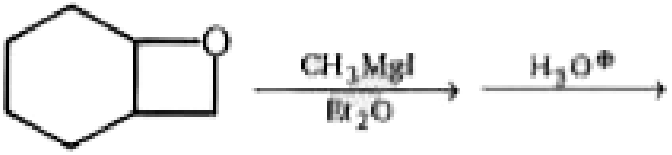
CHEMISTRY

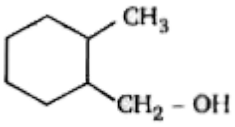
BOOKS - MS CHOUHAN

GRIGNARD REAGENT

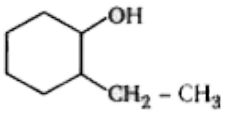
Level 1

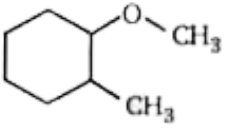
1. What is the major product of the following reaction ?

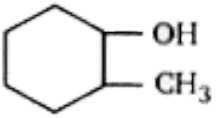




A.

B. 

C. 

D. 

Answer: B

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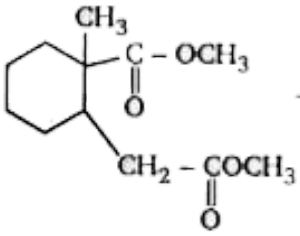
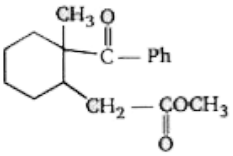
2. Complete the following reaction



$\xrightarrow[\text{(1 equivalent)}]{\text{PhMgBr}}$ (P). Product (P) is :

A.



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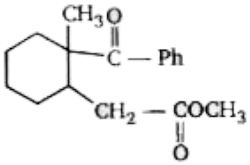
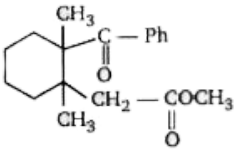
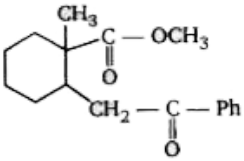


C.



D.



Answer: D

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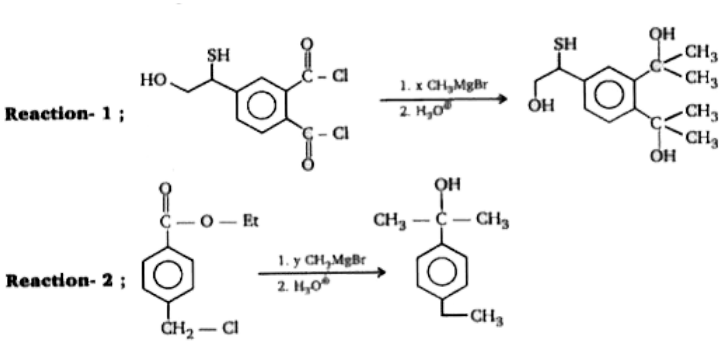
3.



What is the ratio of (x/y) in above problem ?

A. 1.5

B. 2

C. 2.5

D. 3

Answer: B

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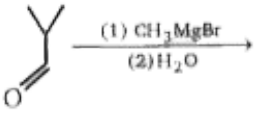
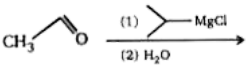
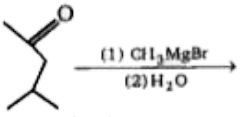
4. In which of the following reaction 2° alcohol is obtained as a product ?

A. A) 

B. B) 

C. C) 

D. D) Both (a) and (b)

Answer: D

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5. What product would you expect to obtain from Grignard reaction when an excess of phenylmagnesium bromide reacts with dimethyl carbonate $CH_3OCOOCH_3$?

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

B. $CH_3 - \overset{\overset{OH}{|}}{CH} - Ph$

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

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

Answer: C

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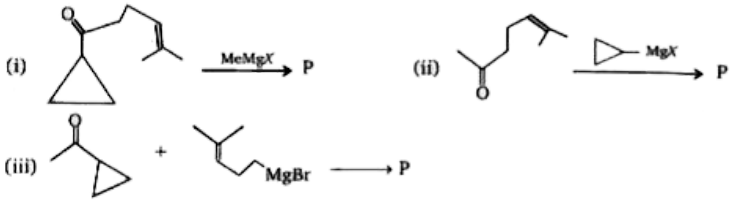
6. In which of the following reactions product formed is same ?



A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iii)

D. (i), (ii) and (iii)

Answer: D

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7. Which of the following reaction sequences would be the best for synthesis of 2-pentanone ?

A. A) $CH_3 - CH_2 - CH_2 - \overset{\overset{O}{||}}{C} - H \xrightarrow[Et_2O]{CH_3MgI} \xrightarrow{H_3O^{\oplus}}$

B. B) $\begin{matrix} & CH_2 - CH_2 & \\ & | \quad\quad | & \\ CH_3 - CH & & - O \end{matrix} \xrightarrow[Et_2O]{CH_3MgI} \xrightarrow{H_3O^{\oplus}}$

C. C) $CH_3 - CH_2 - CH_2 - C \equiv N \xrightarrow[Et_2O]{CH_3MgI} \xrightarrow{H_3O^{\oplus}}$

D. D) $\underset{\text{(Propanal)}}{CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - H} \xrightarrow[Et_2O]{CH_3MgI} \xrightarrow{H_3O^{\oplus}}$

Answer: C

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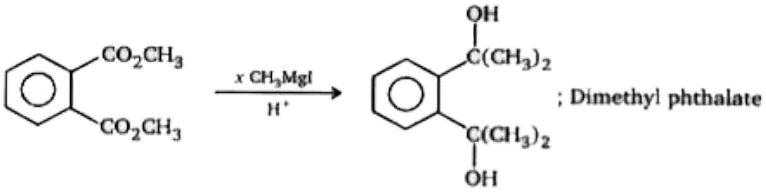
8.



Number of moles (x) of Grignard reagent consumed in the above reaction is :

A. A) 2

B. B) 3

C. C) 4

D. D) 5

Answer: C

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

Which of the following combinations can not be used to prepare alcohol given above ?

A. A) $PhMgBr + 2\text{-butanone} \xrightarrow[NH_4Cl]{}$

B. B) $EtMgBr + Ph - \overset{\overset{O}{||}}{C} - CH_3 \xrightarrow[NH_4Cl]{}$

C. C) $CH_3MgBr + Ph - \overset{\overset{O}{||}}{C} - Et \xrightarrow[NH_4Cl]{}$

D. D) $EtMgBr + Ph - \overset{\overset{O}{||}}{C} - CH_2 - CH_3 \xrightarrow[NH_4Cl]{}$

Answer: D

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10. $Et - O - \overset{\overset{O}{||}}{C} - O - Et \xrightarrow[(2)\, H_3O^{\oplus}]{(1)\, HC_3MgBr\,(\text{excess})} (A)$, Product (A) is :

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

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

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

D. $CH_3 - CH_2 - CH_3$

Answer: C

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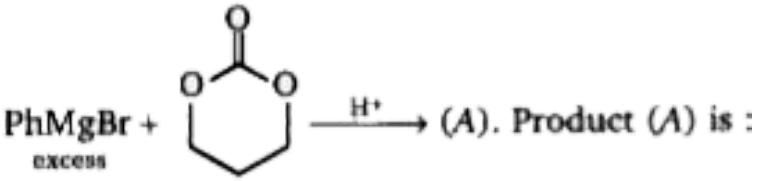
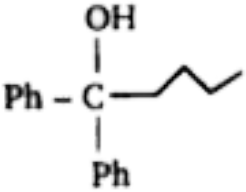
11. Complete the following reaction



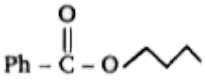
A. $Ph - \overset{\overset{O}{||}}{C} - Ph$

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

C.



