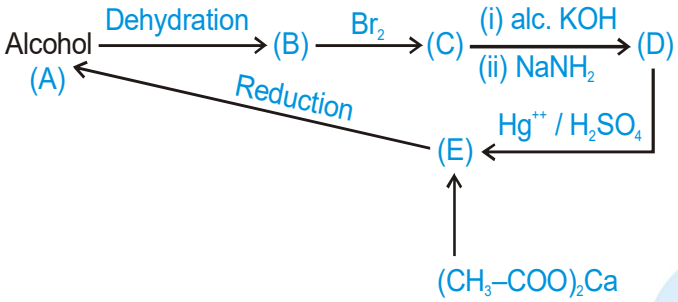
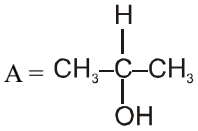
SOLVED EXAMPLES

1. Find out unknown in following reactions.

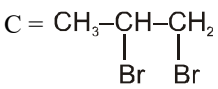


Sol. Since E is obtained on dry distillation of calcium salt of acetic acid hence E will be $CH_3–\overset{\overset{O}{\|}}{C}–CH_3$. Thus other unknowns are



A = $CH_3–\underset{\underset{OH}{|}}{\overset{\overset{H}{|}}{C}}–CH_3$

B = $CH_3 – CH = CH_2$

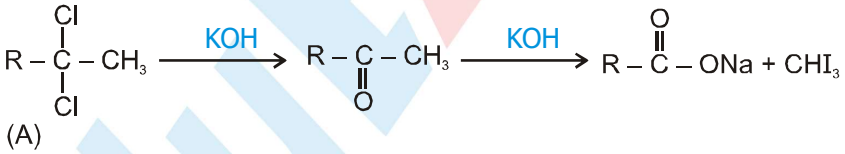


C = $CH_3–\underset{\underset{Br}{|}}{CH}–\underset{\underset{Br}{|}}{CH_2}$

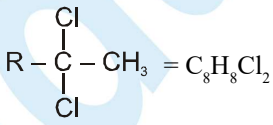
D = $CH_3 – C \equiv C – H$

2. What will be structure of aromatic $C_8H_8Cl_2$ (A), which on aqueous alkalihydrolysis gives product (B). (B) gives positive iodoform test.

Sol. Since (B) is showing iodoform test hence it will be methylketone only as it is obtained on aqueous alkali hydrolysis of (A) which will be non-terminal gem dihalides as –



Now unknown 'R' can be known as :



R – C – CH_3 = $C_8H_8Cl_2$
Cl
Cl

$R = C_8H_8Cl_2 – C_2H_3Cl_2 = C_6H_5$

Hence 'A' is $C_6H_5 – \underset{\underset{Cl}{|}}{\overset{\overset{Cl}{|}}{C}} – CH_3$

3. Write the products of the following reactions.

(a) $H-\overset{O}{\overset{\|}{C}}-OC_2H_5 \xrightarrow[(ii)\ H_3O^{\oplus}]{(i)\ \text{excess of } CH_3\text{–MgBr}}$

(b) $H-\overset{O}{\overset{\|}{C}}-O-\underset{CH_3}{\underset{|}{CH}}-CH_3 \xrightarrow[(ii)\ H_3O^{\oplus}]{(i)\ \text{excess of } CH_3\text{–MgBr}}$

(c) $H-\overset{O}{\overset{\|}{C}}-O-CH_2-C_6H_5 \xrightarrow[(ii)\ H_3O^{\oplus}]{(i)\ \text{excess of } CH_3\text{–MgBr}}$

(d) $H-\overset{O}{\overset{\|}{C}}-O-C_6H_5 \xrightarrow[(ii)\ H_3O^{\oplus}]{(i)\ \text{excess of } CH_3\text{–MgBr}}$

Sol. (a) $H-\overset{O}{\overset{\|}{C}}-OC_2H_5 + CH_3MgBr \xrightarrow[-C_2H_5OH]{} CH_3-\underset{OMgX}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-H \xrightarrow{H_2O} CH_3-\underset{OH}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-H$

(b) $H-\overset{O}{\overset{\|}{C}}-O-\underset{CH_3}{\underset{|}{CH}}-CH_3 + CH_3MgBr \xrightarrow[(ii)\ Zn/\ H_2O]{(i)\ O_3} CH_3-\underset{OMgX}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-H \xrightarrow{H_2O} CH_3-\underset{OH}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-H$

(c) $H-\overset{O}{\overset{\|}{C}}-O-CH_2-C_6H_5 + CH_3MgBr \xrightarrow[-C_6H_5-CH_2-OH]{} CH_3-\underset{OMgX}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-H \xrightarrow{H_2O} CH_3-\underset{OH}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-H$

(d) $H-\overset{O}{\overset{\|}{C}}-O-C_6H_5 + CH_3MgBr \xrightarrow[-C_6H_5-OH]{} CH_3-\underset{OMgX}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-H \xrightarrow{H_2O} CH_3-\underset{OH}{\underset{|}{\overset{CH_3}{\overset{|}{C}}}}-H$

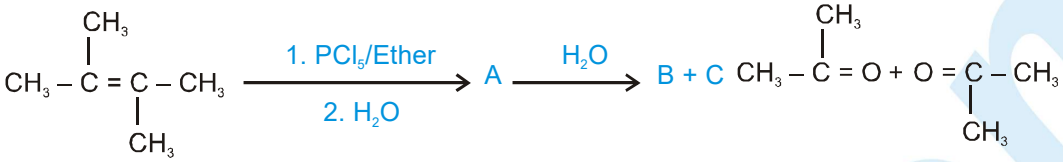
4. What will be hydration and hydroboration product for Cyclohexylethyne.

Sol. Cyclohexylethyne $\xrightarrow{Hg^{2+}\ /\ H_2SO_4}$ Cyclohexylmethylketone

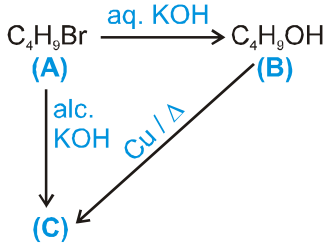
Cyclohexylethyne $\xrightarrow[(ii)\ H_2O_2\ (OH^-)]{(i)\ B_2H_6 \text{ or } Sia_2BH}$ Cyclohexylethanal

5. Which hydrocarbon on ozonolysis gives acetone only ?

Sol. Acetone only, means two moles of acetone.



