | \\ CH_2-CO_2H \end{array}$

D. $\begin{array}{l} | \\ CH_2-CH_2-Br \end{array}$

Answer:

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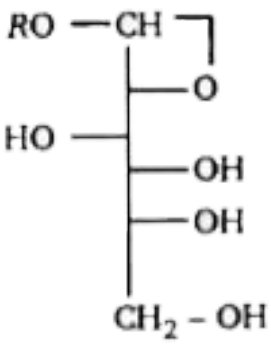
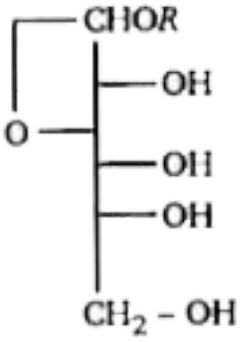
59. Given are the structures of cyclic D-glucoside. Moles of HIO_4 consumed with X and Y are ..... respectively:



(X)



(Y)

A. 2,2

B. 3,3

C. 2,3

D. 3,2

Answer:

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60. Moles of formic acid formed in X and Y respectively are:

A. 1,2

B. 2,1

C. 2,3

D. 3,2

Answer:

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61. Moles of HCHO formed are:

A. 1,1

B. 2,2,

C. 1,2

D. 2,1

Answer:

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62. In which of the following group, each member gives positive iodoform test?

A. A) methanol, ethanol, propanone

B. B) ethanol, isopropanal, methanal

C. C) ethanol, ethanal, isopropyl alcohol

D. D) propanal, propanol-2, propanone

Answer:

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63. $H_2O^{18} + Na \rightarrow \underset{\text{(base)}}{A} + (B)$

$CH_3\overset{\overset{O}{||}}{C} - O - CH_2 - CH_3 + (A) \rightarrow (C) + (D)$ alcohol

Product (C) ofthe reactions is:

A. A) $CH_3 - \overset{\overset{O}{||}}{C} - \underset{18}{O} - H$

B. B) $CH_3 - \overset{\overset{O^{18}}{||}}{C} - O - H$

C. C) $CH_3 - \overset{\overset{O}{||}}{C} - \overset{18}{O} -$

D. D) $CH_3 - \overset{\overset{O}{||}}{C} - O^{\Theta}N\overset{\oplus}{a}$

Answer:

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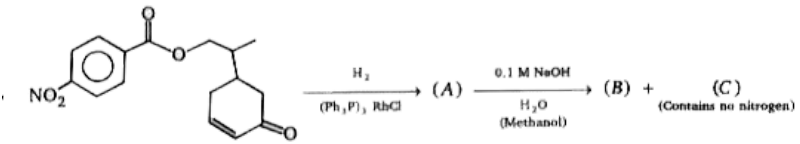
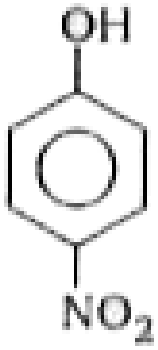
64. 

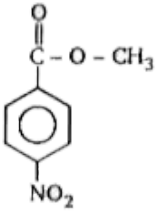
Product (B) of the reaction is :

A. A)

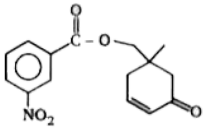


B. B)

C. C)



D. D)



Answer:

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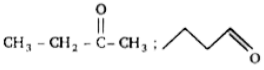
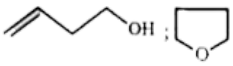
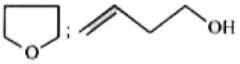
65. Two unknown compounds X and Y, both having molecular formula C_4H_gO, give following results with four chemical tests.

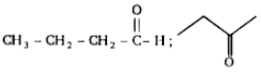
	Bromine	Na metal	Chromic acid	Lucas reagent
Compound X	decolourises	bubbles	Orange to Green	No reaction
Compound Y	No reaction	No reaction	No reaction	No reaction

Compound X and Y respectively are :

A. A) 

B. B) 

C. C) 

D. D) 

Answer:

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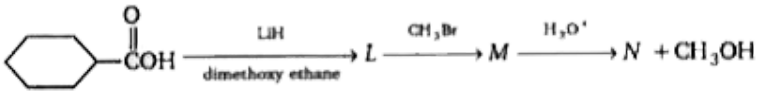
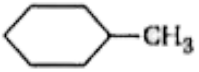
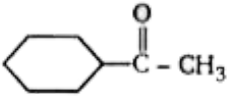
66. Complete the following reaction



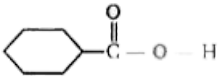
A.



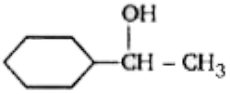
B.



C.



D.



Answer:

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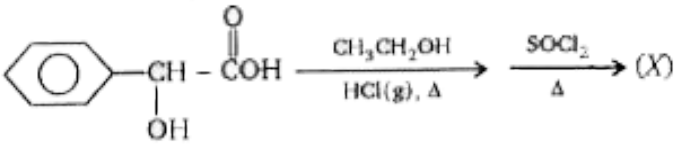
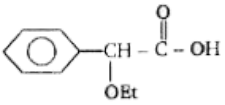
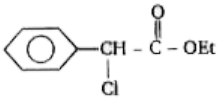
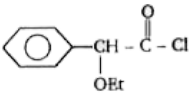
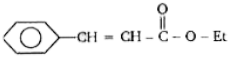
67. Assign the structure ofmajor product (X) ofthe reaction given below.



A. A) 

B. B) 

C. C) 

D. D) 

Answer:

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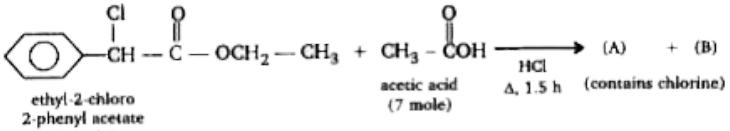
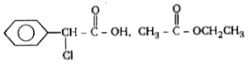
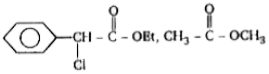
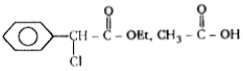
68.

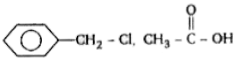


Product (A) and (B) respectively in the above reaction are

A. A) 

B. B) 

C. C) 

D. D) 

Answer:

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69.

$$\underset{\substack{\text{methylacrylate}\\ \text{bpt } 81^\circ C}}{H_2C = CH - \overset{O}{\overset{||}{C}} - OCH_3} + \underset{\substack{\text{n-butyl alcohol}\\ \text{bpt } 117^\circ C}}{CH_3CH_2CH_2OH} \xrightarrow[TsOH,\ \Delta]{} \underset{bpt, 145^\circ C}{(A)} + \underset{bpt 65^\circ C}{CH_3O}$$

Product (A) of above reaction is :

A. A) $H_2C = CH - \overset{\overset{O}{||}}{C} - OCH_2CH_2CH_3$

B. B) $H_2C = CH - \overset{\overset{O}{||}}{C} - O - CH(Me)_2$

C. C) $H_2 \underset{\underset{OCH_3}{|}}{C} - CH_2\overset{\overset{O}{||}}{C} - OCH_3$

D. D) $H_3C - (CH_2)_4 - \overset{\overset{O}{||}}{C} - O - CH_3$

Answer:

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70.

In above reaction molecular formula of glycerol increases by :

A. $C_4H_4O_2$

B. $C_6H_6O_6$

C. $C_6H_6O_2$

D. $C_6H_6O_3$

Answer:

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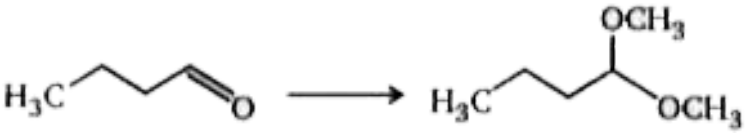
71. Give the best conditions for this transformation:



A. A) CH_3OH, $H^+(cat.)$heat

B. B) H_2O, $H^+(cat.)$heat

C. C) Mg, ether ,CH_3OH

D. D) $SOCl_2$, CH_3OH

Answer:

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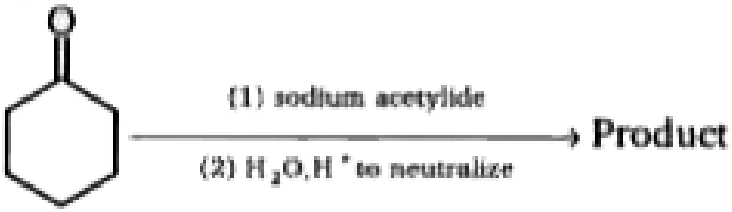
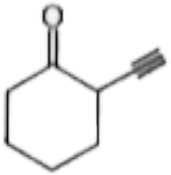
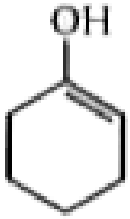
72. Give the major organic product ofthe following reaction.

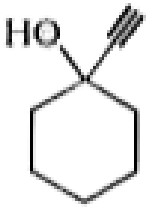




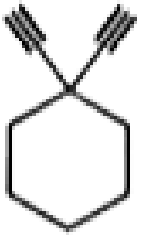
A. A)



B. B)



C. C)



D. D)

Answer:

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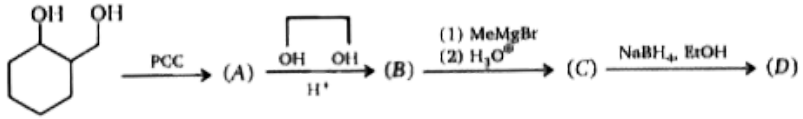
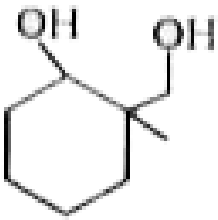
73.

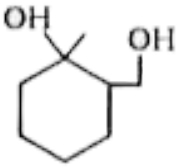


Product (D) in above reaction is :

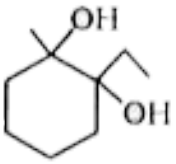


A. A)

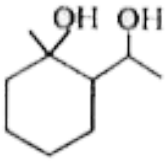
B. B)



C. C)



D. D)



Answer:

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74. Select the best method for the preparation ofthe following compounds :

(MCPBA = Metachloro per benzoic acid)

A. A) reaction of cyclohexanone with CH_3Li

B. B) reaction of 1-methylcyclohexene with $Hg(OAc)_2$ followed by $NaBH_4$

C. C) reaction of cyclohexene with $BH_3 : NaOH / H_2O_2$, following by CH_3Br

D. D) reaction of cyclohexene with MCPBA, followed by CH_3MgBr

Answer:

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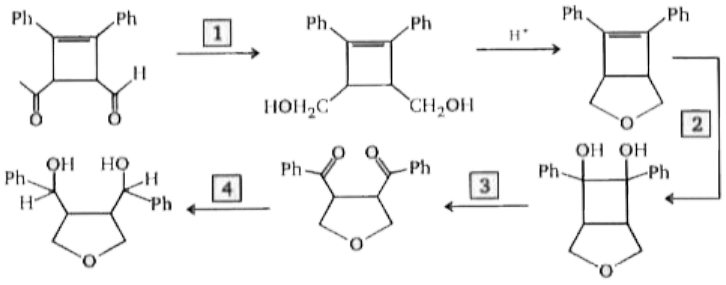
75. Identify the reagents (1-4), required for the transformations shown and arrange them in correct order.