D.



Answer: B

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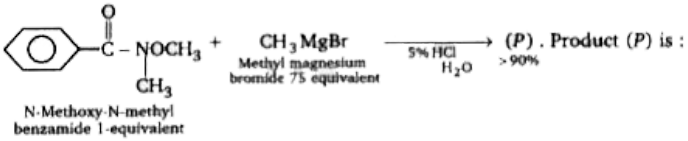
12. Complete the following reaction



A. $Ph - \underset{\underset{Ph}{|}}{\overset{\overset{OH}{|}}{C}} - Ph$

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

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

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

Answer: B

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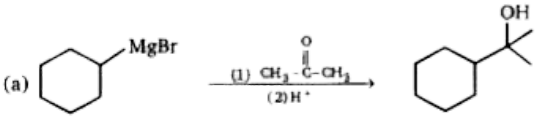
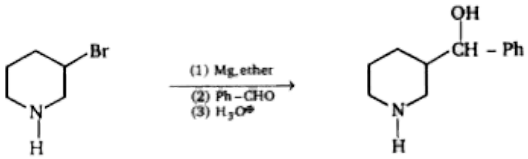
13. Point out the incorrect synthesis :

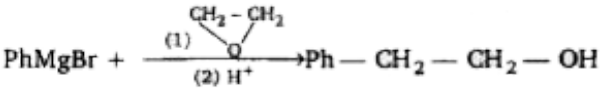
A.



B.



C.



D. $PhMgBr + \xrightarrow[(2)\,H^+]{(1)\,HCHO} Ph - CH_2 - OH$

Answer: B

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14. $CH_3-\overset{\overset{O}{||}}{C}-O-H \xrightarrow{NaHCO_3^{14}} \underset{(\text{gas})}{(A)} \xrightarrow[(ii)\,H_3O^{\oplus}]{(i)\,PhMgBr} (B)$

$CH_3-\overset{\overset{O}{||}}{\underset{\underset{O}{||}}{S}}-O-H \xrightarrow{NaHCO_3^{14}} \underset{\text{gas}}{(C)} \xrightarrow[(ii)\,H_3O^{\oplus}]{(i)\,PhMgBr} (D)$

Product (B) and (D) in the above reaction are :

A. $Ph-\overset{\overset{O}{||}}{C}-O-H, Ph-\overset{\overset{O}{||}}{\underset{\underset{O}{||}}{S}}-O-H$

B. $Ph-\overset{\overset{O}{||}}{\underset{14}{C}}-O-H, Ph-\overset{\overset{O}{||}}{S}-O-H$

C. $Ph-\overset{\overset{O}{||}}{\underset{14}{C}}-O-H, Ph-\overset{\overset{O}{||}}{\underset{14}{C}}-O-H$

D. $Ph-\overset{\overset{O}{||}}{C}-OH, Ph-\overset{\overset{O}{||}}{S}-O-H$

Answer: C

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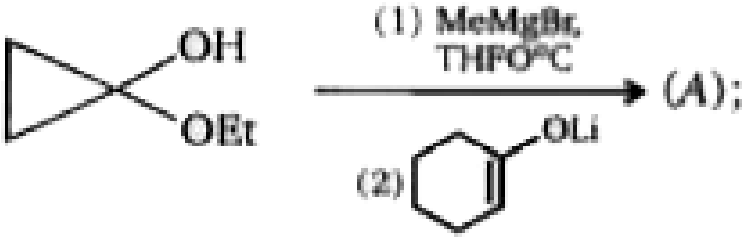
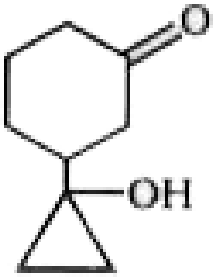
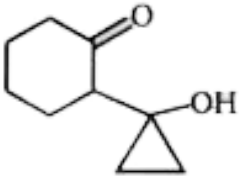


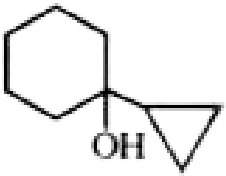
15. , Product (A) in this sequence is :



A.



B.



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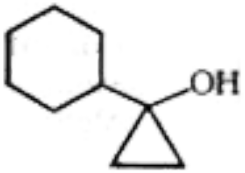

D.

Answer: B

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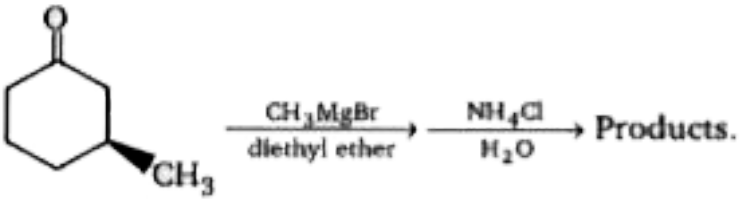

16.

Comment on optical activity of the products. They are :

A. racemic mixture

B. diastereomers

C. meso forms

D. optically inactive due to absence of chiral centre

Answer: B

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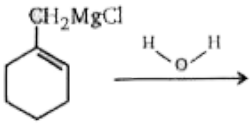
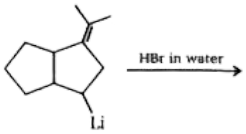
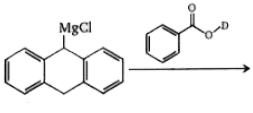
17. In Which of the following reaction an acid-base reaction takes place ?

A. 

B. 

C. 

D. All of these

Answer: D

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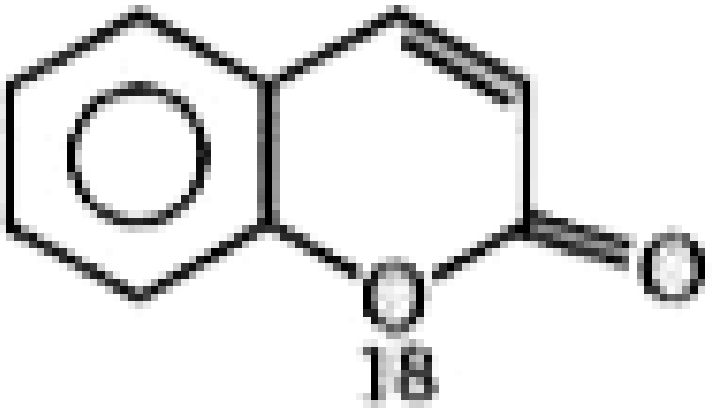
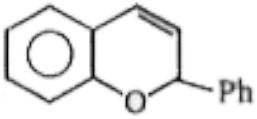
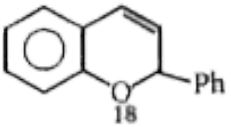
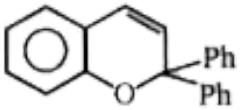


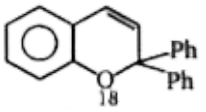
18.

$\xrightarrow[(2)\,H_2O]{(1)\,2PhMgBr} A \xrightarrow[\Delta]{H_2SO_4} (B)$, Product (B) in this reaction is :

A.


B.


C.


D.


Answer: D

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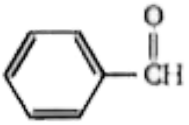
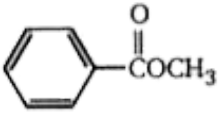
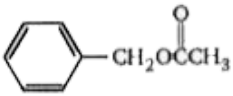
19. All of the following compounds reacts with ethylmagnesium bromide. Alcohols are formed from three of the compounds. Which one does not give an alcohol ?

A. 

B. 

C. 