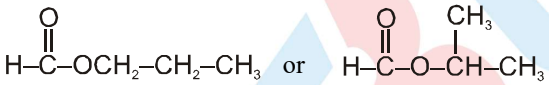
6. Predict the structure of (A) in the following sequence :



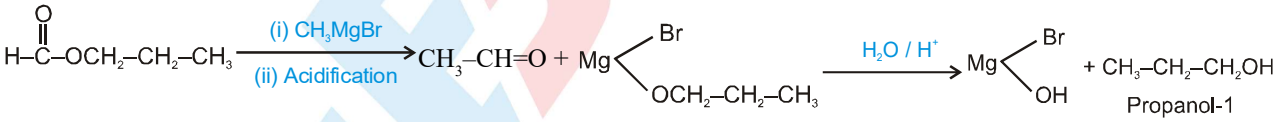
Sol. Since (B) is alcohol and (C) is alkene hence (B) is 3° alcohol only according to question (It is known that alkene can only be obtained from 3° alcohol when heated with copper). Thus structure of (B) is $(CH_3)_3C–OH$ and its corresponding. alkyl bromide will be $(CH_3)_3C–Br$ (tertiarybutylbromide)

7. What will be structure of $C_4H_8O_2$ which on treating with excess CH_3–MgBr followed by acidification gives sole alcohol (A). (A) on treating with sodium hypoiodite solution gives positive iodoform test.

Sol. Since (A) gives positively iodoform test hence it will be alkanol-2. 2° alcohol can be obtained only when alkylformate is treated with Grignard's reagent via aldehyde where alkyl part is alkyl part of Grignard's reagent. As Grignard's reagent is CH_3–MgBr hence 2° alcohol will be $CH_3–\underset{\displaystyle CH_3}{\overset{\displaystyle CH_3}{|}}CH–OH$ (propanol-2). Thus $C_4H_8O_2$ is either

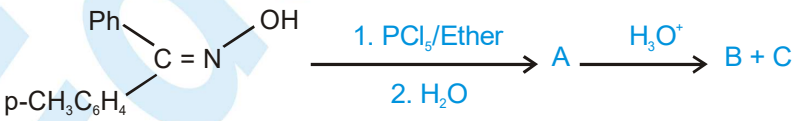


Reactions :



Here we get two alcohols propanol-2 and propanol-1. Alkyl part of formic acid ester which gives propanol-2 will be isopropyl only. Thus structure of $C_4H_8O_2$ is $H-\overset{\displaystyle O}{\overset{\displaystyle \|}{C}}-OCH(CH_3)_2$

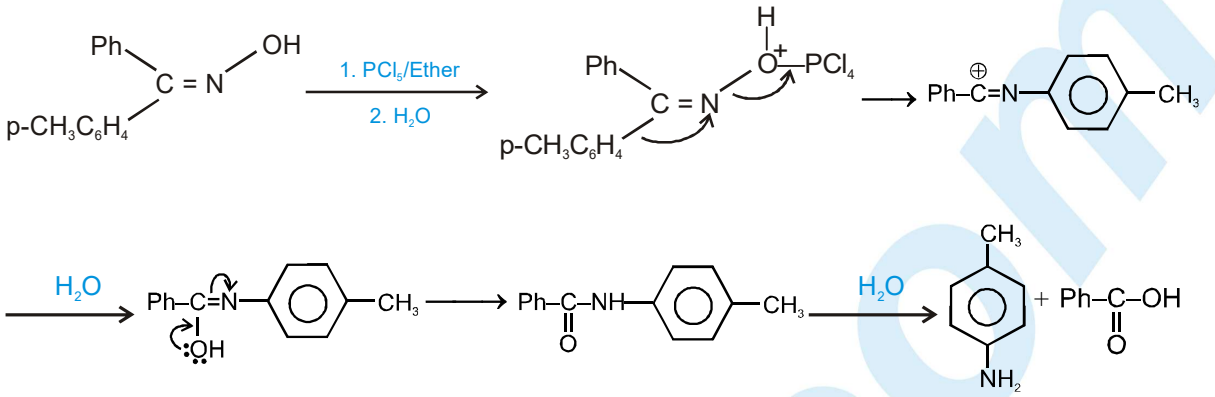
8.



A , B , C are

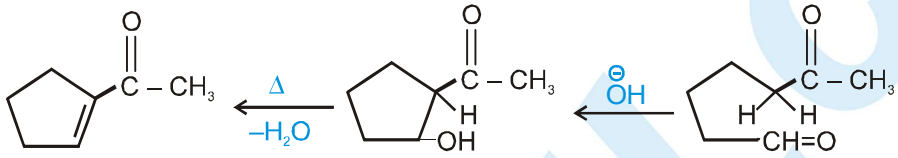
(A) PhCONH-p - $CH_3C_6H_4$
(B) PhCOOH
(C) $pCH_3C_6H_4NH_2$
(D) PhCHO

Sol. **(A,B,C)**

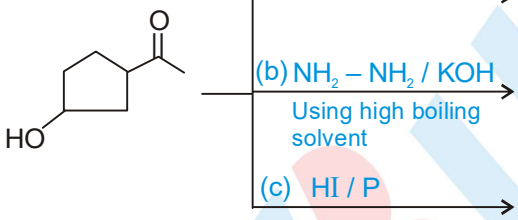


9. Which carbonyl compound on heated with dilute alkali gives 1- acetylcyclopentene.

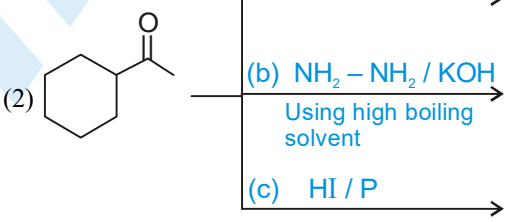
Sol.

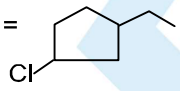
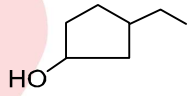
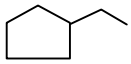


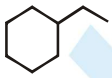
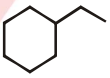
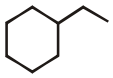
10. (1)



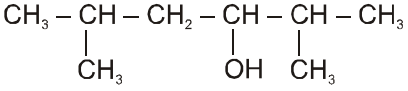
(2)

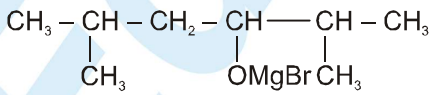


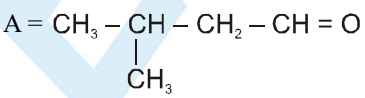
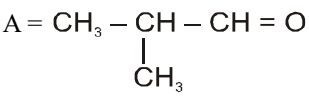
Sol. **(1)** (a) =  (b) =  (c) = 

(2) (a) =  (b) =  (c) = 

11. (A) on treating with (B) in the presence of dry ether gives (C) which on acids hydrolysis gives (D). (D) on oxidation gives 2,5-dimethylhexan-3-one.