$(1) LAH (LiAlH_4)$ $(2) OSO_4$

$(3) NaIO_4$ $(4) NaBH_4$

A. A) $1 \rightarrow 3 \rightarrow 4 \rightarrow 2$

B. B) $2 \rightarrow 3 \rightarrow 1 \rightarrow 4$

C. C) $2 \rightarrow 1 \rightarrow 3 \rightarrow 4$

D. D) $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$

Answer:

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76. Which describes the best stereochemical aspects ofthe following reaction ?

A. A) Inversion of configuration occurs at the carbon undergoing substitution.

B. B) Retention of configuration occurs at the carbon undergoing substitution.

C. C) Racemization (loss ofconfiguration) occurs at the carbon undergoing substitution.

D. D) The carbon undergoing substitution is not stereogenic

Answer:

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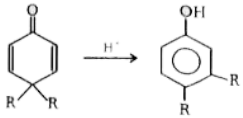
77. Which of following is an example ofPinacol-Diazotization ?

A. A) $Me_2\underset{OH}{\overset{|}{C}} - \underset{Br}{\overset{|}{C}}Me_2 \xrightarrow{Ag^+} Me - \overset{\overset{O}{||}}{C} - CMe_3$

B. B) $Me_2\underset{OH}{\overset{|}{C}} - \underset{NH_2}{\overset{|}{C}}Me_2 \xrightarrow[HCl]{NaNO_2} Me - \overset{\overset{O}{||}}{C} - CMe_3$

C. C) $Me_2\underset{OH}{\overset{|}{C}} - \underset{OH}{\overset{|}{C}}me_2 \xrightarrow{H^*} Me - \overset{\overset{O}{||}}{C} - CMe_3$

D. D) 

Answer:

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78. $(A) \xrightarrow{H_2O^*} B + C$, (B) and (C) both give +ve iodoform test. Compound (A) is

A. A) $CH_3 - CH = CH - O - CH_2 - CH_3$

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

C. C) $CH_3 - \underset{\underset{CH_2}{||}}{C} - O - CH_2 - CH_3$

D. D) both (b) and (c)

Answer:

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79. A solution of Ph_3CCO_2 H in conc. H_2SO_4 gives (X) when poured into methanol X is :

A. $Ph_3C - \overset{\overset{O}{||}}{C} - O - CH_3$

B. $Ph_2CH - \overset{\overset{O}{||}}{C} - O - CH_3$

C. $Ph_3C - OCH_3$

D. $Ph_3C - CH_3$

Answer:

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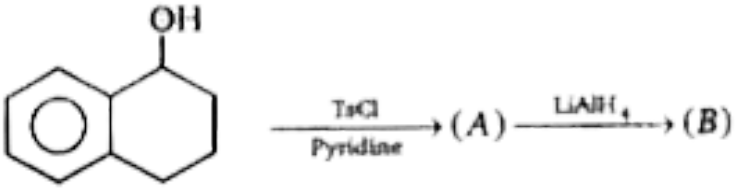
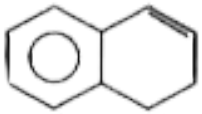
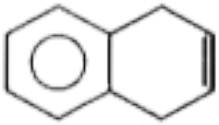
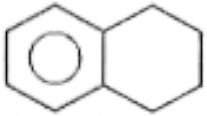
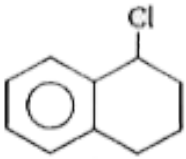
80. Complete the following reaction



A. 

B. 

C. 

D. 

Answer:

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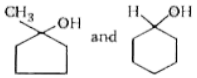
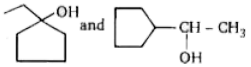
81. In the given pair of alcohols, in which pair second alcohol is more reactive than first towards hydrogen bromide?

A. 

B. 

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

D. $CH_3 - \underset{OH}{\underset{|}{C}}H - CH_2 - CH_3$ and $(CH_3)_2\underset{OH}{\underset{|}{C}} - CH_2 - CH_3$

Answer:

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82. Rank the transition states that occur during the following reaction steps in order of increasing stability (least $\rightarrow$ most stable) :

1. $H_3C - \overset{+}{O}H_2 \rightarrow CH_3^+ + H_2O$

2. $(CH_3)_3C - \overset{+}{C}H_2 \rightarrow (CH_3)_3C^+ + H_2O$

3. $(CH_3)_2CH - \overset{+}{O}H_2 \rightarrow (CH_3)_2CH^+ + H_2O$

A. $1 < 2 < 3$

B. $2 < 3 < 1$

C. $1 < 3 < 2$

D. $2 < 21 < 3$

Answer:

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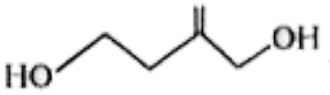
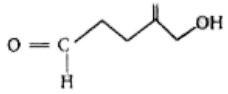
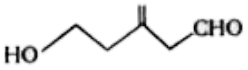
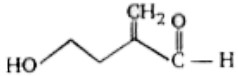
83. Complete the following reaction

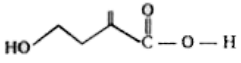


(A), Product (A) is :

A. 

B. 

C. 

D. 

Answer:

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84. In which ofthe following reactions hydrogen gas will not be evolved ?

A. $CH_3 - CH_2 - OH \xrightarrow{Na}$

B. $CH_3 - CH_2 - OH \xrightarrow{K}$

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

D. $CH_3 - \underset{\underset{CH_3}{|}}{C}H - OH \xrightarrow{CH_3MgBr}$

Answer:

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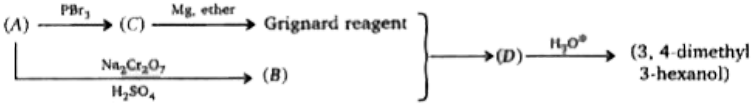
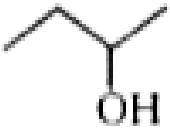


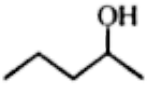
85.

When Grignard reagent reacts with (B) product (D) will obtained. Reactant (A) ofthe above reaction is

A. 

B. 

C. 

D. 

Answer:

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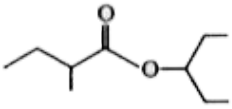
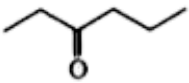
86. $\xrightarrow{LiAlH_4}$ $2(B)$ (Chiral alchol only) , structure of (A) is :

A. $CH_3\underset{\underset{Et}{|}}{C}H - \overset{\overset{O}{||}}{C} - OH - \underset{\underset{Et}{|}}{C}H - CH_3$

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

C. 

D. 

Answer:

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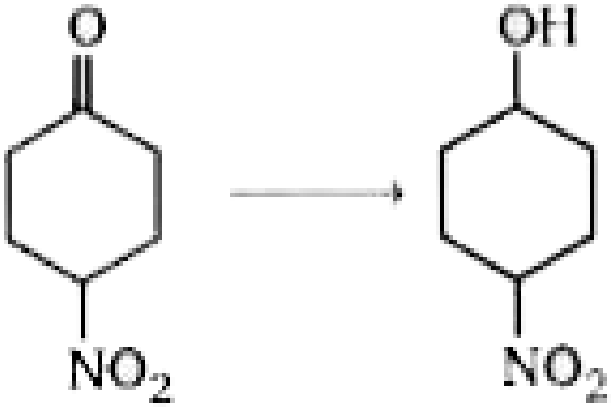

87.

Above conversion can be acheived by :

A. $LiAlH_4$

B. $NaBH_4$

C. H_2 / Ni

D. CrO_3

Answer:

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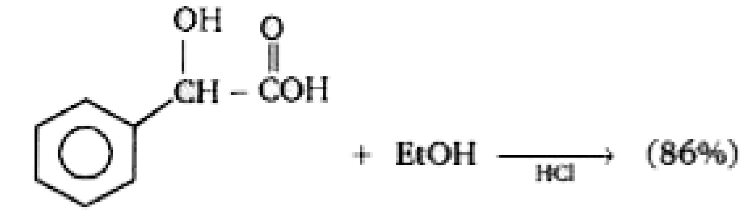
88.



(Mandelic acid)

Identify product of above Fischer esterification reaction:

A. $Ph - \overset{\overset{O-Et}{|}}{C}H - CO_2H$

B. 

C. $Ph - \underset{\underset{OH}{|}}{C}H - CO_2Et$

D. $Ph - \underset{\underset{OH}{|}}{C}H - \overset{\overset{O}{||}}{C} - Et$

Answer:

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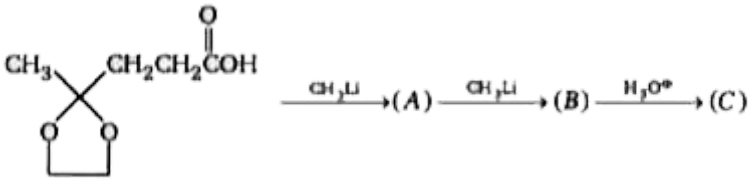
89. 

Product (C) ofthe above reaction is :

A. $CH_3 - \overset{\overset{O}{\|}}{C} - CH_2 - CH_2 - \overset{\overset{OH}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_3$

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

C. $CH_3 - \overset{\overset{O}{\|}}{C} - CH_2 - CH_2 - \overset{\overset{O}{\|}}{C} - CH_2$

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

Answer:

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90. What is the major product of the following reaction?

$$CH_3 - \overset{\overset{OH}{|}}{C}H - CH_2 - CH_2 - OH \xrightarrow[\text{Pyridine coid}]{CrO_3} Product$$

A. $CH_3 - \overset{\overset{OH}{|}}{C}H - CH_2 - \overset{\overset{O}{||}}{C} - H$

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

C. $CH_3 - \overset{\overset{O}{||}}{C} - CH_2 - \overset{\overset{O}{||}}{C} - OH$

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

Answer:

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91. The major reason that phenol is a better Bronsted acid than cyclohexanol is that:

A. it is a better proton donor.

B. the cyclohexyl group is an electron donating group byinduction, which destabilizes the anion formed in the reaction by resonance.

C. phenol is able to stabilize the anion formed in the reaction.

D. the phenyl group is an electron withdrawing group by induction, which stabilizes the anion formed in the reaction.

Answer:

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92. Which of these reagents would accomplish the following reduction?

$$N \equiv C - CH_2 - \overset{\overset{O}{||}}{C} - CH_2 - CH = CH_2 \rightarrow N \equiv C - CH_2 - \underset{\underset{H}{|}}{\overset{\overset{OH}{|}}{C}} - CH$$

A. $NaBH_4$

B. $LiAlH_4$

C. 1 mole H_2, poisomed catalyst, low pressure

D. H_2O^+

Answer:

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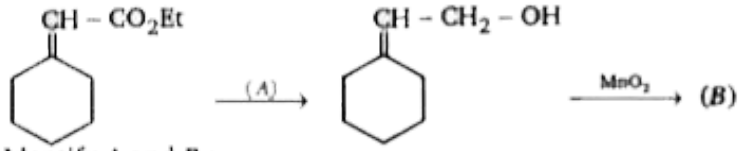
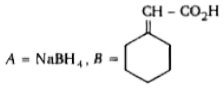
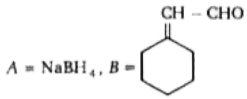
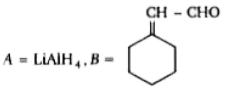
93. Complete the following reaction

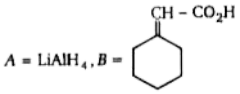


Identify *A* and *B* :

A. 