D. $PH - O - \overset{O}{\overset{||}{C}} - O - H$

Answer: D

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20. A student was carrying out a Grignard reacton between PhMgBr and ethyl benzoate. She ran out of anhydrous ether just after the Grignard reagent was made. Which of the following solvents can still be used to dissolve the ethyl benzoate for its reaction with already formed PhMgBr ?

A. acetone

B. ethyl acetate

C. absolute alcohol

D. benzene

Answer: D

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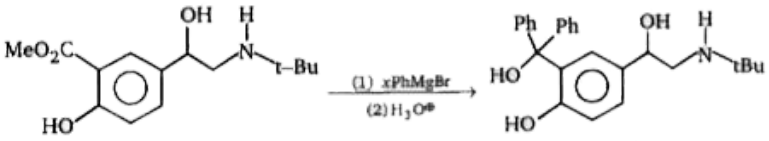
21. 

Number of equivalent of Grignard reagent (x) used in reaction (1) is :

A. 3 equivalent

B. 4 equivalent

C. 5 equivalent

D. 6 equivalent

Answer: C

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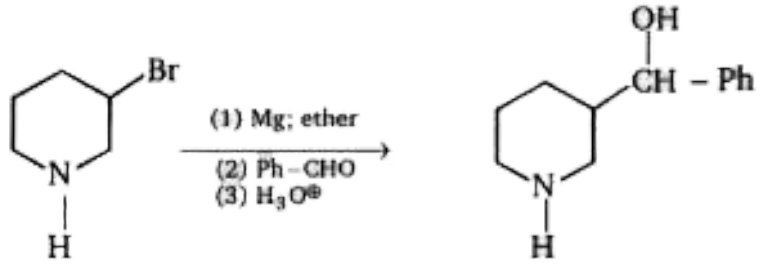
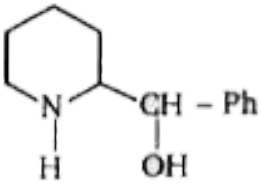
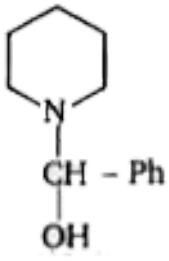
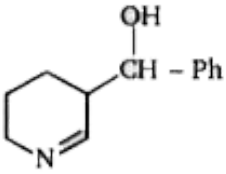
22. 

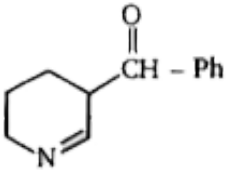
The given product can not be obtained in the above reaction. Identify the

correct product obtained.

A. 

B. 

C. 

D. 

Answer: B

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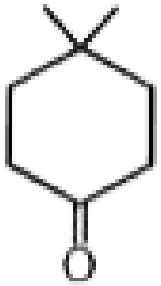
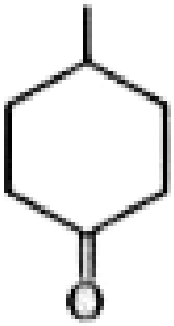
23. Which of the following gives two isomers of 3° alcohol, when treated with phenyl magnesium bromide ?

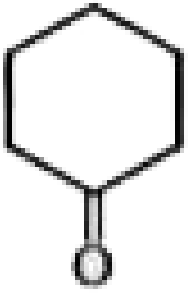
A.

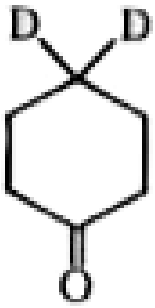


B.



C.





D.

Answer: B

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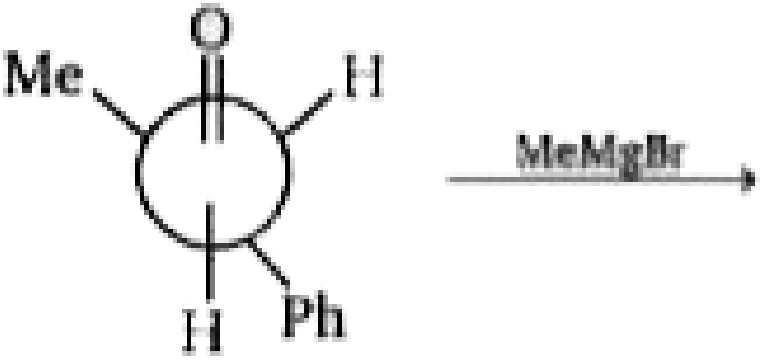
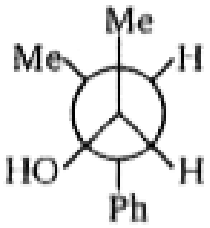


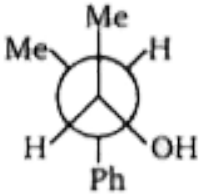
24. Product of

the reation is :

A.



B.



C. Both (a) and (b)

D. None of these

Answer: C

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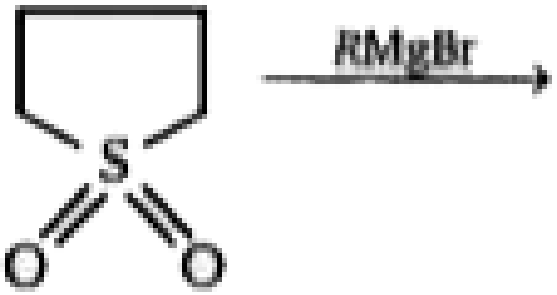
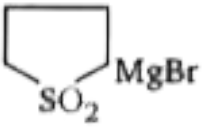
25. 

Product,

The product of the reaction is :

A. $HSO_2 - CH_2 - CH_2 - CH_2 - R$

B. $H - SO_2(CH_2)_3 - R$

C. 

D. $H - SO_2(CH)_3 - R$

Answer: C

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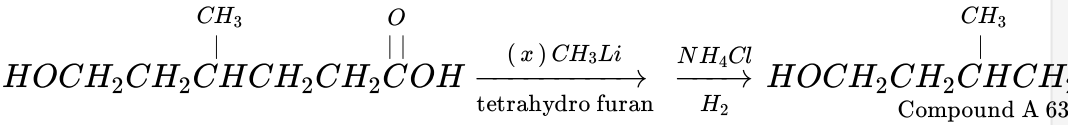
26. When carboxylic acid reacts with organolithium reagents to give ketones, side reaction sometines occur. For example,



Value of (x) in above reaction is :

A. 2

B. 3

C. 4

D. 5

Answer: B

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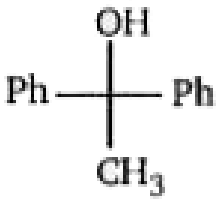
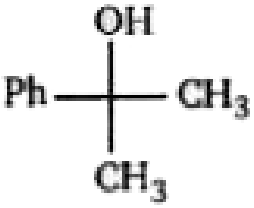
27. Which of the following alcohol can not be prepared by the reaction of acid chloride with excess of Grignard reagent by acidification ?

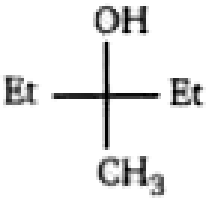
A.



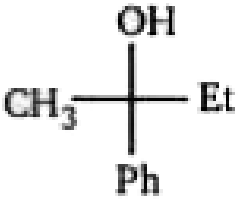
B.



C.



D.



Answer: D

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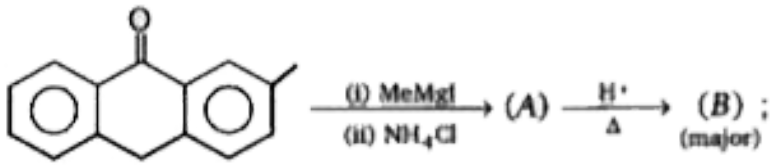
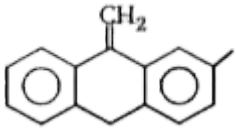
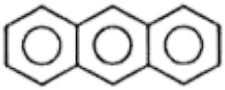
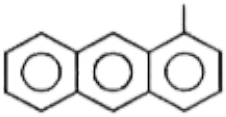
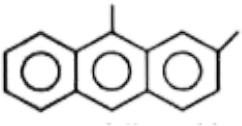
28. 