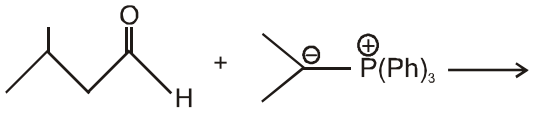
Sol. By knowing structure of given product (D) will be  hence (C) will be

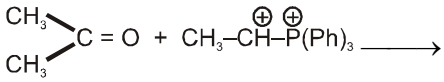
 and finally A & B will have following two structures.

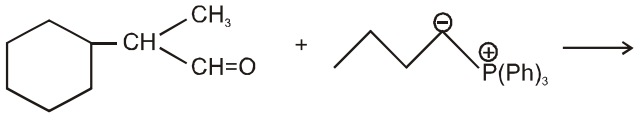
A =  or A = 

B = $CH_3-\underset{\underset{CH_3}{|}}{CH}-MgBr$ or B = $CH_3-\underset{\underset{CH_3}{|}}{CH}-CH_2-MgBr$

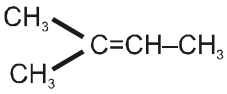
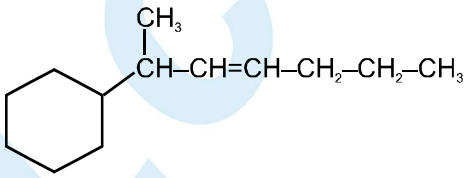
12. Predict the product for the followings :

(i) 

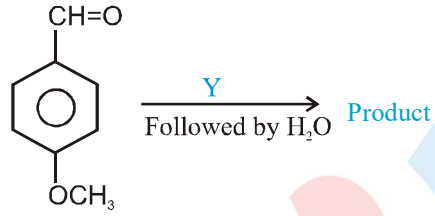
(ii) 

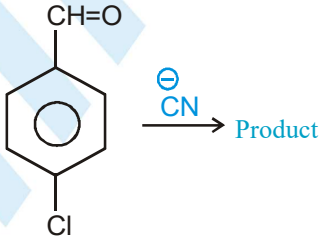
(iii) 

Sol. Witting reaction

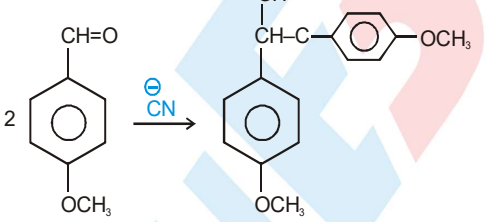
(i)  **(ii)**  **(iii)** 

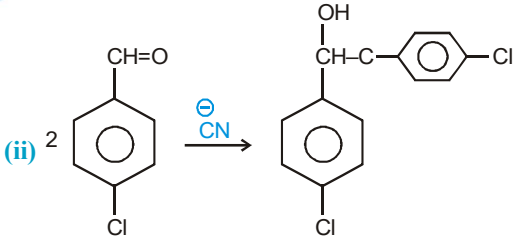
13. Predict Product –

(i) 

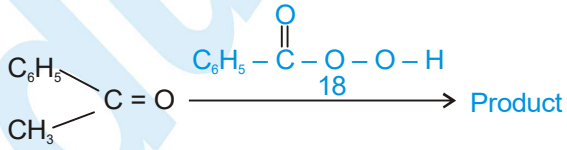
(ii) 

Sol. Benzoin condensation reaction

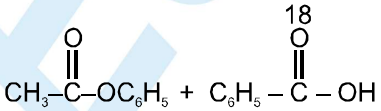
(i) 

(ii) 

14. Predict product for the following



Sol. Baeyer-villiger oxidation



Exercise # 1 [Single Correct Choice Type Questions]

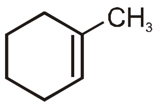
1. In which of the following reaction ketone is formed :

(A) $CH_3–CH_2–OH \xrightarrow{KMnO_4 / H^{\oplus}}$ (B) $CH_3–CH_2–OH \xrightarrow{Cu/\Delta}$

(C) $CH_3–CH(CH_3)–OH \xrightarrow{Cu/\Delta}$ (D) $CH_3–C(CH_3)_2–OH \xrightarrow{Cu/\Delta}$

2. Ethylidene chloride on treatment with aq. KOH gives

(A) CH_3CHO (B) $CH_2OH.CH_2OH$ (C) HCHO (D) CHO. CHO

3.  On reductive ozonolysis yields

(A) 6-oxoheptanal (B) 6-oxoheptanoic acid (C) 6-hydroxyheptanal (D) 3-hydroxypentanal

4. On heating calcium propionate, the product formed is

(A) 3-Pentanone (B) 2-Pentanone (C) 3-Methyl-2-butanone (D) Propanone

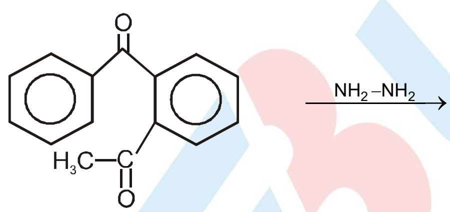
5. A mixed salt of calcium acetate formate on dry distillation gives

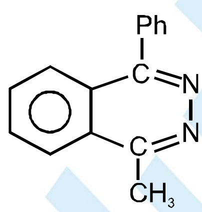
(A) ethanal (B) methanal (C) propanone (D) All the three above.

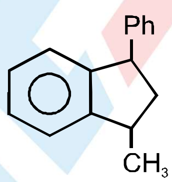
6. Acetic acid when heated (300ºC) with MnO gives

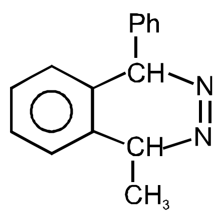
(A) formaldehyde (B) acetaldehyde (C) acetone (D) butaone

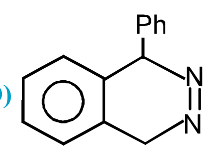
7. Write the product of following reaction :



(A) 

(B) 

(C) 

(D) 

8. $CH_3–\overset{O^{16}}{\overset{\|}{C}}–H \xrightarrow[D^{\oplus}]{D_2O^{18}} CH_3–\underset{^{18}O}{\underset{\|}{C}}–H$

The intermediate is :

(A) $CH_3–C(^{18}OD)(^{16}OD)–D$ (B) $CH_3–C(^{18}OD)(^{16}OD)–H$ (C) $CH_3–C(^{16}OD)(^{16}OD)–H$ (D) $CH_3–C(^{18}OD)(^{18}OD)–H$