B. 

C. 

D. 

Answer:

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94. $Ph - CH_2 \underset{\underset{OH}{|}}{C}H - CH_3 \xrightarrow{K} \xrightarrow{C_2H_2Br} (A)$

Product (A) in above reaction is :

A. $Ph - CH_2 - \underset{\underset{OEt}{|}}{C}H - CH_3$ (iversion)

B. $Ph - CH_2 - \underset{\underset{OEt}{|}}{C}H - CH_3$ (retention)

C. $Ph - CH_2 - \underset{\underset{OEt}{|}}{C}H - CH_3$ (racemic)

D. $Ph - CH = CH - CH_3$

Answer:

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95. $Ph - \overset{\overset{O}{||}}{C} - O - H + CH_3 - O^{18} - H \overset{H^+}{\Longleftrightarrow} (X) + H_2O,$ Identify X :

A. $X = Ph - \overset{\overset{O}{||}}{C} - O^{18} - CH_3$ (Trans esterfication)

B. $X = Ph - \overset{\overset{O}{||}}{C} - O^{18} - CH_3$ (Esterification reaction)

C. $X = Ph - \overset{O}{\overset{||}{C}} - O^{18} - CH_3$ (Saponification)

D. $X = Ph - \overset{O}{\overset{||}{C}} - O - CH_3$ (Hydrolysis)

Answer:

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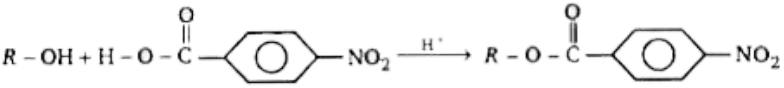
96.



Fastest of recation will be when R is :

A. CH_3-

B. $CH_3 - CH_2$

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

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

Answer:

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97. Select the correct statement.

A. Solvolysis of $(CH_3)_2C = CH - CH_2 - Cl$ in ethanol is over 6000 times greater than alkyl chloride (25°C)

B. $CH_3 - CH = CH - CH_2 - OH$ when reacts with HBr give a mixture of I-bromo-2-butene and 3-bromo I-butene

C. When solution of 3-buten-2-ol in aqueous sulphuric acid is allowed to stand for one week, itwas found to contain both 3-buten-2-ol and 2-buten-1-ol

D. All of these

Answer:

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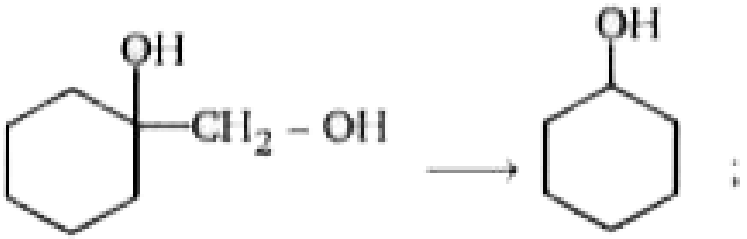

98. Above transformation can be carried out by :

A. $H^+ / \Delta zn(Hg), HCl$

B. $HlO_4, LiAlH_4$

C. $HlO_4, H^+ / \Delta$

D. $H^+ / \Delta, HiO_4$

Answer:

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99.

$$H_2C = CH - (CH_2)2 - \underset{\underset{OH}{|}}{C}H - CH_3 \xrightarrow[\text{Pyridine}]{SOCl_2} (A) \xrightarrow[(H_2O)]{O_3 / Zn} \underset{C_5H_9ClO}{(B)} \xrightarrow{NaBH_4} (C$$

Compound (C) is :

A. $CH_3 - \overset{OH}{\underset{|}{C}}H - CH_2 - \underset{Cl}{\underset{|}{CH}} - CH_3$

B. $HOCH_2 - CH_2 - CH_2 - CH_2 - CH_2 - CH_2 - Cl$

C. $HO - CH_2 - CH_2 - CH_2 - \overset{Cl}{\underset{|}{C}}H - CH_3$

D. $HO - CH_2 - CH_2 - \underset{Cl}{\underset{|}{CH}} - CH_2 - CH_3$

Answer:

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100. Iodoform can be obtained on wanning NaOH and iodine with:

A. $CH_3CH_2CH(OH)CH_3$

B. $(CH_3)_2CH\overset{O}{\overset{||}{C}}C_2H_5$

C. $CH_3 - \underset{O}{\underset{||}{C}} - OCH_3$

D. $(CH_3)_2CHCH_2OH$

Answer:

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101. Which of these is a reducing agent ?

A. CrO_3 / H^+

B. $KMnO_4$

C. $LiAlH_4$

D. O_3

Answer:

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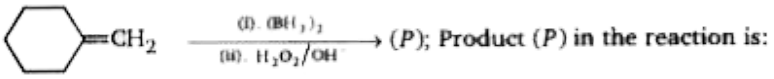
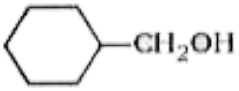
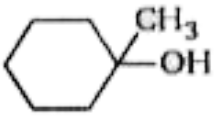
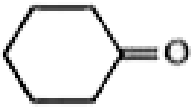
102. Complete the following reaction

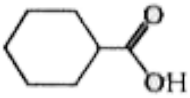


(P); Product (P) in the reaction is:

A. 

B. 

C. 

D. 

Answer:

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103. $CH_3 - \overset{\overset{CH_3}{|}}{\underset{\underset{OH}{|}}{C}} - CH_3 \xrightarrow[\text{cool}]{Na_2Cr_2O_7}$ (P) , product (P) in the reaction is :

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

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

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

D. No reaction

Answer:

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104. 1, 2, 3 - butanetriol undergoes oxidative cleavage of HIO_4 During this process

A. 1 equivalent of HlO_4 consumed & $HCO_2H \& H_3C - \underset{O}{\overset{||}{\underset{||}{C}}} - CO_2$ H are formed

B. 2 equivalents of HlO_4 consumed & $HCO_2H, HCH = O \& CH_3 - CH - O$ are formed

C. 3 equivalents of HIO_4 consumed & $HCO_2H(2eq.)$ & 1 eq. of CH_3CO_2 H are formed

D. 2 equivalents of HlO_4consumed & 2 e.q . Of HCO_2H & 1 eq. of $CH_3CH=O$ is formed

Answer:

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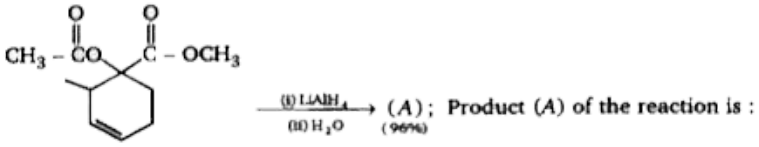
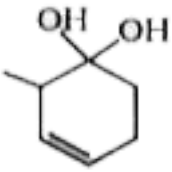
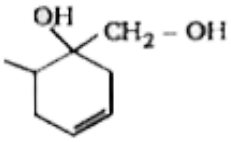
105. Complete the following reaction



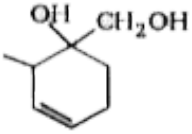


A.

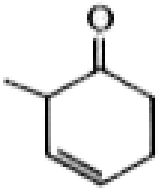
B.



C.



D.



Answer:

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106. $R - \overset{O}{\overset{||}{C}} - O - R' + R''OH \overset{H^{\oplus}}{\Longleftrightarrow} R - \overset{O}{\overset{||}{C}} - O - R'' + R'OH$

Above reaction is/an example of

A. esterification

B. saponification

C. trans-esterification

D. hydrolysis

Answer:

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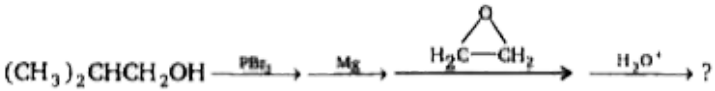
107. What is the major organic product of the following sequence of reactions ?



A. $(CH_3)_2CH\overset{OH}{\overset{|}{C}}HCH_2CH_3$

B. $(CH_3)_2CHCH_2CH_2OH$

C. $(CH_3)_2CHCH_2\overset{OH}{\overset{|}{C}}HCH_3$

D. $(CH_3)_2CHCH_2CH_2CH_2OH$

Answer:

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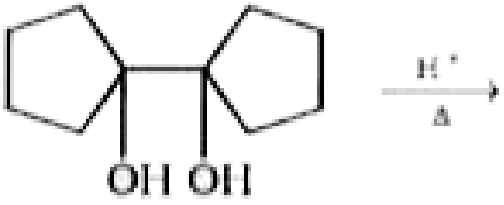
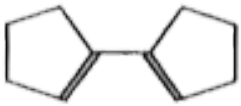
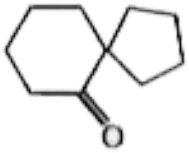
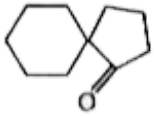
108. The structure of the product formed in the reaction given below is :



A. 

B. 

C. 

D. 

Answer:

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109. $\begin{array}{l} CHO \\ | \\ CH-OH \\ | \\ CH_2-OH \end{array} \xrightarrow{2HIO_4}$ Products obtained in the above reaction are :

A. $HCHO, HCO_2H$

B. $HCHO, 2HCO_2H$

C. $CO_2, 2HCO_2H$

D. $CO_2, HCHO, HCO_2H$

Answer:

Watch Video Solution

110. $\begin{array}{l} CHO \\ | \\ (CH-OH)_3 + 4HIO_4 \rightarrow \\ | \\ CH_2-OH \end{array}$ Products obtained are :

Aldo pentoae

A. $4HCO_2H, HCHO$

B. $4CH_2O, HCO_2H$

C. $CO_2, 4HCHO$

D. $CO_{23}HCO_2, H, HCHO$

Answer:

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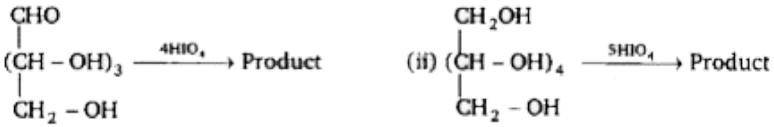
111. 

Ratio of moles of formic acid obtained in reaction (i) and reaction (ii) is :

A. $3/4$

B. $4/5$

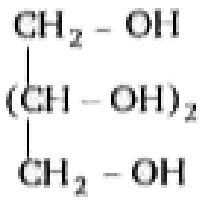
C. 1

D. $5/4$

Answer:

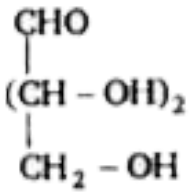
Watch Video Solution

112. Which of the following compound gives $HCHO, CO_2, 2HCO_2H$ when oxidised by periodic acid ?

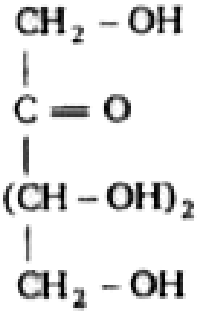


A.

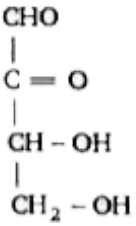
B.