Product (B) of the above reaction is :

A. 

B. 

C. 

D. 

Answer: D

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29. The reaction of elemental sulphur with Grignard reagent followed by acidification leads to the formation of

A. mercaptan

B. sulphoxide

C. thioether

D. sulphonic acid

Answer: A

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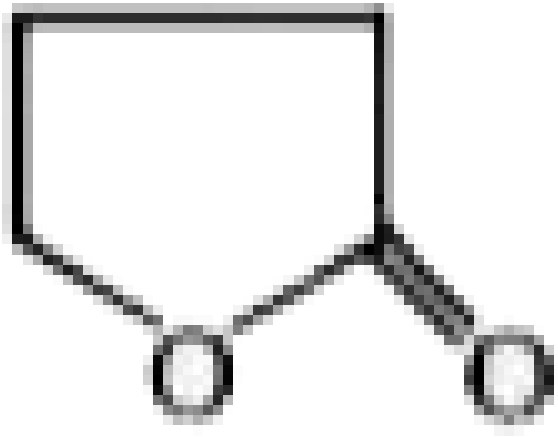
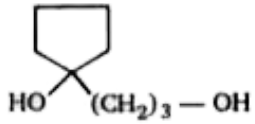
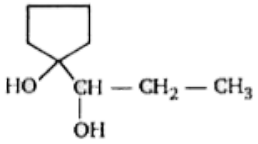


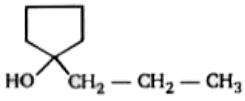
30.

$MgBrCH_2CH_2CH_2CH_2MgBr \xrightarrow[(ii)\,H_3O^+]{(i)\,THF}$ product, Product of the reaction is :

A. $HO-(CH_2)_3-\overset{\overset{O}{\|}}{C}-CH_2-CH_2-CH_3$

B. 

C. 

D. 

Answer: B

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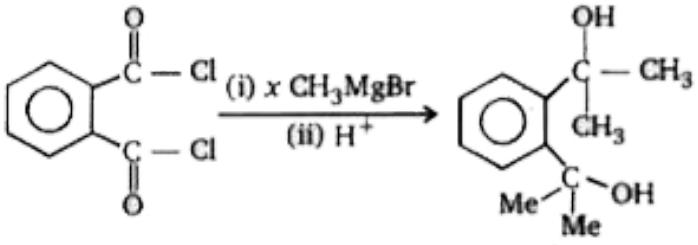
31.



Number of moles of CH_3MgBr consumed in above reaction is :

A. 2

B. 4

C. 6

D. 8

Answer: B

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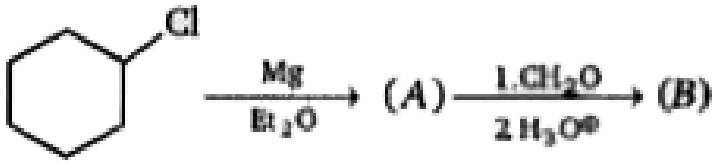
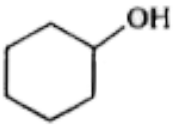
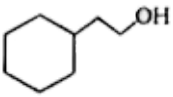
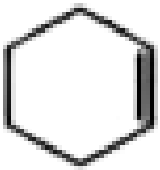
32. End product of the given reaction is :



A. 

B. 

C. 

D. 

Answer: B

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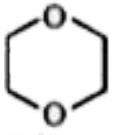
33. Which of the following compound is not a suitable solvent for Grignard reaction ?

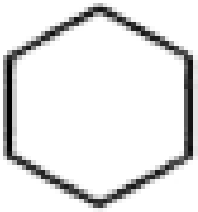
A. 

(THF)

B. 

(1, 4-dioxane)

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

D. 

Answer: D

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34. Predict major product of the reaction :

A. 

B. 

C. 

D. 

Answer: B

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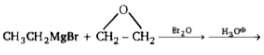
35. Which of the following reaction sequences would be the best for synthesis of t-butyl alcohol ?

A. 

B. $CH_3CH_2CH_2MgBr \xrightarrow[Et_2O]{CO_2} \xrightarrow{H_3O^{\oplus}}$

C. $CH_3MgBr + CH_3 - \overset{\overset{O}{||}}{C} - CH_3 \xrightarrow{Et_2O} \xrightarrow{H_3O^{\oplus}}$

D. $CH_3CH_2MgBr + CH_3 - \overset{\overset{O}{||}}{C} - H \xrightarrow{Et_2O} \xrightarrow{H_3O^{\oplus}}$

Answer: C

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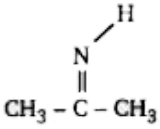
36. What is the major product of the following reaction ?

$$CH_3 - C \equiv N \xrightarrow[Et_2O]{CH_3MgI} \xrightarrow{H_3O^{\oplus}}$$

A. $CH_3 - CH_2 - NH - CH_3$

B. 

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

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

Answer: C

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37. 

Products,

Products obtained in this reaction are :

A. diastereomers

B. racemic

C. pure enantiomer

D. meso

Answer: B

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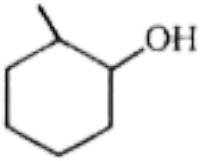
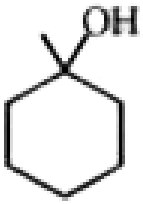
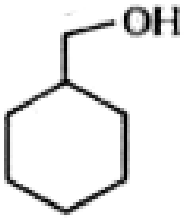
38. $CH_3CO_2Et + (CH_2)_5(MgBr)_2 \xrightarrow[(2)\,H^+]{} \underset{(A)}{C_7H_{14}O}$, compound (A) will be

A. 

B. 

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

D. 

Answer: B

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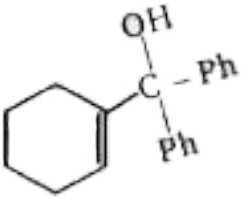
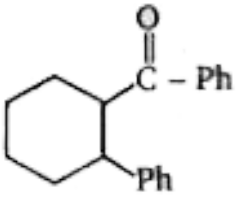
39. 

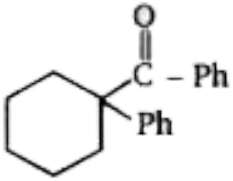
, A will be :

A. 

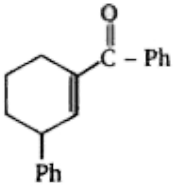
B.



C.



D.



Answer: B

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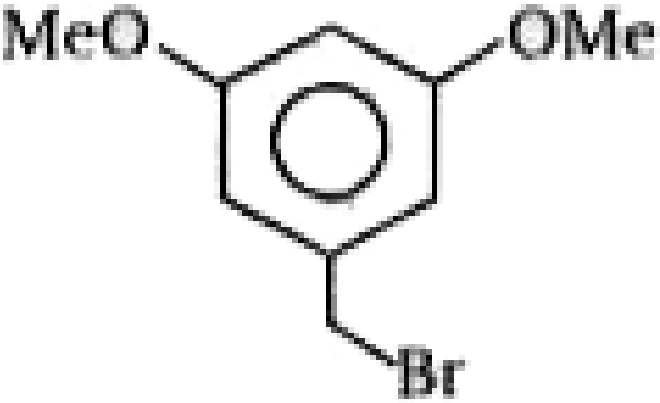
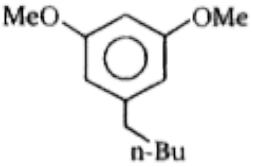
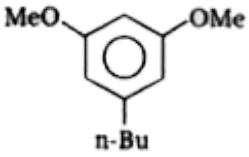


40.