9. Aromatic carbonyl compounds having molecular formula C_8H_8O react with NH_2OH how many oximes can be formed :

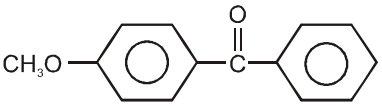
(A) 8 **(B)** 10 **(C)** 12 **(D)** 6

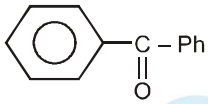
10. Arrange the following compounds in decreasing orders of rate of exchange of O^{18} with H_2O^{18}

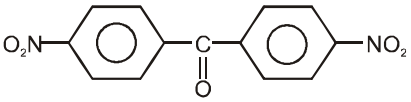
(X) CCl_3CHO **(Y)** CH_3CHO **(Z)** CH_3COCH_3 **(W)** CF_3CHO

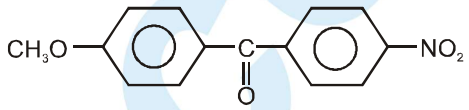
(A) W > Z > X > Y **(B)** W > X > Y > Z **(C)** W > Y > Z > X **(D)** W > Z > Y > X

11. Which of the following compound has the largest equilibrium constant for the addition of water ?

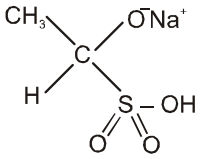
(A) 

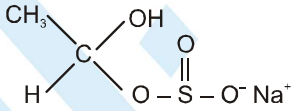
(B) 

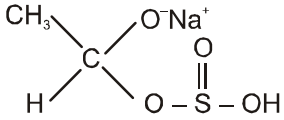
(C) 

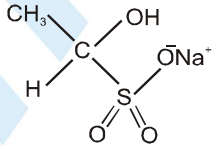
(D) 

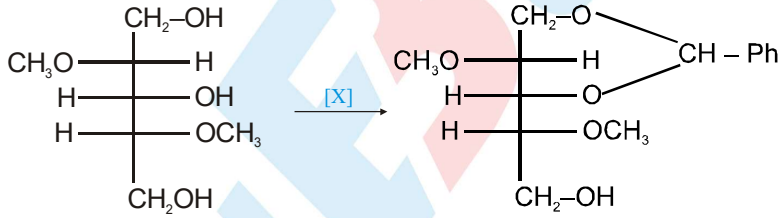
12. Acetaldehyde on reaction with sodium hydrogen sulphite produces

(A) 

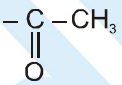
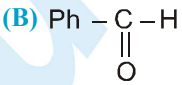
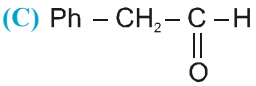
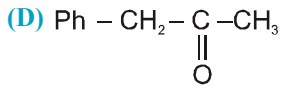
(B) 

(C) 

(D) 

13. 

Compound (X) in the above reaction.

(A)  **(B)**  **(C)**  **(D)** 

14. The correct order of reactivity of PhMgBr with following compounds will be.

$(C_6H_5)_2CO$, $CH_3 - CH = O$, $(CH_3)_2 C = O$

(1) (2) (3)

(A) 1 > 2 > 3 **(B)** 2 > 3 > 1 **(C)** 3 > 2 > 1 **(D)** 1 > 3 > 2

15. The cyanohydrin of a carbonyl compound on hydrolysis gives lactic acid. The carbonyl compound is

(A) HCHO **(B)** CH_3CHO **(C)** CH_3COCH_3 **(D)** $CH_3COCH_2CH_3$

16. $PhCHO + (CH_3CO)_2O \xrightarrow[(2)\text{hydrolysis},\Delta]{(1)CH_3COONa} A \xrightarrow{HBr} B$

The product B is :

(A) $PhCH = CHCH_2Br$ **(B)** $PhCH(Br) - CH_2 - COOH$ **(C)** $PhCH_2CH(Br)COOH$ **(D)** $PhCH = CH - COBr$

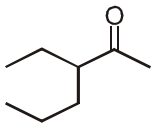
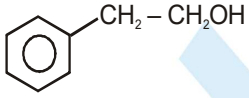
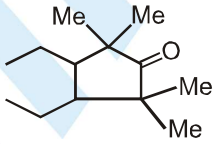
17. In the given reaction the product is :

$$CH_3-CH_2-\underset{\underset{O}{\|}}{C}-OCH_3 + CH_3-\underset{\underset{O}{\|}}{C}-OCH_3 \xrightarrow[(2)\ CH_3OH]{(1)\ CH_3O^{\ominus}\ Na^{+}} \xrightarrow[\Delta]{H_2O}$$

(A) $CH_3-CH_2-\underset{\underset{O}{\|}}{C}-CH_2-\underset{\underset{O}{\|}}{C}-OCH_3$ **(B)** $CH_3-\underset{\underset{O}{\|}}{C}-\underset{\underset{CH_3}{|}}{CH}-COOCH_3$

(C) $H-\underset{\underset{O}{\|}}{C}-CH_2-\underset{\underset{CH_3}{|}}{CH}-COOCH_3$ **(D)** $CH_3-\underset{\underset{O}{\|}}{C}-CH_2-CH_3$

18. The compounds that undergo Aldol condensation is :

(A)  **(B)**  **(C)**  **(D)** None of these

19. Which of the following will not undergo aldol condensation ?

(A) CH_3CHO **(B)** CH_3CH_2CHO **(C)** CD_3CHO **(D)** PhCHO

20. (X) is the product of cross aldol condensation between benzaldehyde (C_6H_5CHO) and acetone What is its structure ?

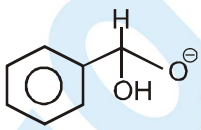
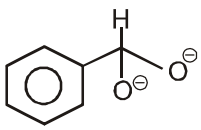
(A) $C_6H_5-CH=CH-\underset{\underset{O}{\|}}{C}-CH_3$ **(B)** $C_6H_5-CH=C-(CH_3)_2$

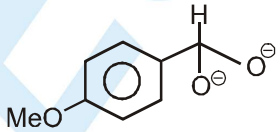
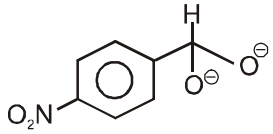
(C) $C_6H_5-CO-CH_2-C=(CH_3)_2$ **(D)** None of these

21. In which of the following compounds the methylene hydrogens are the most acidic ?

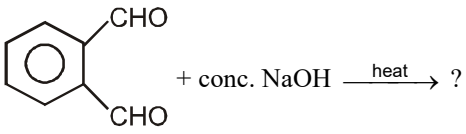
(A) $CH_3COCH_2CH_3$ **(B)** $CH_3CH_2COOC_2H_5$ **(C)** $CH_3CH_2CH(COOC_2H_5)_2$ **(D)** CH_3COCH_2CN.