C.



D.



Answer:

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113. Hydration of 3-phenylbut-l-ene in dil. H_2SO_4 will give mainly:

A. 3-Phenylbutan-l-ol

B. 3-Phenylbutan-2-o1

C. 2-Phenylbutan-2-o1

D. 2-Phenylbutan-l-ol

Answer:

Watch Video Solution

114. Decarboxylation ofsodium salicylate with soda lime forms

A. Salicylic acid

B. Phenol

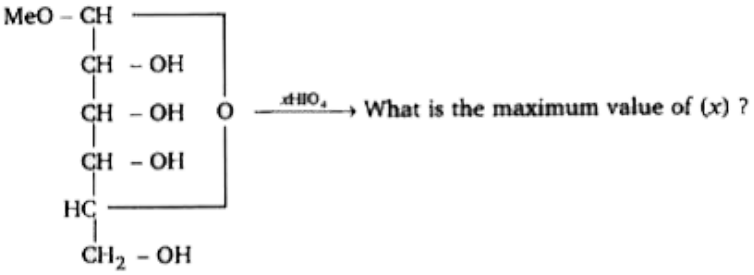
C. Benzene

D. None of these

Answer:

Watch Video Solution

115. Complete the following reaction



A. 1

B. 2

C. 3

D. 4

Answer:

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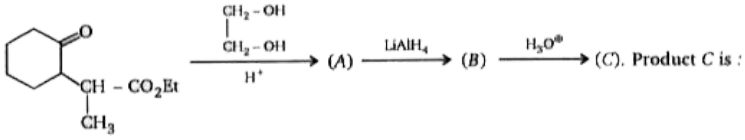
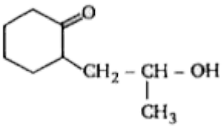
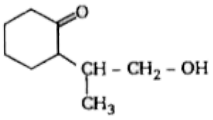
116. Complete the following reaction



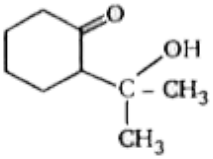
A.



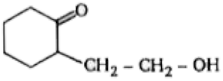
B.



C.



D.



Answer:

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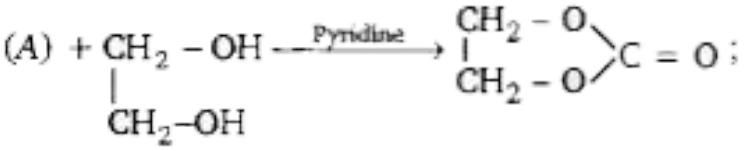

117.

Reactant A of the above reaction is :

A. $CH_3 - \overset{O}{\overset{||}{C}} - CH_3$

B. $COCl_2$

C. $CH_3 - \overset{O}{\overset{||}{C}} - Cl$

D. $CH - 3 - \overset{O}{\overset{||}{C}} - OEt$

Answer:

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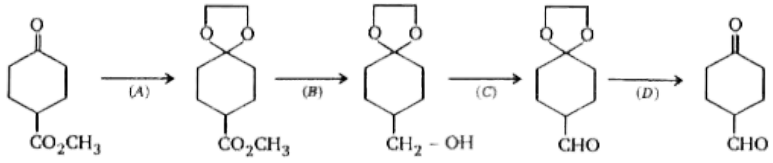
118. 

Identify the correct combination.

A. $(A) = \begin{matrix} CH_2-OH \\ | \\ CH_2-SH \end{matrix}$

B. (B) $=NaBH_4$

C. $(C) = KMnO_4$

D. $(D) = H_3O^{\oplus}$

Answer:

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119. In the Libennann's nitroso reaction, sequential changes in the colour ofphenol occurs as :

A. Brown or red $\rightarrow$ green $\rightarrow$ deep blue

B. Red $\rightarrow$ deep blue $\rightarrow$ green

C. Red $\rightarrow$ green $\rightarrow$ white

D. White $\rightarrow$ red $\rightarrow$ green

Answer:

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120. Ethanol when reacts with PCl_5 gives A, $POCl_3$ and HCl. A reacts with dry AgO_2 to form B (major product) and AgCl. A andB respectively are:

A. C_2H_2Cl and $C_2H_5OC_2H_5$

B. C_2H_4 and $C_2H_4OC_2H_5$

C. C_2H_6 and $C_2H_5OC_2H_5$

D. C_2H_6 and $C_2H_5NO_2$

Answer:

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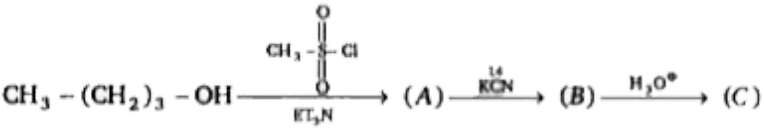
121. Complete the following reaction



A. $CH_3(CH_2)_3 - CO_2H$

B. $CH_3(CH_2)_3 - {}^{14}CO_2H$

C. $CH_3 - (CH_2)_3CO_2H$

D. $CH_3 - \overset{O}{\overset{||}{\underset{14}{C}}} - O - H$

Answer:

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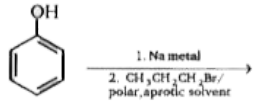
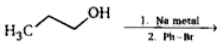
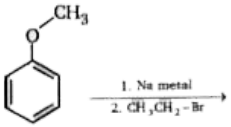
122. Choose the best synthesis of phenyl n-propyl ether.

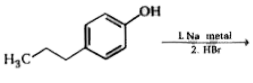
A. 



B.



C.



D.

Answer:

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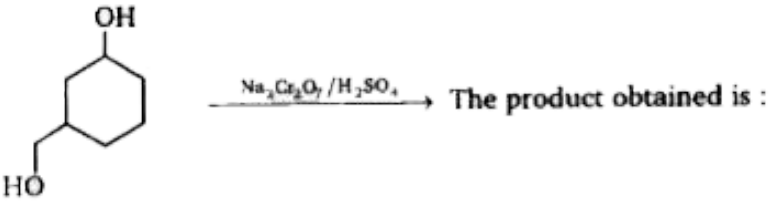
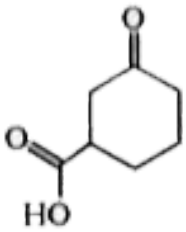
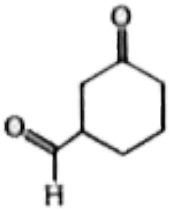
123. Complete the following reaction

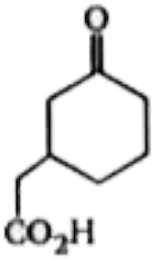


The product obtained is :

A.



B. 

C. 

D. None of these

Answer:

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124. What is true for the equilibrium reaction ?

$$CH_3 - \overset{O}{\overset{||}{C}} - OH + CH_3 - OH \overset{cat}{\Longleftrightarrow} CH_3 - \overset{O}{\overset{||}{C}} - O - CH_3 + H_2O$$

A. The use of equimolar quantities of CH_3OH and CH_3COOH will give the greatestyield of the ester at equilibrium

B. Removal of water will increase the amount of ester at equilibrium

C. Addition of CH_3COOCH_3 will cause the formation ofequal an equal number of moles of water

D. Application of pressure increases the amount of ester at equilibrium

Answer:

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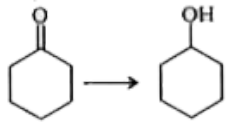
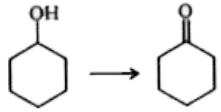
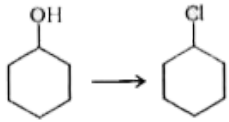
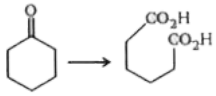
125. PCC (PyridiniumchIoro chromate) is a good reagentfor which of the following transformations ?

A. 

B. 

C. 

D. 

Answer:

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126. How many primary alcohols (including stereoisomers) are possible with formula $C_5H_{12}O$?

A. Two

B. Three

C. Four

D. Five

Answer:

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127. 1-Phenylethanol can be prepared by the reaction of benzaldehyde with the product obtained in the reaction between

A. CH_3I and Mg

B. C_2H_5I and Mg

C. CH_3Br and $AlCl_3$

D. CH_3OH and $ZnCl_2$

Answer:

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128. 0.092 g of a compound with the molecular formula $C_3H_8O_3$ on reaction with an excess of CH_3MgI gives 67.00 mL of methane at STP. The

number of active hydrogen atoms presentin a molecule of the compound is :

A. one

B. two

C. three

D. four

Answer:

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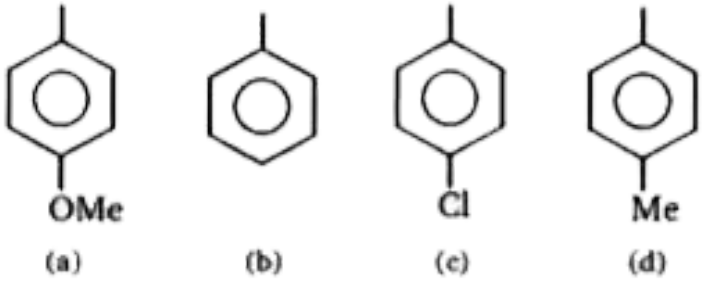
129. Migratory aptitude of the following in decreasing order is :



A. $a > c > b > d$

B. $a > d > b > s$

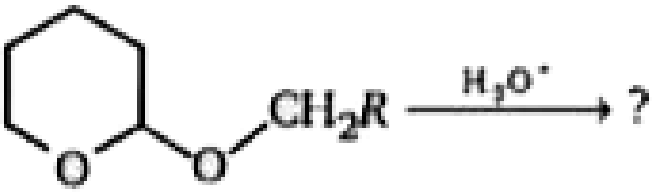
C. $a > d > c > b$

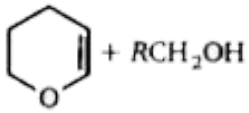
D. $b > c > a > b$

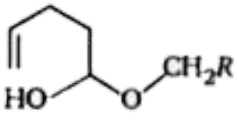
Answer:

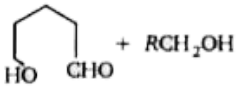
Watch Video Solution

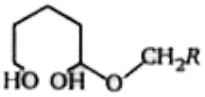
130. The major product formed in the reaction is :



A. 

B. 

C. 

D. 

Answer:

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131. Reaction of R-2-butanol with p-toluenesulphonyl chloride in pyridine then LiBr gives:

A. R-2-butyl bromide

B. S-2-butyl tosylate

C. R-2-butyl tosylate

D. S-2-butyl bromide

Answer:

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132. Optically active 2-octanol rapidly loses its optical activity when exposed to :

A. dilute acid

B. dilute base

C. light

D. humidity

Answer:

Watch Video Solution

133. If $(\pm)$ 2-methyl butanoic acid were esterified by reaction with $(\pm)$ 2-butanol, how many optically active compounds would be present in the final equilibrium reaction mixture?