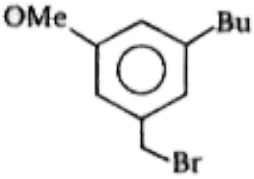
$\xrightarrow[(\text{n-Bu=n-butyl group})]{n-Bu_2CuLi}$ Product of the reaction will be :



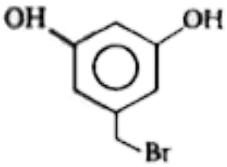
A.



B.



C.



D.

Answer: A

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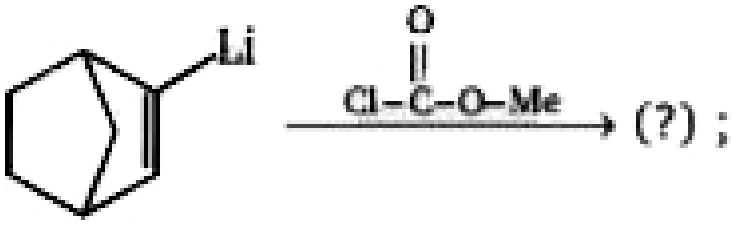
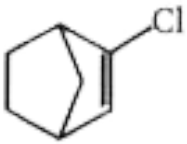
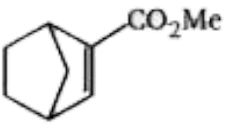
41. 

, Product of this reaction is :

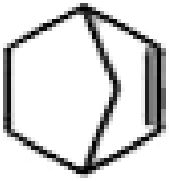


A.

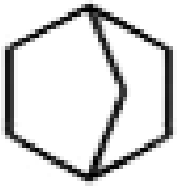


B.

C.



D.



Answer: B

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42. Ethyl acetoacetate when reacts with one mole methyl magnesium iodide then product of reaction will be :

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

B. $CH_3 - \underset{\underset{CH_3}{|}}{\overset{\overset{O^{\ominus}M\overset{\oplus}{g}Br}{|}}{C}} - CH_2 - \overset{\overset{O}{||}}{C} - CH_3$

C. $CH_3 - \overset{O}{\overset{||}{C}} - \overset{\ominus}{CH_2} - CO_2Et$ with $\overset{\oplus}{M}gBr$

D. $\overset{-}{CH_2} - \overset{O}{\overset{||}{C}} - CH_2 - CO_2Et$

Answer: C

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43. $\underset{(\text{excess})}{CH_3MgBr} + Et - O - \overset{O}{\overset{||}{C}} - O - Et \xrightarrow[(2)\,H^{\oplus}]{} (A)$, Product A is :

A.

B.

C.

D. 

Answer: B

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44. For the sequence of reactions, $A \xrightarrow[\text{ether}]{C_2H_5MgI} B \xrightarrow{H_2O/H^+}$ tert-Pentyl alcohol. The compound A in the sequence is :

A. 2-Butanone

B. Acetaldehyde

C. Acetone

D. Propanal

Answer: C

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45.

$$PhMgBr + CH_3 - CN \xrightarrow[H_3O^{\oplus}]{} (A) Ph - \overset{\overset{O}{||}}{C} - O - H \xrightarrow[(2)\ H_3O]{(1)\ \text{excess}\ \ CH_3 - Li} (A)$$

Same product (A) will form in both reactions A is :

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

B. $Ph - CHO$

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

D. $Ph - CH_2 - CO_2H$

Answer: C

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46. Which of the following Grignard reagent can be prepared ?

A. $Br - Mg - CH_2 - CH_2 - CH_2 - O - H$

B. $Br - Mg - CH_2 - CH_2 - SH$

C. $BrMg - CH_2 - CH_2 - NH_2$

D. $BrMg - CH_2 - CH_2 - \underset{\underset{CH_3}{|}}{N} - CH_3$

Answer: D

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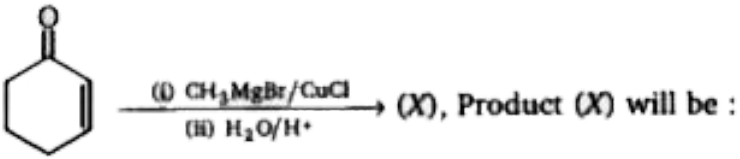
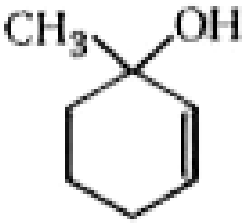
47. In the reaction sequence :

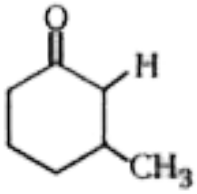


(X), Product (X) will be :

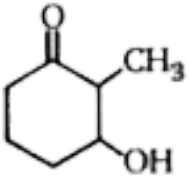


A.

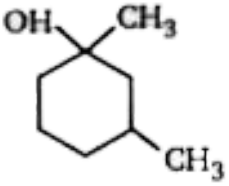
B.



C.



D.



Answer: B

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48. $(C_2H_5O)_2CO \xrightarrow[H_3O^+]{CH_3MgBr\,(\text{excess})} A$. A (alcohol) can also be obtained by :

A. $CH_3CH_2CHO \xrightarrow[H_3O^+]{CH_3MgBr\,(2mol)}$

B. $CH_3\overset{\overset{O}{||}}{C}OC_2H_5 \xrightarrow[H_3O^+]{CH_3MgBr\,(2mol)}$

C. $CH_3\overset{\overset{O}{||}}{C}CH_3 \xrightarrow[H_3O^+]{CH_3MgBr\,(1mol)}$

D. as in (b) and (c)

Answer: D

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49. The principal product of the reaction between methyl butanoate and 2 moles of CH_3MgBr after hydrolysis is :

A. $C_3H_7COCH_3$

B. $C_3H_7C(OH)(CH_3)_2$

C. $C_3H_7CHOHCH_3$

D. $C_3H_7COCH(CH_3)_2$

Answer: B

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50. Which of the following compounds will form hydrocarbon on reaction with Gridnard reagent ?

A. CH_3CH_2OH

B. CH_3CHO

C. CH_3COCH_3

D. $CH_3CO_2CH_3$

Answer: A

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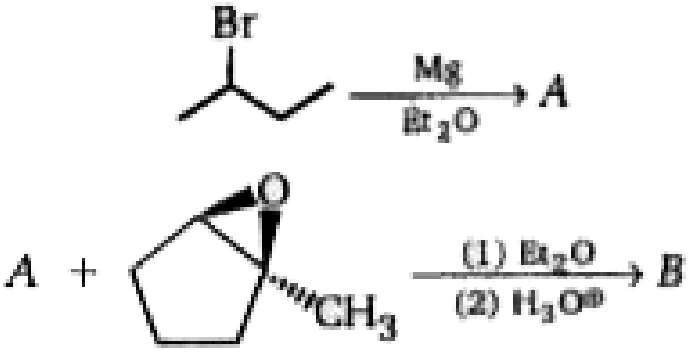
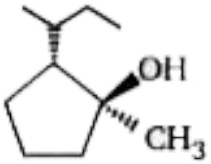
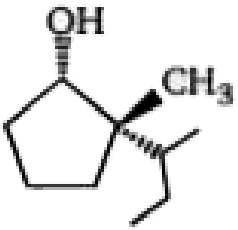
51. What is the product (B) of the following reaction sequence ?



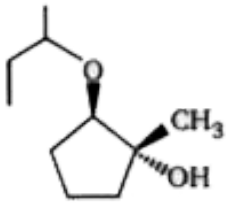
A.

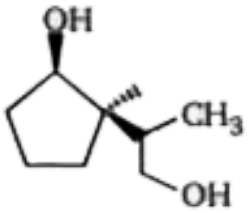


B.