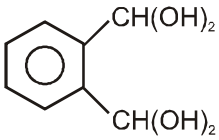
22. In the cannizzaro's reaction the intermediate that will be the best hydride donor ?

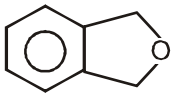
(A)  **(B)** 

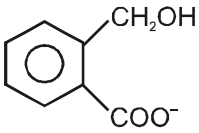
(C)  **(D)** 

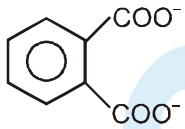
23. Product of following reaction is

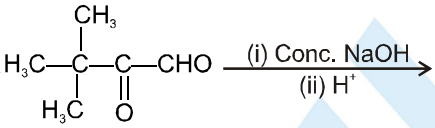


(A) 

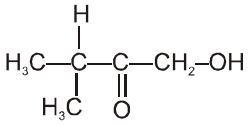
(B) 

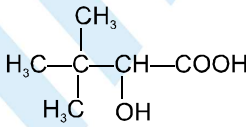
(C) 

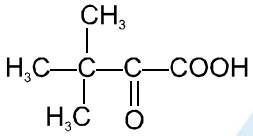
(D) 

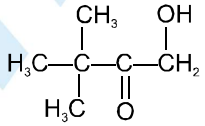
24. In the given reaction 

Product is

(A) 

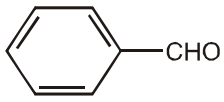
(B) 

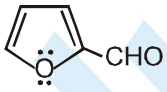
(C) 

(D) 

25. Cannizzaro reaction does not take place with

(A) $(CH_3)_3CCHO$.

(B) 

(C) 

(D) CH_3CHO.

26. In the reaction, $(CH_3)_3CCHO + HCHO \xrightarrow[\text{heat}]{NaOH}$ A + B.

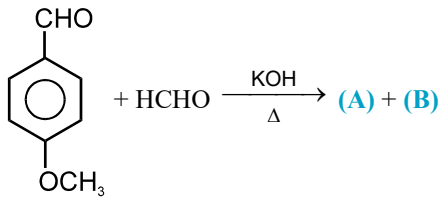
the products **(A)** and **(B)** are respectively :

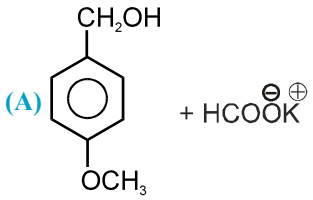
(A) $(CH_3)_3CCH_2OH$ and $HCOO^- Na^+$.

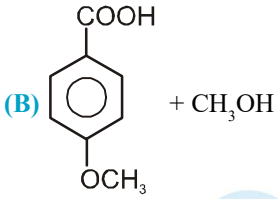
(B) $(CH_3)_3CCOONa$ and CH_3OH.

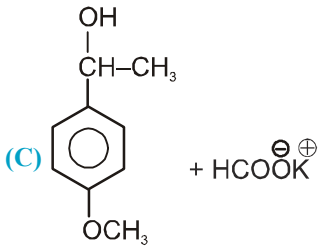
(C) $(CH_3)_3CCH_2OH$ and CH_3OH.

(D) $(CH_3)_3COONa$ and $HCOO^- Na^+$.

27. 

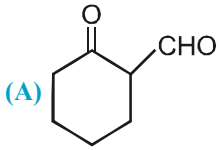
(A) 

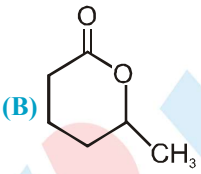
(B) 

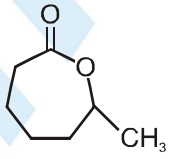
(C) 

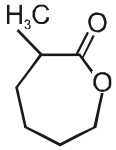
(D) Both **(A)** and **(B)**,

28. 2-Methyhlcyclohexanone is allowed to react with metachloroperbenzoic acid. The major product in the reaction is

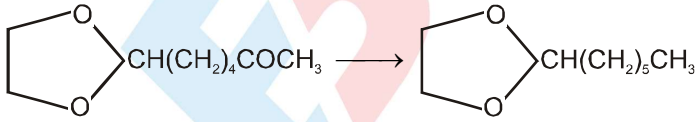
(A) 

(B) 

(C) 

(D) 

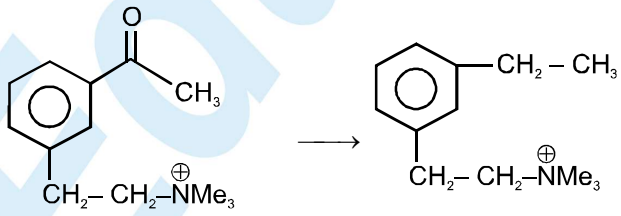
29. In the following conversion



Which of the following regents is suitable ?

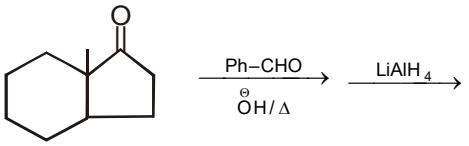
(A) NH_2NH_2,KOH, DMSO **(B)** $NaBH_4$

(C) Zn-Hg, concentrated H_2SO_4 **(D)** $LiAlH_4$

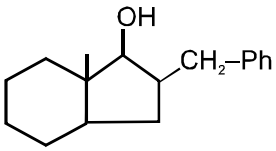
30. 

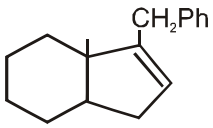
Above conversion can be achieved by

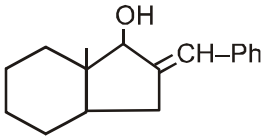
(A) NH_2–NH_2/ NaOH **(B)** Zn–Hg/HCl **(C)** $LiAlH_4$ **(D)** $NaBH_4$.

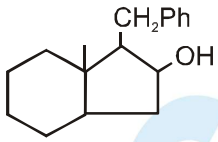
31. 

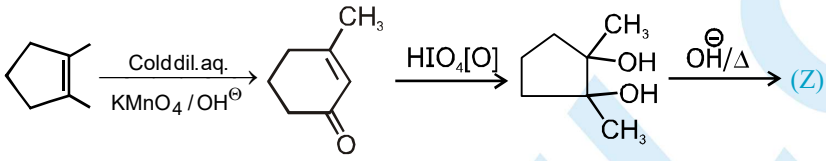
[X], Product (X) in this reaction is :

(A) 

(B) 

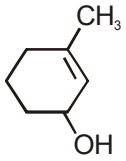
(C) 

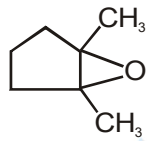
(D) 

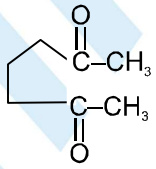
32. 