A. 2

B. 3

C. 4

D. 6

Answer:

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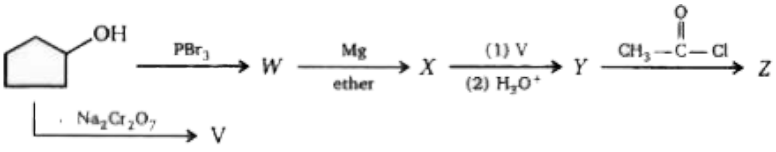
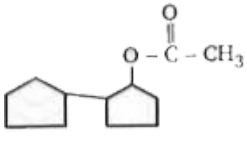
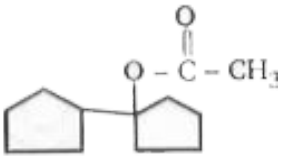
134. Complete the following reaction



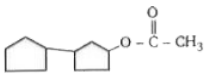
A.

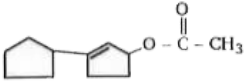


B.



C.



D. 

Answer:

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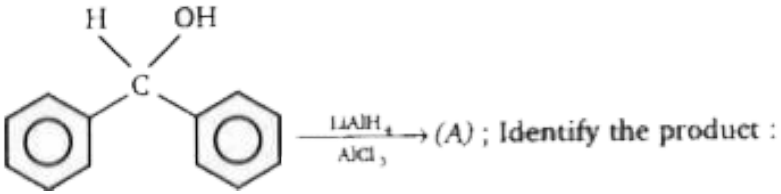
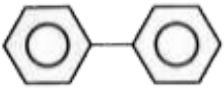
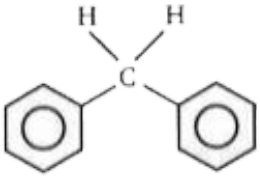
135. Complete the following reaction



A. No reaction

B. 

C. 

D. $Ph - \overset{O}{\overset{||}{C}} - Ph$

Answer:

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136. $(EtO)_2CHCHO + CH_3MgI \xrightarrow{H_2O^{\oplus}} (A)$

Product obtained in the above reaction is :

A. $CH_3\overset{\overset{O}{||}}{C} - \overset{\overset{O}{||}}{C} - H$

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

C. $CH_3 - \overset{\overset{O}{||}}{C} - CH_2 - OH$

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

Answer:

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137. Reaction - (1) :

$CH_3 - CH = CH - CH_3 \xrightarrow[Cold]{KmnO_4} (A) \xrightarrow{NalO_4} (B) 2\text{mole}$

Reaction - (2) : $CH_3 - CH = CH - CH_3 \xrightarrow{KMnO_4 / NalO_4} (C) 2$ mole

Product (B) and (C) respectively are :

A. CH_2CHO, CH_3CO_2H

B. CH_3CO_2H, CH_3CHO

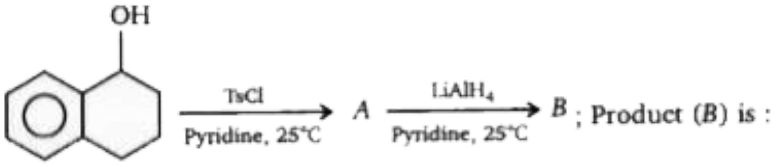
C. CH_3CHO in both reaction

D. CH_3CO_2H in both reaction

Answer:

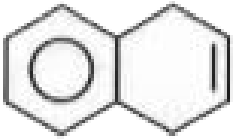
Watch Video Solution

138. Complete the following reaction

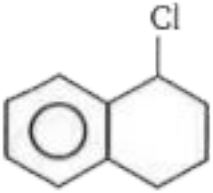


; Product (B) is :

A. 

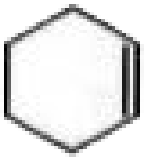
B. 

C. 

D. 

Answer:

Watch Video Solution

139.  $\longrightarrow HO-(CH_2)_6-OH$, this conversion can be achieved by

A. $O_3, Zn,$ then $LiAlH_4$

B. $O_3 / H_2O_2,$ then $LiAlH_4$

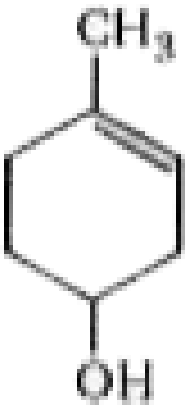
C. cold dil . $KMnO_4HlO_4,$ then $LiAlH_4$

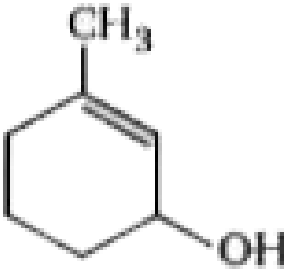
D. All of these

Answer:

Watch Video Solution

140. Which of the following alcohol on treatment with HCI give 3-chloro-3-methyl cyclohexene as a product?

A. 

B. 

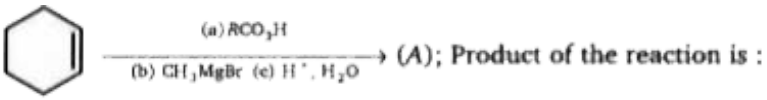
C. 

D. All of these

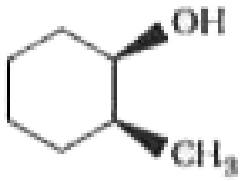
Answer:

Watch Video Solution

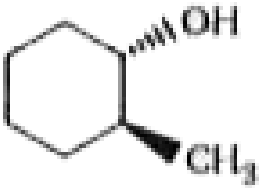
141. Complete the following reaction



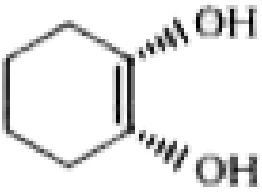
A.



B.



C.

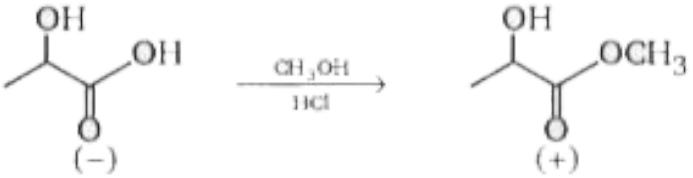


D.

Answer:

Watch Video Solution

142. Esterification (shown below) is a reaction converting a carboxylic acid toits ester. Itinvolves only the carbonyl carbon. Esterification of (-) -lactic acid with methanol yields (+)-methyl lactate. Assuming that there are no side reactions, what is true about this reaction ?



A. AnS_{N^2} process has occurred, inverting the absolute configuration of the chiral center

B. AnS_{N^1} reaction at the chiral center has inverted the optical rotation

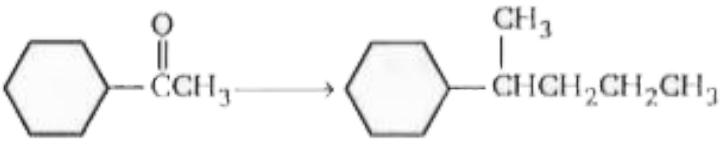
C. A diastereomer has been produced, diastereomers have different physical properties including optical rotation

D. Optical rotation is notdirectly related to absolute configuration, so the change in sign of rotation is merely a coincidence

Answer:

Watch Video Solution

143. Which of the following sets of reagents, used in the order shown, would successfully accomplish the conversion shown ?



A. $CH_3CH_2CH_2MgBr, H_3O^+, P\mathbb{C}, CH_2Cl_2$

B. $CH_3CH_2CH_2MgBr, H_3O^+, H_2SO_4, \text{heat}\, P\mathbb{C}, CH_2Cl_2$

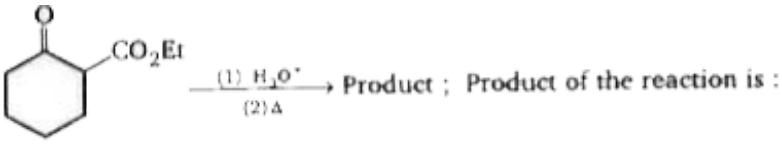
C. $(C_6H_5)_3\overset{+}{P} - \overset{-}{C}HCH_2CH_3, B_2H_6, CH_3CO_2H$

D. $(C_6H_5)_3\overset{+}{P} - \overset{-}{C}HCH_2CH_3, H_2O$

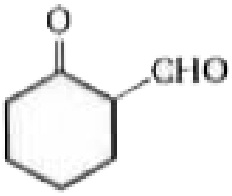
Answer:

Watch Video Solution

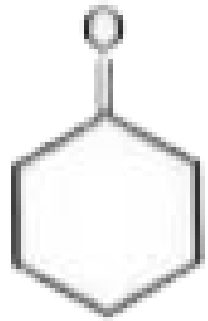
144.



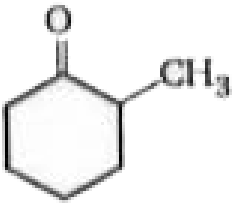
A.



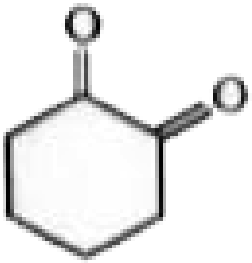
B.



C.



D.

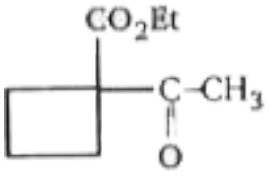


Answer:

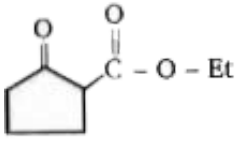
Watch Video Solution

145. Which of the following compound on hydrolysis followed byheating gives a product, which gives positive iodoform test?

A. $CH_3 - \underset{CO_2Et}{\overset{|}{C}} H - \overset{O}{\overset{||}{C}} - CH_2 - CH_3$

B. 

C. $CH_3 - \underset{CO_2Et}{\overset{|}{C}} H - CO_2Er$

D. 

Answer:

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146. Treatment of a 2° OH with CrO_3 / H_2SO_4 yields an/a :

A. aldehyde

B. carboxylic acid

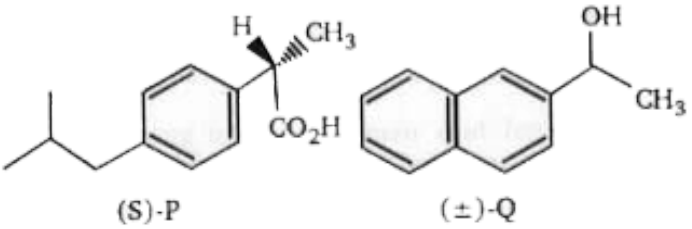
C. ester

D. ketone

Answer:

Watch Video Solution

147. Esterification of the acid P with the alcohols Q will give :



(S)-P (±)-Q

A. only one enantiomer

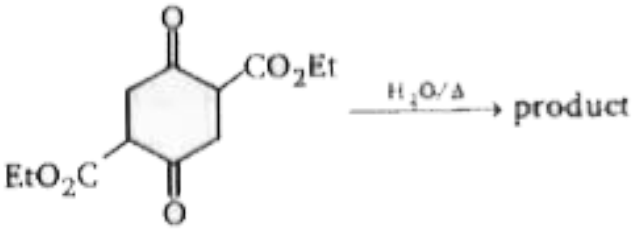
B. a mixture of diastereomers

C. a mixture of enantiomers

D. only one diastereomer

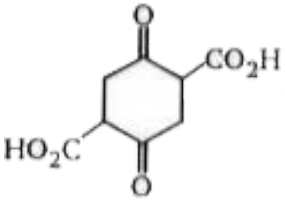
Answer:

Watch Video Solution

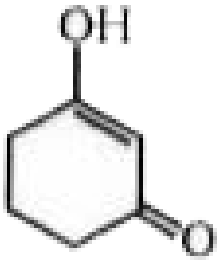


148.