C.





D.

Answer: A

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52. Which , if any, of the following pairs of reagents could be used to prepare 2-phenyl-2-butanol ?

A. $CH_3CH_2MgBr + Ph - \overset{O}{\overset{||}{C}} - CH_3$

B. $CH_3CH_2MgBr + C_6H_5CH_2\overset{O}{\overset{||}{C}}H$

C. $CH_3MgI + C_6H_5CH_2\overset{O}{\overset{||}{C}}CH_3$

D. $C_6H_5MgCl + CH_3\overset{O}{\overset{||}{C}}CH_2CH_2CH_3$

Answer: A

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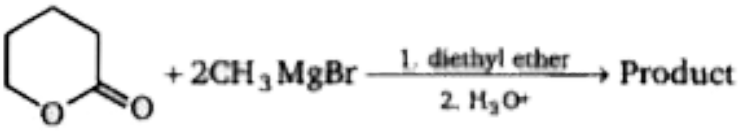
53. What is the product of the following reaction ?



A. $HO-\underset{CH_3}{CH}CH_2CH_2CH_2\underset{CH_3}{CH}-OH$

B. $CH_3OCH_2CH_2CH_2CH_2\underset{OH}{CH}CH_3$

C. $HOCH_2CH_2CH_2CH_2\overset{CH_3}{\underset{CH_3}{C}}-OH$

D. $HOCH_2CH_2CH_2CH_2\underset{CH_3}{CH}OCH_3$

Answer: C

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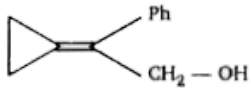
54. Complete the following reaction

A. 

B. $Ph - C \equiv C - CH_2 - CH_2 - CH_2 - OH$

C. $Ph - C \equiv C - CH_2 - CH_2 - OH$

D. $Ph - CH_2 - C \equiv C - CH_2 - CH_2 - OH$

Answer: B

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55. What sequence of steps represents the best synthesis of 4-heptanol $(CH_3CH_2CH_2)_2CHOH$?

A. $CH_3CH_2CH_2MgBr$ (2 moles) + formaldehyde $(H_2C=O)$ in diethyl ether followed by H_3O^+.

B. $CH_3CH_2CH_2MgBr$ + butanol $(CH_3CH_2CH_2CH=O)$ in diethyl ether followed by H_3O^+

C. $CH_3CH_2CH_2CH_2MgBr$ + acetone $\left[(CH_3)_2C=O\right]$ in diethyl ether followed by H_3O^+

D. $(CH_3CH_2CH_2)_2CHMgBr$ + formaldehyde $(H_2C=O)$ in diethyl ether followed by H_3O^+

Answer: B

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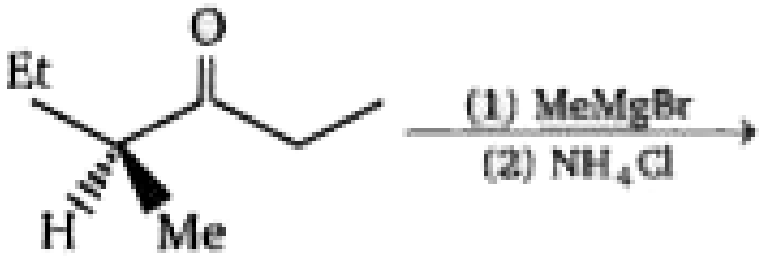
56. 

Comment on stereochemistry of products :

A. diastereomers

B. racemic

C. single stereoisomer

D. meso

Answer: A

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57.

$$\begin{array}{l} CH_2-OH \\ | \\ CH-OH+\underset{(\text{Excess})}{CH_3MgBr} \rightarrow xCH_4 \\ | \\ CH_2-SH \end{array}$$

What is the value of x in the above reaction ?

A. 1

B. 2

C. 3

D. 4

Answer: C

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58. 0.40 g of an organic compound (A), (M.F. C_5H_8O) reacts with x mole of CH_3MgBr to liberate 224 mL of a gas at STP. With excess of H_2, (A) given pentan-1-ol. The correct structure of (A) is :

A. $CH_3 - C \equiv C - CH_2 - CH_2 - OH$

B. $CH_3 - CH_2 - C \equiv C - CH_2 - OH$

C. $H - C \equiv C - CH_2 - CH_2 - CH_2 - OH$

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

Answer: C

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59. $CH_3 - CH = CH_2 \xrightarrow[\text{h v (low conc.)}]{Br_2} \xrightarrow[\text{Dry ether}]{Mg} \xrightarrow[NH_4Cl]{CH_3 - \overset{\overset{O}{||}}{C} - CH_3} \xrightarrow[\Delta]{H^+} \underset{\text{(major)}}{(X)}$

End product (X) of the above reaction is :

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

B. $H_2C = CH - CH = \underset{\underset{CH_3}{|}}{C} - CH_3$

C. $H_2C = CH - CH_2 - \overset{\overset{OH}{|}}{\underset{\underset{CH_3}{|}}{C}} - CH_3$

D. $H_2C = CH - CH_2 - CH(CH_3) - CH_2 - OH$

Answer: B

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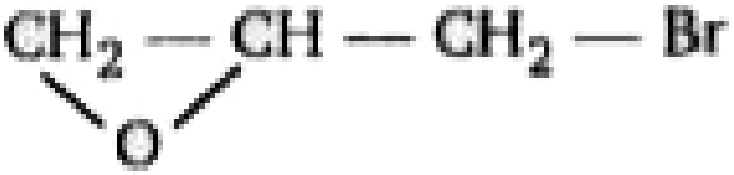
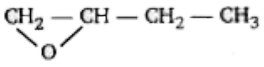


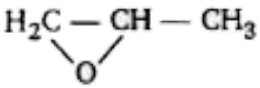
60.

$\xrightarrow[\text{dry ether}]{Mg} (A) \xrightarrow{CH_3I} (B)$, Product (B) is :

A. 

B. $CH_3 - O - CH_2 - CH_2 - CH_3$

C. $H_2C = CH - CH_2 - O - CH_3$

D. 

Answer: C

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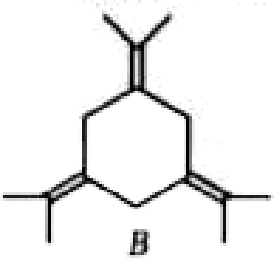
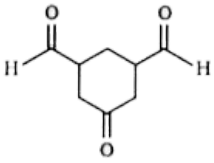
61. Compound A was treated with a large excess of CH_3MgBr. The resulting product was exposed to $POCl_3$/pyridine to give compound B, as one of many products :



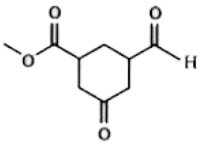
B

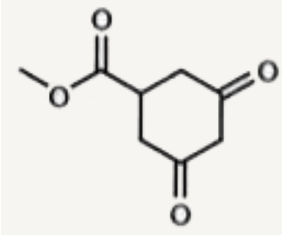
Which of the following compounds can be A ?

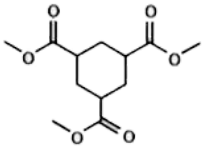
A.



B.



C. 

D. 