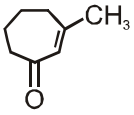
(Z)

The products of the above reaction is / are :

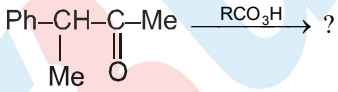
(A) 

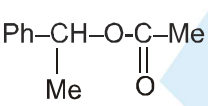
(B) 

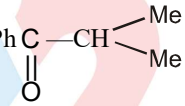
(C) 

(D) 

33. What will be the product of the following reaction

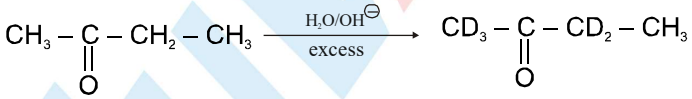


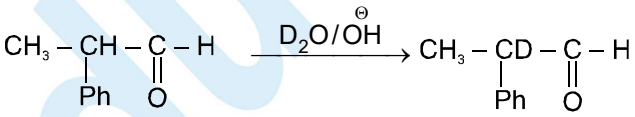
(A) 

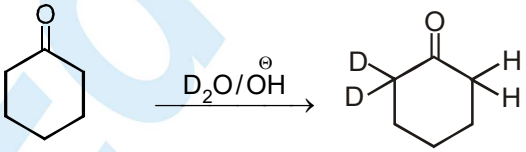
(B) 

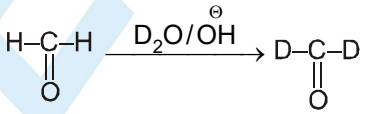
(C) PhCH(Me)OCOOMe **(D)** None of these

34. In which of the following reaction deuterium exchange is observed ?

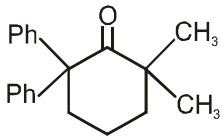
(A) 

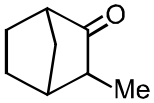
(B) 

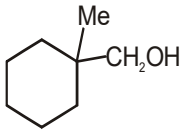
(C) 

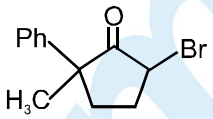
(D) 

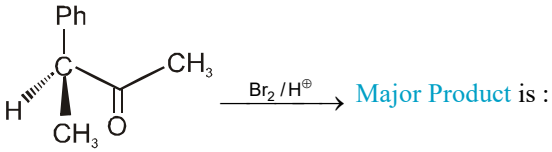
35. In which of the following reaction deuterium exchange is not observed ?

(A) 

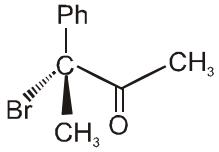
(B) 

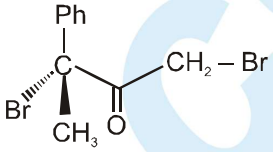
(C) 

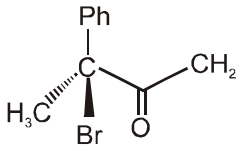
(D) 

36. 

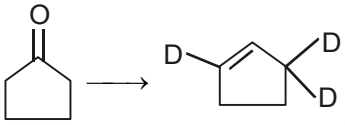
Major Product is :

(A) 

(B) 

(C) 

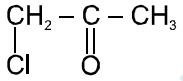
(D) A and C both

37. 

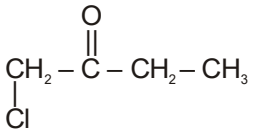
The above conversion is carried out

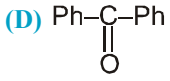
(A) KOD /D_2O, $H^{\oplus}/\Delta$, $LiAlH_4$
(B) $H^{\oplus}/\Delta$ / KOD, D_2O, $LiAlH_4$
(C) KOD/ D_2O, $LiAlH_4$, $H^{\oplus}/\Delta$
(D) $LiAlH_4$, $H^{\oplus}\Delta$,KOD/H_2O

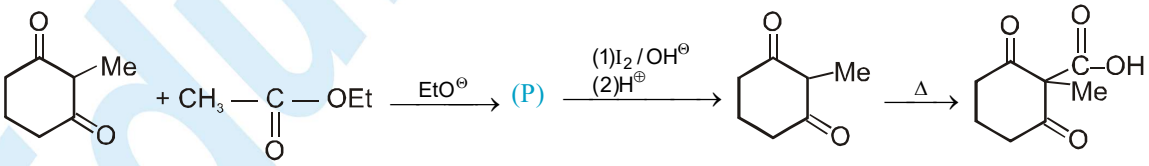
38. Which of the following gives haloform reaction

(A) 

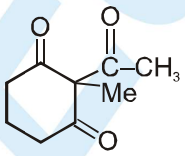
(B) 

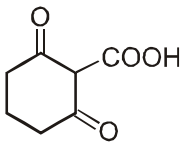
(C) 

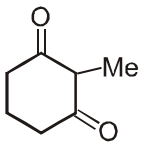
(D) 

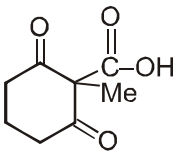
39. 

The product (P) of the above reaction is / are :

(A) 

(B) 

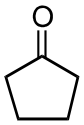
(C) 

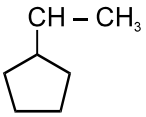
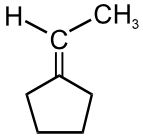
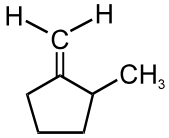
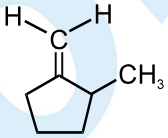
(D) 

40. 2-pentanone can be distinguished from 3- pentanone by the reagent ?

(A) 2, 4- Dinitrophenyl hydrazine **(B)** Tollen's reagent

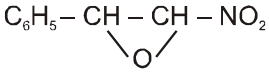
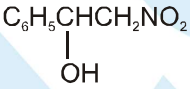
(C) I_2 and dilute NaOH **(D)** $NaHSO_3$

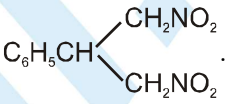
41.  $+ (C_6H_5)_3P = CHCH_3 \longrightarrow$

(A)  **(B)**  **(C)**  **(D)** 

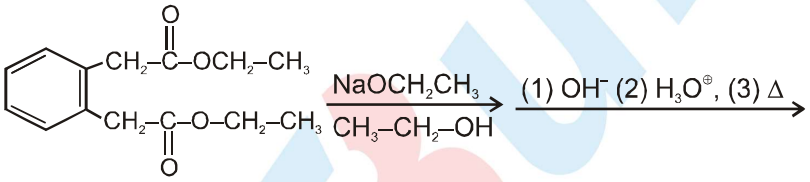
42. The major product formed in the reaction.