Identify major product of the reaction, when the given compound is hydrolysed and heated strongly:



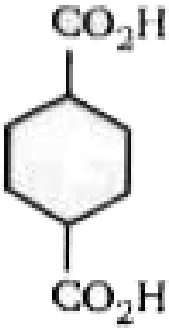
A.



B.

C.

D.



Answer:

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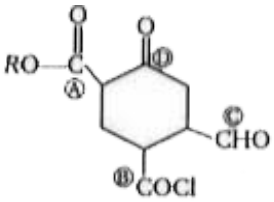
149. Complete the following reaction



find out the reactivity order with $LiAlH_4$:

A. $A > B > C > D$

B. $B > C > D > A$

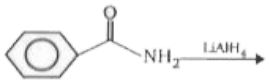
C. $D > C > B > A$

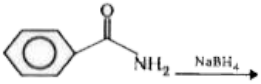
D. $B > D > C > A$

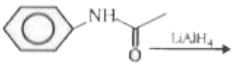
Answer:

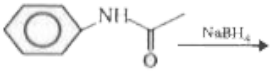
Watch Video Solution

150. Find out the reaction in which obtained product give positive isocyanide test:

A. 

B. 

C. 

D. 

Answer:

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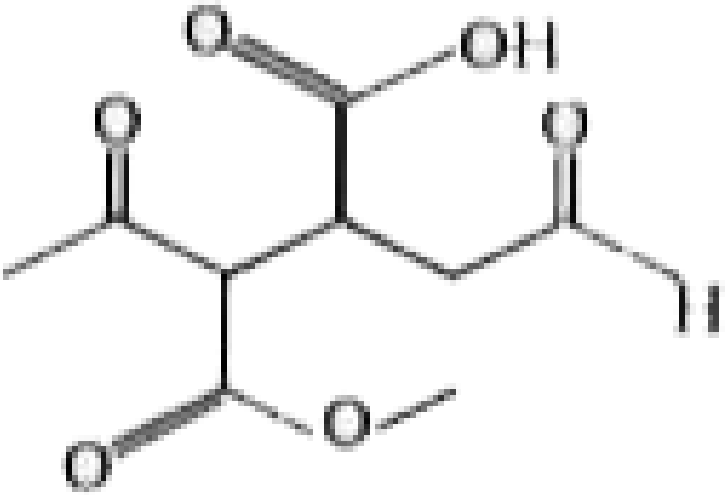

151.

In the above given compound how many functional group reduced by LAH (Lithium aluminium hydride) and SBH (sodium borohydride) respectively?

A. 4,4

B. 4,3

C. 3,4

D. 4,2

Answer:

Watch Video Solution

152. An unknown compound (A) (molarmass = 180) on acylation gives a product (molar mass = 390) than find the number ofhydroxyl group present in compound (A).

A. 5

B. 6

C. 10

D. 1

Answer:

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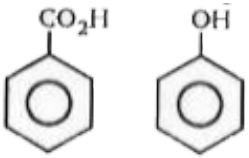
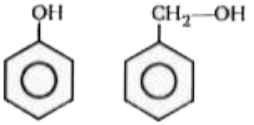
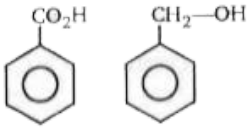
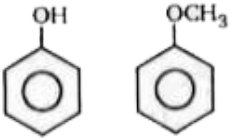
153. Which of the following compound is differentiated by $NaHCO_3$ as well as by NaOH ?

A. 

B. 

C. 

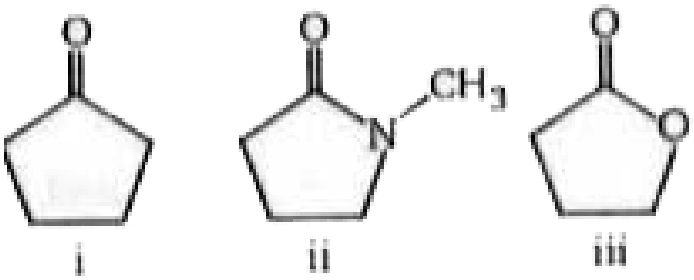
D. 

Answer:

Watch Video Solution

Watch Video Solution

154. Arrange the following compounds in order of their reactivity toward



i ii iii

A. $i < ii < iii$

B. $i < iii < ii$

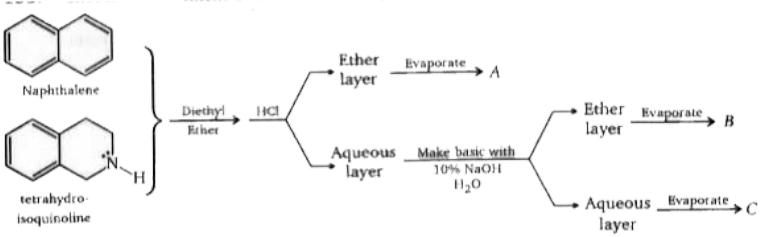
C. $ii < i < Iii$

D. $ii < iiil < i$

Answer:

Watch Video Solution

155. Choose the statement that is true about A, Band C in the following separation scheme.



A. A = tetrahydroisoquinoline, B = naphthalene and C = inorganic ions such as Na^+ and Cl^-

B. A = naphthalene, B = tetrahydroisoquinoline and C = inorganic ions such as Na^+ and Cl^-

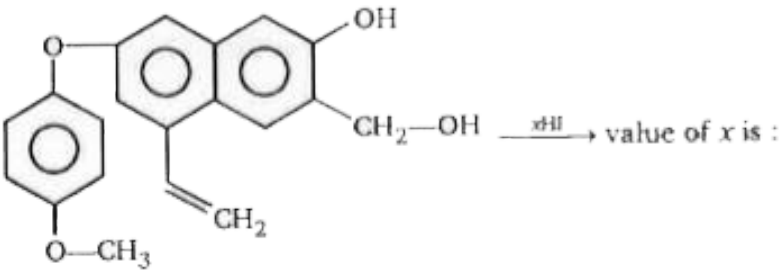
C. A = inorganicions such as Na^+ and Cl^- ,B = naphthalene and C =tetrahydroisoquinoline

D. A = inorganicions such as Na^+ and Cl^- ,B = naphthalene and C = tetrahydroisoquinoline

Answer:

Watch Video Solution

156. Complete the following reaction



A. 2

B. 3

C. 4

D. 5

Answer:

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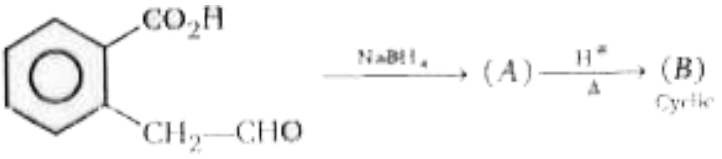
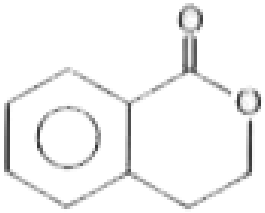
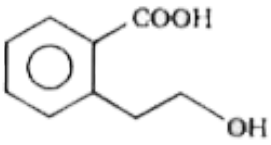
157. Complete the following reaction



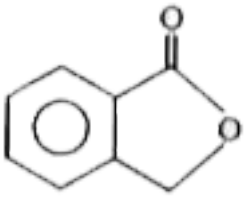
A.



B.



C.



D. (a) and (c) both

Answer:

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158. 1-Phenoxypropane is treated with excess of conc. HI at 0° C and the mixture ofproducts is treated with thionyl chloride. The products formed are

A. n-propanol + Chlorobenzene

B. Phenol + n-propyl iodide

C. n-propyl chloride + Chlorobenzene

D. n-propyl chloride +Phenol

Answer:

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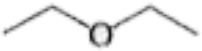
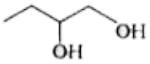
159. Amongst the following compounds, the compound having the lowest boiling point is

A. 

B. 

C. 

D. 

Answer:

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160. Which statement/s are true about products P & Q.

(A) $CH_3-CH=CH-CH_2-OH \xrightarrow[\text{ether}]{SOCl_2} (P)$
(6 member T.S.)

(B) $CH_3-\underset{\underset{OH}{|}}{CH}-CH=CH_2 \xrightarrow[\text{ether}]{SOCl_2} (Q)$
(6 member T.S.)

A. P & Q are position isomers

B. P show geometrical isomerism but Qnot

C.

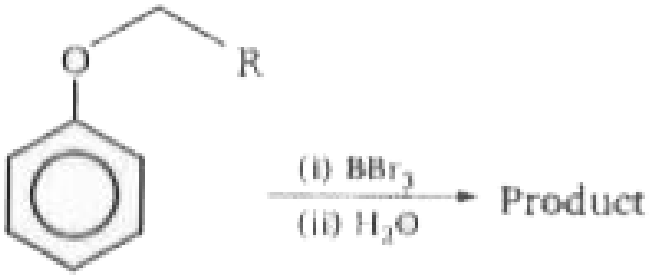
$$P = CH_3 - \underset{\underset{Cl}{|}}{CH} - CH = CH_2 \qquad Q = CH_3 - CH = CH - CH_2$$

D.

$$P \equiv CH_3 - CH = CH_2 - Cl \qquad Q = CH_3 - \underset{\underset{Cl}{|}}{CH} - CH = CH_2$$

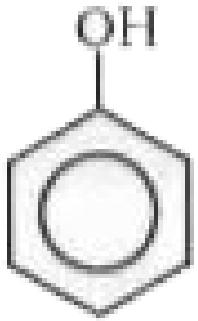
Answer:

Watch Video Solution

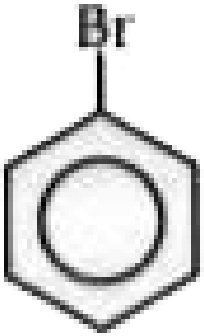


161.

Which of the following is/are possible end product of the above reaction?



A.



B.

C.

D. both (a) and (c)

Answer:

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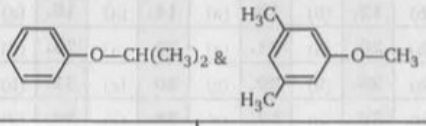
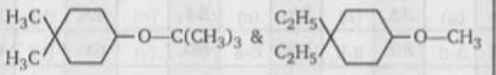
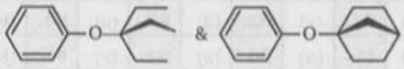
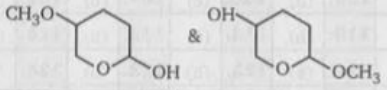
Level 2

1. Consider the pairs ofethers, numbered I throughV, shown below. To the right of each pairis a description of reaction conditions to be applied to each. One compound of the pair will react more rapidly than the other. Which ether of the two will be more rapidly cleaved?

Write your answer in box.