Answer: D

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62. Identify product Z in the following reaction sequence :

$$H_2C = CHCH_2Br \xrightarrow{NaCN} Y \xrightarrow[2.\,H_3O^+]{1.\,C_6H_5MgBr,\ \text{diethylether}} Z$$

A. $H_2C = CHCH_2\overset{\overset{O}{||}}{C}C_6H_5$

B. $H_2C = CHCH_2NH\overset{\overset{O}{||}}{C}C_6H_5$

C. $H_2C = CHCH_2\overset{\overset{OH}{|}}{C}HC_6H_5$

D. $H_2C = CHCH_2\overset{NH_2}{\overset{|}{C}}HC_6H_5$

Answer: A

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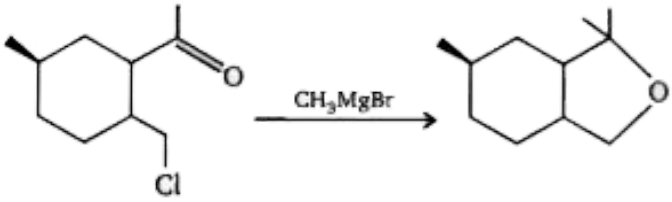
63.



(Consider all steps and intermediate) correct statement is :

A. Nucleophilic addition

B. Nucleophilic substitution reaction

C. Product obtained is chiral

D. All

Answer: D

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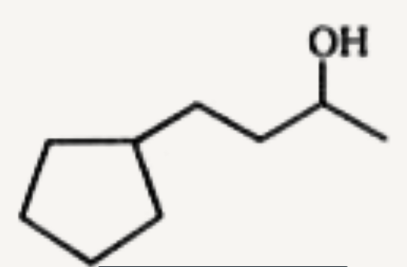
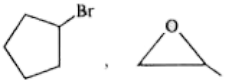
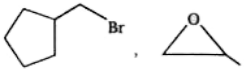
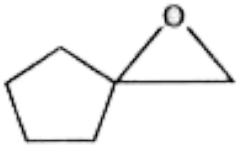
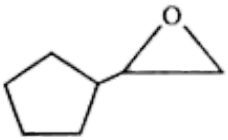
64. Which combination (s) of alkyl bromide and epoxide can be used to prepare the following product by addition of the Grignard reagent derived from the alkyl bromide to the epoxide ?



A. 

B. 

C. 

D. 

Answer: B

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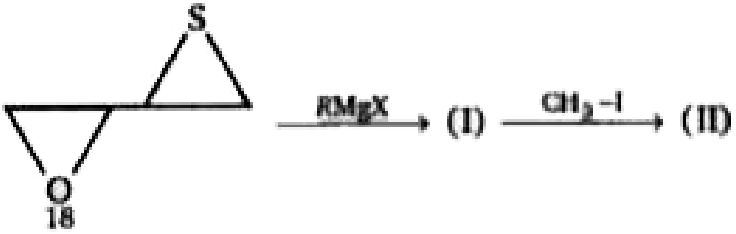
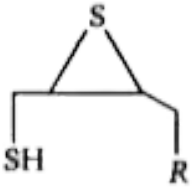
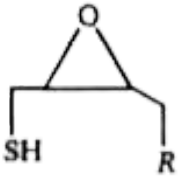
65. What will be the final major product ?



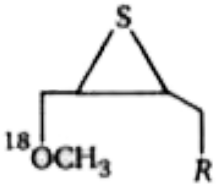
A.

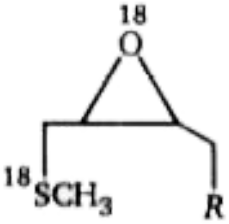


B.



C.



D. 

Answer: C

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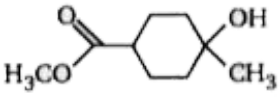
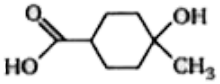
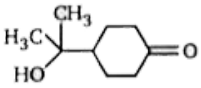
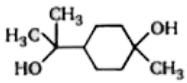
66. Give the expected product of the following reaction.

A. 

B. 

C. 



D.

Answer: D

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Level 2 Comprehension

1. Grignard reagent is usually prepared by

$R - X + Mg \xrightarrow{Et_2O} RMgX$ Grignard reagent

$Ar - X + Mg \xrightarrow{Et_2O} ArMgX$ Grignard reagent

Grignard reagent acts as a strong base. Grignard reagent carry out nucleophilic attack in absence of acidic hydrogen. Grignard reagent form complex with its ether solvent. Complex formation with molecular of ether is an important factor in the formation and stability of Grignard reagent.

What is the correct order of reactivity of halides with magnesium ?

A. $R-Cl>R-Br>R-I$

B. $R-Br>R-Cl>R-I$

C. $R-I>R-Br>R-Cl$

D. $R-I=R-Br=R-Cl$

Answer: C

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2. Grignard reagent is usually prepared by

$R-X+Mg \xrightarrow{Et_2O} RMgX$ Grignard reagent

$Ar-X+Mg \xrightarrow{Et_2O} ArMgX$ Grignard reagent

Grignard reagent acts as a strong base. Grignard reagent carry out nucleophilic attack in absence of acidic hydrogen. Grignard reagent form complex with its ether solvent. Complex formation with molecular of ether is an important factor in the formation and stability of Grignard reagent.

Which of the following will undergo acid-base reaction with Grignard reagent ?

A. $HC \equiv CH$

B. $R - OH$

C. $R - CO_2H$

D. All of these

Answer: D

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3. Grignard reagent is usually prepared by

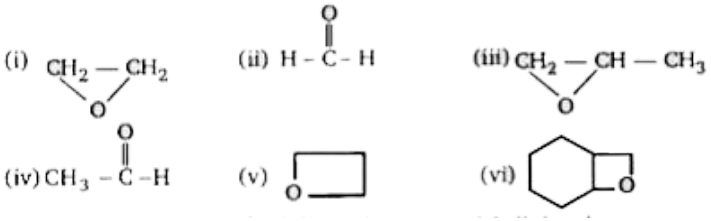
$R - X + Mg \xrightarrow{Et_2O} RMgX$ Grignard reagent

$Ar - X + Mg \xrightarrow{Et_2O} ArMgX$ Grignard reagent

Grignard reagent acts as a strong base. Grignard reagent carry out nucleophilic attack in absence of acidic hydrogen. Grignard reagent form complex with its ether solvent. Complex formation with molecular of ether is an important factor in the formation and stability of Grignard

reagent.

Which of the following reactants give perimary alcohol as a major product when reacts with RMgX followed by acidification ?



A. i, ii, v

B. i, ii, v, vi

C. ii, iv, vi

D. v, iv, iii, vi

Answer: A

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4. Grignard reagent is usually prepared by

$$R - X + Mg \xrightarrow{Et_2O} RMgX \qquad \text{Grignard reagent}$$

$Ar - X + Mg \xrightarrow{Et_2O} ArMgX$ Grignard reagent

Grignard reagent acts as a strong base. Grignard reagent carry out nucleophilic attack in absence of acidic hydrogen. Grignard reagent form complex with its ether solvent. Complex formation with molecular of ether is an important factor in the formation and stability of Grignard reagent.

$Cl - \overset{\overset{O}{||}}{C} - O - Et \xrightarrow[(2)\,NH_4Cl]{(1)\,xRMgX} 3^{\circ}$ alcohol. Value of x is :

A. 2

B. 3

C. 4

D. 5

Answer: B

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5. Grignard reagent is usually prepared by

$$R - X + Mg \xrightarrow{Et_2O} RMgX \qquad \text{Grignard reagent}$$

$$Ar - X + Mg \xrightarrow{Et_2O} ArMgX \qquad \text{Grignard reagent}$$

Grignard reagent acts as a strong base. Grignard reagent carry out nucleophilic attack in absence of acidic hydrogen. Grignard reagent form complex with its ether solvent. Complex formation with molecular of ether is an important factor in the formation and stability of Grignard reagent.

$$H - O - CH_2 - CH_2 - \overset{\overset{O}{||}}{C} - O - Et \xrightarrow[(2)\,H^+]{(1)\,x\,PhMgBr} HO - CH_2 - \overset{\overset{OH}{|}}{\underset{\underset{Ph}{|}}{C}} - Ph$$

, Value of x is :

A. 2

B. 3

C. 4

D. 5

Answer: B

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6. Grignard reagent is usually prepared by

$R - X + Mg \xrightarrow{Et_2O} RMgX$ Grignard reagent

$Ar - X + Mg \xrightarrow{Et_2O} ArMgX$ Grignard reagent

Grignard reagent acts as a strong base. Grignard reagent carry out nucleophilic attack in absence of acidic hydrogen. Grignard reagent form complex with its ether solvent. Complex formation with molecular of ether is an important factor in the formation and stability of Grignard reagent.