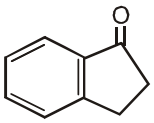
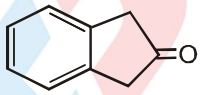
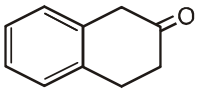
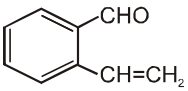
$$C_6H_5CHO + CH_3NO_2 \xrightarrow[\text{heat}]{NaOH} (X)$$

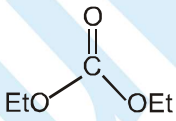
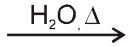
(A)  **(B)** 

(C) $C_6H_5CH = CH - NO_2$ **(D)**  .

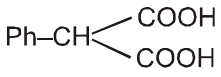
43. What is the final product of this sequence of reactions ?



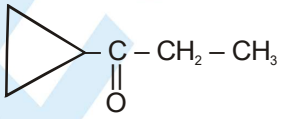
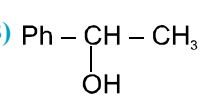
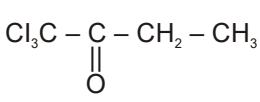
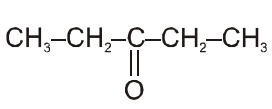
(A)  **(B)**  **(C)**  **(D)** 

44. $Ph–CH_2–COOEt +$   **(A)**  **(B)**

Product B is :

(A) $Ph–CH_2–COOH$ **(B)** $Ph–CH_2–COOEt$ **(C)**  **(D)** None of these

45. Which of the following will gives iodoform with NaOI ?

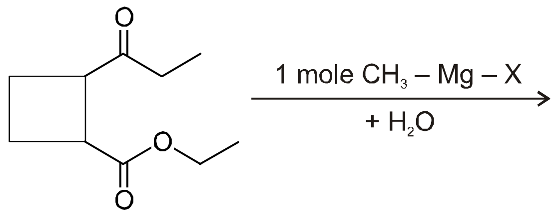
(A)  **(B)**  **(C)**  **(D)** 

46. For the reaction

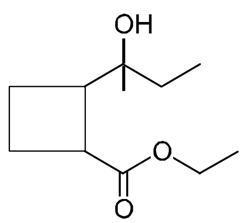
$C_6H_5CH_2OC_6H_5 + HI \xrightarrow{heat}$

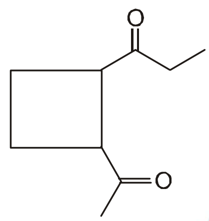
the products formed are

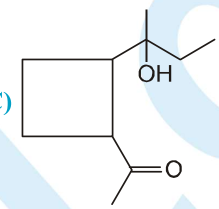
(A) $C_6H_5CH_2I$ and C_6H_5OH
(B) $C_6H_5CH_2OH$ and C_6H_5I
(C) $C_6H_5CH_2I$ and C_6H_5I
(D) $C_6H_5CH_2OH$ and C_6H_5OH

47. 

? The product is :

(A) 

(B) 

(C) 

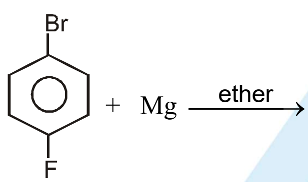
(D) All of these

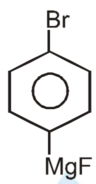
48. $(CH_3)_3$ CMgCI on reaction with D_2O, produces :

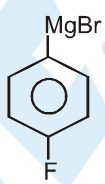
(A) $(CH_3)_3$ CD **(B)** $(CH_3)_3$ COD **(C)** $(CD_3)_3$ CD **(D)** $(CD_3)_3$ COD

49. $C_6H_5COOH + CH_3MgI \longrightarrow$?

(A) $C_6H_5COOMgI$ **(B)** CH_4 **(C)** Both A & B **(D)** none

50. 

(A) 

(B) 

(C) Both **(D)** None of these

51. $CH_3 - CH - CH_2$ (epoxide, O bridging CH and CH_2) $+ (CH_3)_2CH\,Mg\,Br \xrightarrow[(ii)H_2O]{(i)\ Et_2O}$

What will be the product :

(A) $CH_3 - (CH_2)_4 - CH_2 - OH$

(B) $CH_3 - CH = CH - CH(CH_3) - CH_3$

(C) $CH_3 - CH(OH) - CH_2 - CH(CH_3)_2$

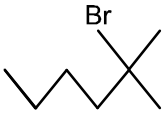
(D) $CH_3 - CH(CH(CH_3)_2) - CH_2 - CH_3$

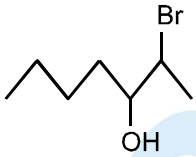
52. $CH_3–CH_2–CH_2–CH_2–CH_2–Br \xrightarrow[Ether]{Mg} X \xrightarrow[(ii)\ HOH/H^+]{(i)\ CH_2–CH_2 \diagdown O \diagup} Y \xrightarrow{PBr_3} Z$

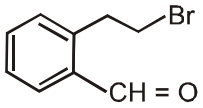
Identify Z

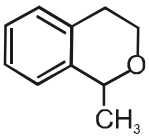
(A) 

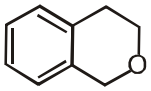
(B) 

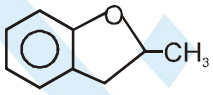
(C) 

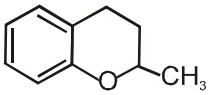
(D) 

53.  $\xrightarrow[1(eq.)]{CH_3MgBr}$ **(A)**

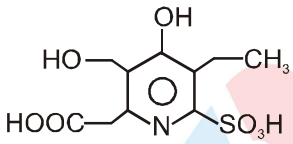
(A) 

(B) 

(C) 

(D) 

54. How many functional group produced CH_4 gas by the reaction of compound (I) with CH_3MgBr.



(I)

(A) 3 **(B)** 4 **(C)** 5 **(D)** 6

55. $Ph–MgBr + (CH_3)_2CH–\overset{\overset{O}{\|}}{C}–Cl \longrightarrow [X] \xrightarrow{Zn–Hg/HCl} [Y]$

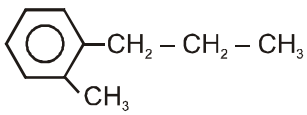
1 mole

Identify structure of [Y].