	(A) Ether Pairs (B)	Cleavage Conditions
I.		Treated with HBr in CH_3CN, 40°C
II.		Treated with H_2SO_4 in CH_3CN, 40°C
III.		Treated with H_2SO_4 in CH_3CN, 40°C
IV.		Treated with 5% aqueous H_2SO_4, 25°C
V.		Treated with 5% aqueous H_2SO_4, 25°C

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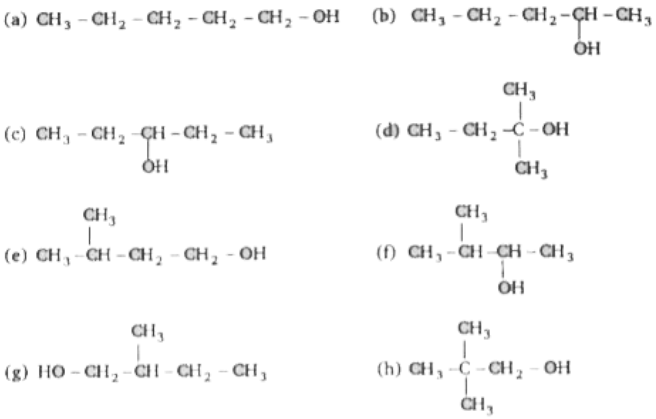

Above compounds (a) to (h) are isomers of $C_5H_{12}O$.

2.

Based on the above isomer answer the following (A to F).

Which isomer is most reactive towards dehydration by conc. H_2SO_4 ?

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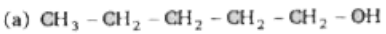
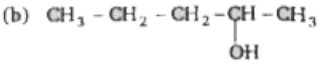
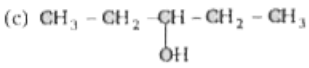
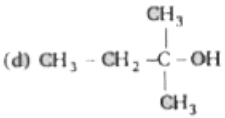
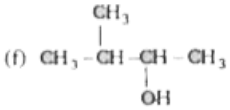
(a) 

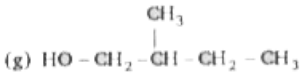
(b) 

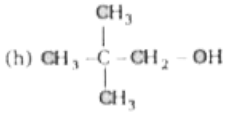
(c) 

(d) 

(e) 

(f) 

(g) 

(h) 

3. Above compounds (a) to (h) are isomers of $C_5H_{12}O$.

Based on the above isomer answer the following (A to F).

Which isomer will undergo rearrangement when treated with conc. H_2SO_4 ?

Watch Video Solution

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

(b) $CH_3-CH_2-CH_2-\underset{\displaystyle OH}{\underset{|}{CH}}-CH_3$

(c) $CH_3-CH_2-\underset{\displaystyle OH}{\underset{|}{CH}}-CH_2-CH_3$

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

(e) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_2-OH$

(f) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-\underset{\displaystyle OH}{\underset{|}{CH}}-CH_3$

(g) $HO-CH_2-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_3$

(h) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}-CH_2-OH$

4. Above compounds (a) to (h) are isomers of $C_5H_{12}O$.

Based on the above isomer answer the following (A to F).

Which isomers on dehydration with conc. H_2SO_4 give alkene which is capable to show geometrical isomerism ?

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

(b) $CH_3-CH_2-CH_2-\underset{\displaystyle OH}{\underset{|}{CH}}-CH_3$

(c) $CH_3-CH_2-\underset{\displaystyle OH}{\underset{|}{CH}}-CH_2-CH_3$

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

(e) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_2-OH$

(f) $CH_3-\underset{\displaystyle CH_3}{\underset{|}{CH}}-\underset{\displaystyle OH}{\underset{|}{CH}}-CH_3$

(g) $HO-CH_2-\underset{\displaystyle CH_3}{\underset{|}{CH}}-CH_2-CH_3$

(h) $CH_3-\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{\overset{|}{\underset{|}{C}}}}-CH_2-OH$

5. Above compounds (a) to (h) are isomers of $C_5H_{12}O$.

Based on the above isomer answer the following (A to F).

Which isomer is least acidic ?

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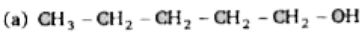
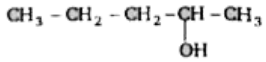
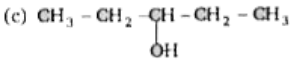
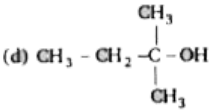
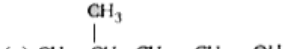
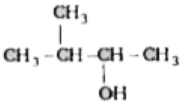
(a) 

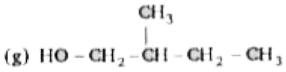
(b) 

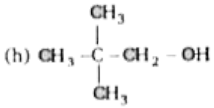
(c) 

(d) 

(e) 

(f) 

(g) 

(h) 

6. Above compounds (a) to (h) are isomers of $C_5H_{12}O$.

Based on the above isomer answer the following (A to F).

Which isomers on dehydration give most stable alkene?

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(a) $CH_3-CH_2-CH_2-CH_2-CH_2-OH$ (b) $CH_3-CH_2-CH_2-\underset{\underset{OH}{|}}{CH}-CH_3$

(c) $CH_3-CH_2-\underset{\underset{OH}{|}}{CH}-CH_2-CH_3$ (d) $CH_3-CH_2-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-OH$

(e) $CH_3-\overset{\overset{CH_3}{|}}{CH}-CH_2-CH_2-OH$ (f) $CH_3-\overset{\overset{CH_3}{|}}{CH}-\underset{\underset{OH}{|}}{CH}-CH_3$

(g) $HO-CH_2-\overset{\overset{CH_3}{|}}{CH}-CH_2-CH_3$ (h) $CH_3-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-CH_2-OH$

Above compounds (a) to (h) are isomers of $C_5H_{12}O$.

7.

Based on the above isomer answer the following (A to F).

Which isomer on dehydration with conc. H_3PO_4 undergo maximum rearrangement?

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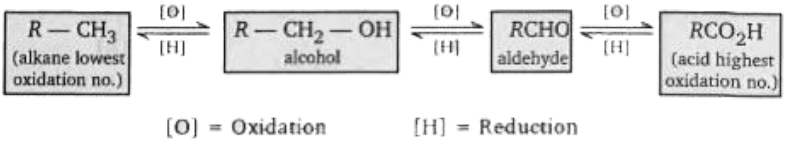

[O] = Oxidation [H] = Reduction

8. Consider the above sequence and answer *A* to *F*.

Conversion $(CH_3-CH_3 \rightarrow CH_3-CH_2-OH)$ alkane $\rightarrow$ alcohol is ahieved by :

A. $Br_2 / hv, alcKOH$

B. $Br_2 / hv, aq.\ KOH$

C. $Br_2 / CCl_4, LiAlH_4$

D. $Br_2 / CCl_4, NaBH_4$

Answer: A-b ;

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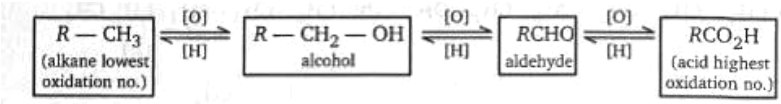

[O] = Oxidation [H] = Reduction

9. Consider the above sequence and answer *A* to *F*.

Conversion $R - CH_2 - OH \rightarrow R - CHO$ can be done by :

A. PCC / CH_2Cl_2

B. $Cu, 300^\circ C$

C. CrO_3

D. All of these

Answer: B::D

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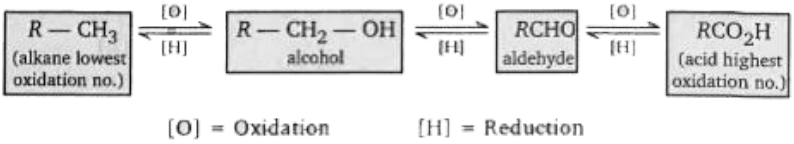

10. Consider the above sequence and answer *A* to *F*.

Conversion $R - CHO \rightarrow R - CO_2H$ can be done by

A. $KMnO_4$

B. H_2CrO_4

C. $K_2Cr_2O_7$

D. All of these

Answer: C::D

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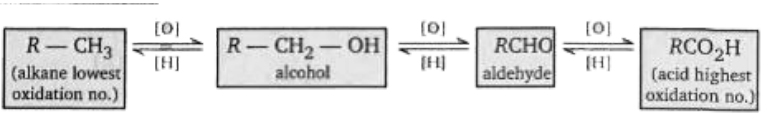

[O] = Oxidation [H] = Reduction

11. Consider the above sequence and answer *A* to *F*.

Coversion $R - CO_2H \rightarrow R - CHO$ can be done by :

A. $LiAlH_4$

B. $NaBH_4$

C. $DIBAL - H$

D. All of these

Answer: C::D

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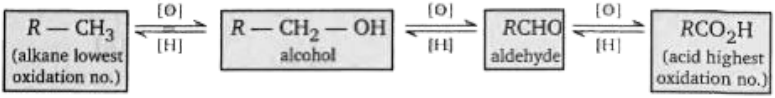

[O] = Oxidation [H] = Reduction

12. Consider the above sequence and answer *A* to *F*.

Coversion $R - CHO \rightarrow R - CH_2 - OH$ can be done by :

A. $LiAlH_4$

B. $NaBH_4$

C. H_2 / Ni

D. All of these

Answer: D

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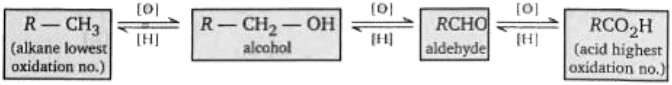

[O] = Oxidation [H] = Reduction

13. Consider the above sequence and answer A to F.

Reduction $R - CH_2 - OH \rightarrow R - CH_3$ can be done by :

A. $LiAlH_4$

B. $NaBH_4 - AlCl_3$

C. $H_2 + Ni$

D. $RedP + HI$

Answer: D

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14. Which of the following is true for 3- methylbutanal ?

a.	This compound may be classified as an aldehyde.	
b.	This compound may be classified as a ketone	
c.	An aldol reaction takes place on treatment with NaOH solution.	
d.	There is no reaction with $LiAlH_4$ in ether solution.	
e.	An excess of CH_3MgBr in ether reacts to give 4-methyl-2-pentanol.	
f.	Wolff-Kishner reduction gives butane.	
g.	This compound is an isomer of 3-pentanone.	