Which of the following Grignard reagents is not possible ?

A. $HS - CH_2 - CH_2 - CH_2MgBr$

B. $HO - CH_2 - CH_2 - CH_2MgBr$

C. $NH_2 - CH_2 - CH_2 - CH_2MgBr$

D. All of these

Answer: D

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7. Grignard reagent is usually prepared by

$R - X + Mg \xrightarrow{Et_2O} RMgX$ Grignard reagent

$Ar - X + Mg \xrightarrow{Et_2O} ArMgX$ Grignard reagent

Grignard reagent acts as a strong base. Grignard reagent carry out nucleophilic attack in absence of acidic hydrogen. Grignard reagent form complex with its ether solvent. Complex formation with molecular of ether is an important factor in the formation and stability of Grignard reagent.

How many different Grignard reagents when react with $EtOH$, give n-butane as product (excluding stereoisomerism).

A. 1

B. 2

C. 3

D. 4

Answer: B

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8. Match the column I and II. (Matrix)

Column (I) Reactant		Column (II) Product	
(a)	$PhMgBr + Cl-\overset{\overset{O}{\|\|}}{C}-O-Et \xrightarrow[H^{\oplus}]{}$ (excess)	(p)	$Ph-CH_2-OH$
(b)	$PhMgBr + H-\overset{\overset{O}{\|\|}}{C}-O-Et \xrightarrow[H^{\oplus}]{}$ (excess)	(q)	$Ph-\underset{\underset{OH}{\|}}{CH}-Ph$
(c)	$PhMgBr + H-\overset{\overset{O}{\|\|}}{C}-H \xrightarrow[H^{\oplus}]{}$ (excess)	(r)	$Ph-\underset{\underset{Ph}{\|}}{\overset{\overset{OH}{\|}}{C}}-Ph$
(d)	$PhMgBr + CH_3-\overset{\overset{O}{\|\|}}{C}-O-Et \xrightarrow[H^{\oplus}]{}$ (excess)	(s)	$Ph-\underset{\underset{CH_3}{\|}}{\overset{\overset{OH}{\|}}{C}}-Ph$

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9. Match the column I and II. (Matrix)

Column (I) Reaction		Column (II) Reactant	
(a)	$PhMgBr + (A) \xrightarrow[H^{\oplus}]{} 1^{\circ}$alcohol	(p)	$CH_3-\overset{\overset{O}{\|\|}}{C}-CH_2-\overset{\overset{O}{\|\|}}{C}-CH_3$
(b)	$PhMgBr + (B) \xrightarrow[H^{\oplus}]{} 2^{\circ}$alcohol	(q)	$CH_3-\overset{\overset{O}{\|\|}}{C}-CH_3$
(c)	$PhMgBr + (C) \xrightarrow[H^{\oplus}]{} 3^{\circ}$alcohol	(r)	$CH_3-\overset{\overset{O}{\|\|}}{C}-H$
(d)	$PhMgBr + (D) \xrightarrow[H^{\oplus}]{}$ 	(s)	$H-\overset{\overset{O}{\|\|}}{C}-H$

Match the missing reactant A, B, C, D

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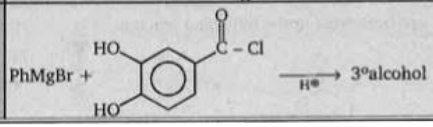
10. Match the column I and II. (Matrix)

Column (I) Reaction		Column (II) Moles of PhMgBr used	
(a)	$PhMgBr + Et-O-\overset{\overset{O}{\|\|}}{C}-O-Et \xrightarrow[H^{\oplus}]{} 3^{\circ}$ alcohol	(p)	1
(b)	$PhMgBr + HO-CH_2-\overset{\overset{O}{\|\|}}{C}-CH_3 \xrightarrow[H^{\oplus}]{} 3^{\circ}$ alcohol	(q)	2
(c)	$PhMgBr + CH_3-\overset{\overset{O}{\|\|}}{C}-CH_3 \xrightarrow[H^{\oplus}]{} 3^{\circ}$ alcohol	(r)	3
(d)		(s)	4

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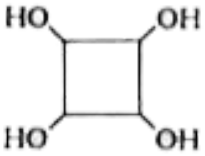
11. $When 20 g of a compound (A) = M.F. = C_4H_{10}O_4$ reacts with excess of CH_3MgBr, 14.6L of CH_4 is obtained at STP`. What is structural formula of (A)?

A. $\begin{array}{l} CH_2-OH \\ | \\ (CH-OH)_2 \\ | \\ CH_2-OH \end{array}$

B. $HO-CH_2-\underset{\displaystyle OH}{\overset{\displaystyle CH_2OH}{\overset{|}{\underset{|}{C}}}}-CH_2OH$

C. 

D. Both (a) & (b)

Answer: D

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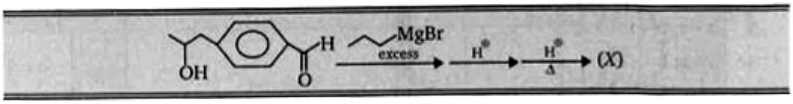
Level 2 Subjective Problems

1. 

How many geometrical isomer of (X) is possible ?

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2. How many isomer of C_4H_8O when reacts with CH_3MgBr followed by acidification to give 2° alcohol (only consider carbonyl isomers) ?

(including stereoisomer)

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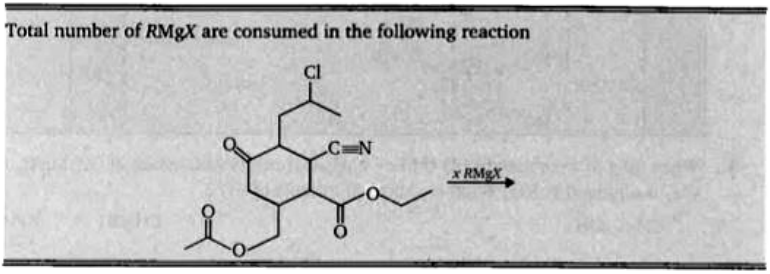
3. Total number of RMgX are consumed in the following reaction



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4. How many isomers of $C_4H_{10}O$ reacts with CH_3MgBr to evolve CH_4 gas ? (Excluding stereoisomer)

A. 1

B. 2

C. 3

D. 4

Answer: 4

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5. How many carbonyl isomers of $C_5H_{10}O$ which reacts with PhMgBr to give racemic mixture ?

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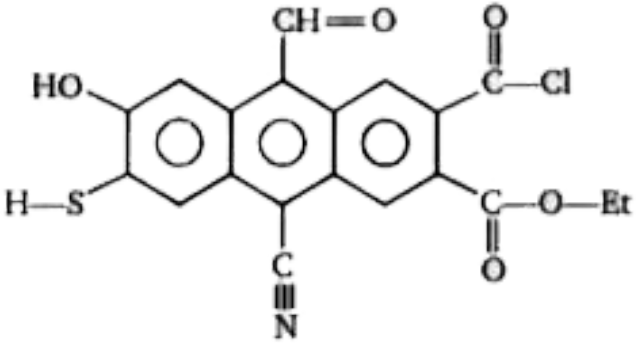
6. How many moles of Grignard reagent will consume when it reacts with following compound ?



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