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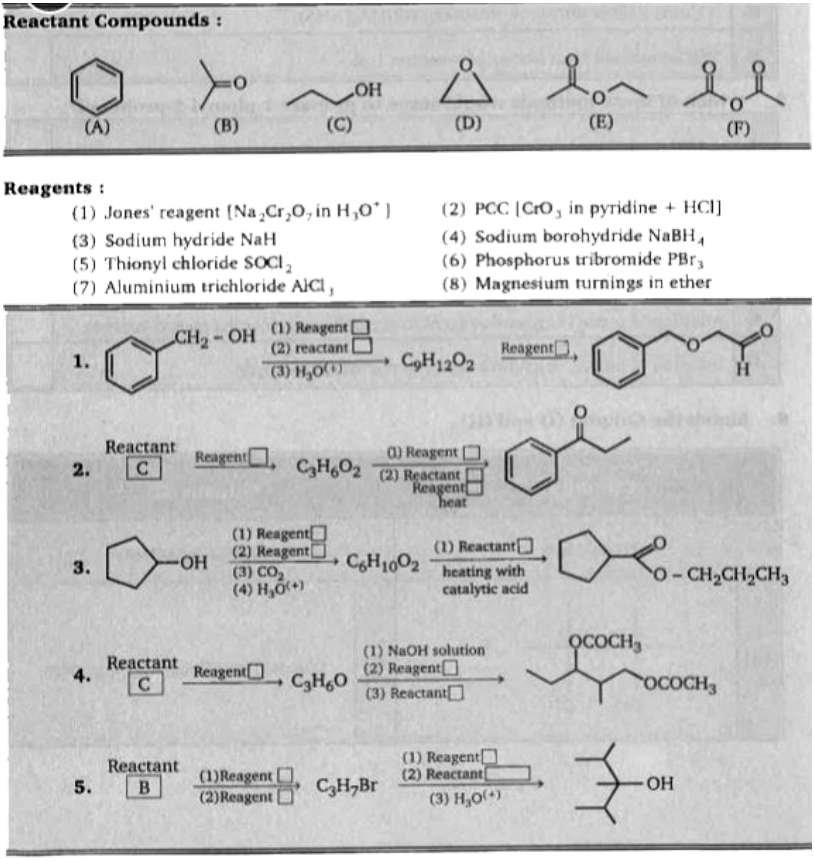
15. This problem is an introduction to the planning of multistep syntheses

For use, you have six reactant compounds (A through F) , and eight reagents (1 through 8), shown below

Following these lists, five multistep syntheses are outlined. For each of

these, certain reactants or reagents must be identified by writing an appropriate letter or number in designated answer boxes. Write a single letter or number, indicating your choice ofthe best reactant or reagent, in each answer box.



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16. Which of the following is true for 3- methyl-2-butanone?

a.	It may be prepared by CrO_3 oxidation of 2-methyl-2-butanol.	
b.	Its reaction with $NaBH_4$ gives a secondary alcohol.	
c.	It may be prepared by acidic Hg^{2+} catalyzed hydration of 3-methyl-1-butyne.	
d.	It forms a silver mirror on treatment with $[Ag(NH_3)_2]^+$.	
e.	This compound is an isomer of 4-penten-1-ol.	

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17. Which of these methods would serve to prepare 1-phenyl-2-propanol?

a.	Addition of benzyl Grignard reagent to acetaldehyde (ethanal).	
b.	Addition of phenyl lithium to propylene oxide (methyloxirane).	
c.	Addition of phenyl Grignard reagent to acetone (2-propanone).	
d.	Acid-catalyzed hydration (addition of water to) of 2-phenyl-1-propene.	
e.	Addition of methyl Grignard reagent to acetophenone (methyl phenyl ketone).	
f.	Addition of methyl Grignard reagent to phenylacetaldehyde.	

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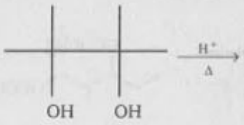
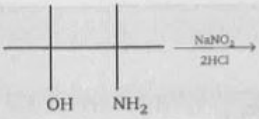
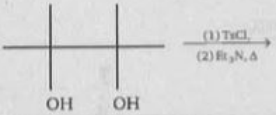
18. Match the Column (I) and (II) .

Column (I)		Column (II)	
Reaction		Name of Reaction	
(a)		(p)	Pinacol-Pinacolone rearrangement
(b)		(q)	Semi-Pinacol reaction
(c)		(r)	Pinacolic-Diazotization
(d)		(s)	Pinacol fashion reaction

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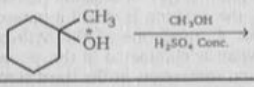
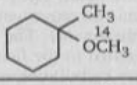
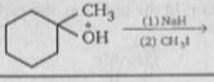
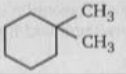
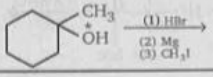
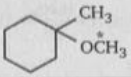
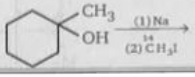
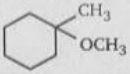
19. Match the Column (I) and (II) .

Column (I)		Column (II)	
Reactant		Products	
(a)		(p)	
(b)		(q)	
(c)		(r)	
(d)		(s)	

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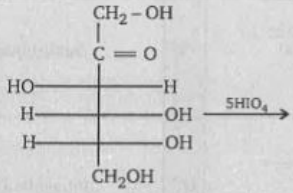
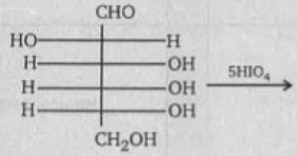
20.

Reaction 1.	
Reaction 2.	

Ratio of moles of formaldehyde obtained in the reaction (1) and reaction (2) ?

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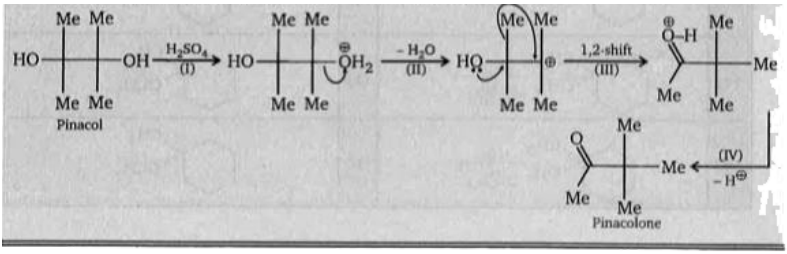
21. Di-tert-glycols rearrange in the presence of acid to give $alpa$-tertiary ketones. The trivial name of the simplest glycol of this type is pinacol, and this type of reaction therefore is named pinacol rearrangement (in this specific case, the reaction is called a pinacol-pinacolone rearrangement). The rearrangement involves 4 steps. one of the hydroxyl groups is protonated in the first step. A molecule of water is eliminated in the second step and a tertiary carbocation is formed. The carbocation rearranges in the third step into a more stable carboxonium ion via a [1,2] rearrangement. In the last step, the carboxonium ion is deprotonated and the product ketone is obtained.



What is R.D.S. of pinacol-pinacolone rearrangement?

A. I step

B. II step

C. III step

D. IV step

Answer: A::B

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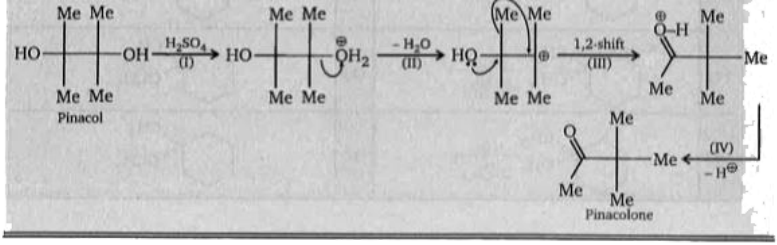

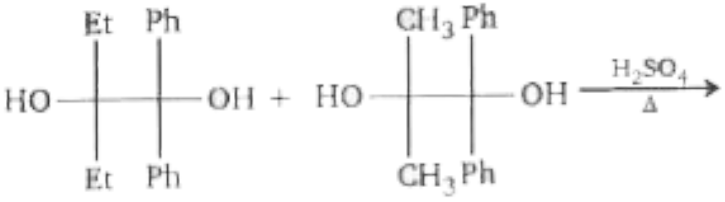

How many products obtained in above reaction?

A. 1

B. 2

C. 3

D. 4

Answer: B

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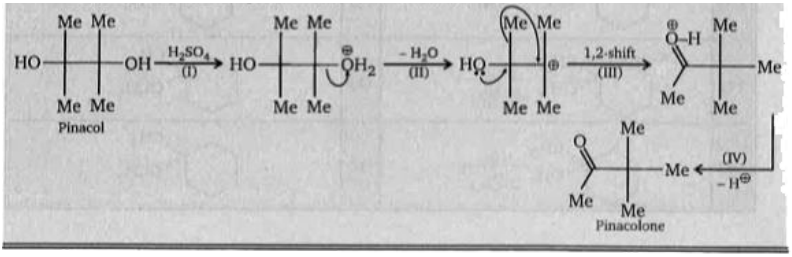
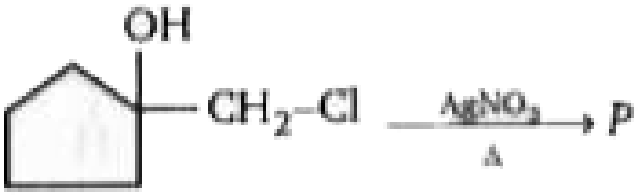
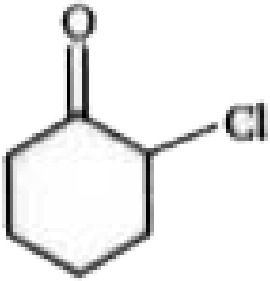




A.



B.

C.

D.

Answer: C

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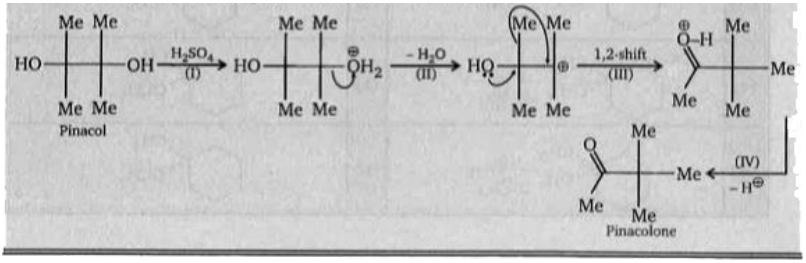
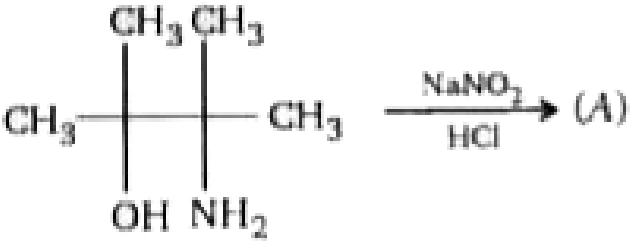
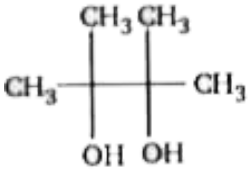
24. Di-tert-glycols rearrange in the presence of acid to give $alpa$-tertiary ketones. The trivial name of the simplest glycol of this type is pinacol, and this type of reaction therefore is named pinacol rearrangement (in this specific case, the reaction is called a pinacol-pinacolone rearrangement). The rearrangement involves 4 steps. one of the hydroxyl groups is protonated in the first step. A molecule of water is eliminated in the second step and a tertiary carbocation is formed. The carbocation rearranges in the third step into a more stable carboxonium ion via a [1,2] rearrangement. In the last step, the carboxonium ion is deprotonated

and the product ketone is obtained.





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



B.

C.

D. None of these

Answer: A::D

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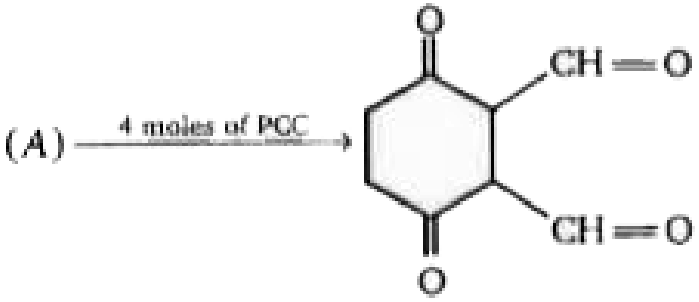
Subjective Problems

1.



Maximum number of moles of Ac_2O consumed by reactant (A) is :

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