(A) $Ph–CH_2–\underset{\underset{CH_3}{|}}{CH}–CH_3$

(B) $Ph–\underset{\underset{CH_3}{|}}{CH}–CH_2–CH_3$

(C) $Ph–\underset{\underset{CH_3}{|}}{\overset{\overset{CH_3}{|}}{C}}–CH_3$

(D) 

56. Predict the major product in the following reaction:

$$C_6H_5CH_2CO_2CH_3 \xrightarrow[2.\ H^+]{1.\ CH_3MgBr\ (excess)}$$

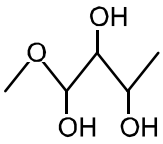
(A) $Ph{-}CH_2{-}\underset{\underset{O}{\|}}{C}{-}CH_3$

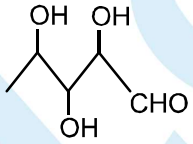
(B) $C_6H_5-CH_2-\underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_3$

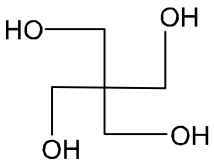
(C) $Ph{-}CH_2{-}\underset{\underset{OH}{|}}{\overset{\overset{Ph-CH_2}{|}}{C}}-CH_3$

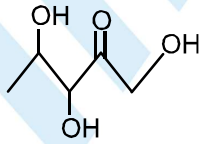
(D) $Ph{-}\underset{\underset{OH}{|}}{\overset{\overset{CH_3}{|}}{C}}-CH_3$

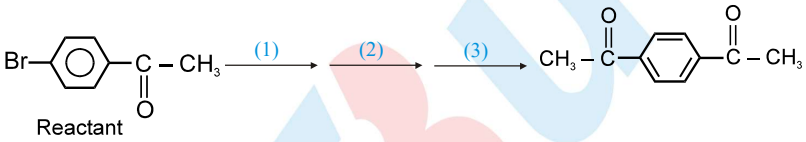
57. A compound X ($C_5H_{12}O_4$) upon treatment with CH_3MgX gives 4 mole of methane. Identify the structure of (X).

(A) 

(B) 

(C) 

(D) 

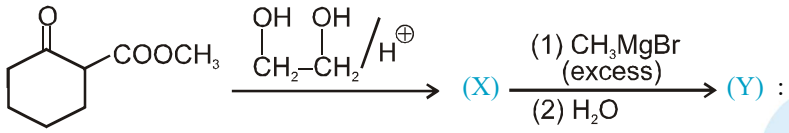
58. 

(A) (1) $\left.\begin{matrix}CH_2-OH\\|\\CH_2-OH\end{matrix}\right/ H^{\oplus}$ (2) Mg /  (3) $H-\underset{\underset{O}{\|}}{C}-O-H$ / H^+

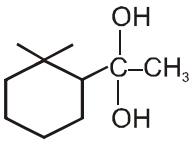
(B) (1) $\left.\begin{matrix}CH_2-OH\\|\\CH_2-OH\end{matrix}\right/ H^{\oplus}$ (2) Mg /  (3) $CH_3-\underset{\underset{O}{\|}}{C}-O-Et$ / H^+

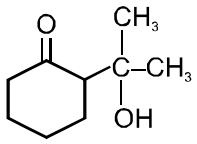
(C) (1) $\left.\begin{matrix}CH_2-OH\\|\\CH_2-OH\end{matrix}\right/ H^{\oplus}$ (2) Mg / THF (3) $CH_3-\underset{\underset{O}{\|}}{C}-O-Et$ / H^+

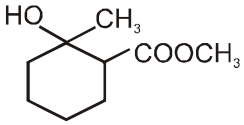
(D) (1) $\left.\begin{matrix}CH_2-OH\\|\\CH_2-OH\end{matrix}\right/ H^{\oplus}$ (2) Mg / THF (3) $H-\underset{\underset{O}{\|}}{C}-O-H$ / H^+

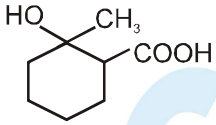
59. In the given reaction, 

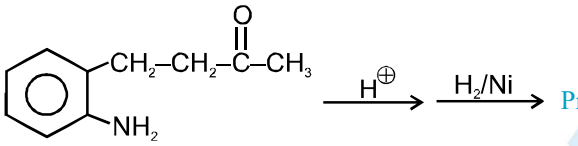
(Y) is

(A) 

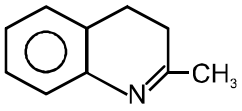
(B) 

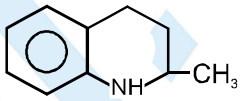
(C) 

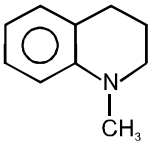
(D) 

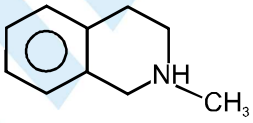
60. 

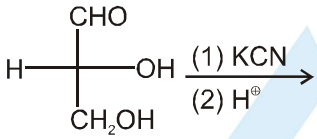
Product is

(A) 

(B) 

(C) 

(D) 

61. 

Products

Products obtained in the reaction is-

(A) Diastereomer **(B)** Racemic mixture **(C)** Meso compound **(D)** Optically pure enantiomer

62. $CH_2O \xrightarrow[H_3O^{\oplus}]{CHD_2MgI} X \xrightarrow[\Delta]{Conc.H_2SO_4} Y$

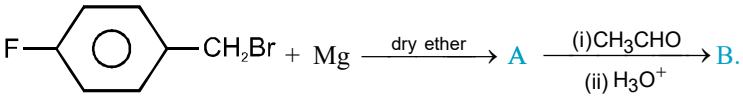
In the above reaction compound X & Y respectively will be

(A) $CHD(OH)-CH_2-OH$, $CHO-CHO$

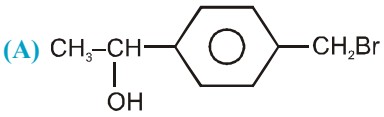
(B) CHD_2-CH_2-OH , $CHO-CHO$

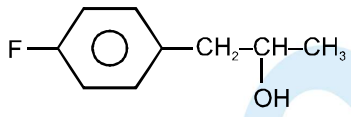
(C) CHD_2-CH_2-OH , $CD_2=CH_2$

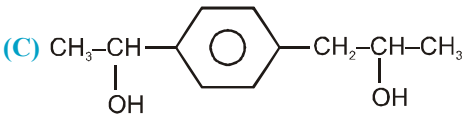
(D) $CHD(OH)-CH_2-OH$, $CD_2=CH_2$

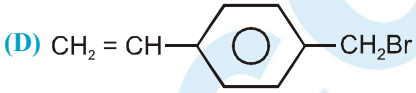
63. For the given reaction 

product B is :

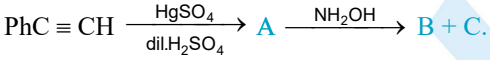
(A) 

(B) 

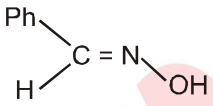
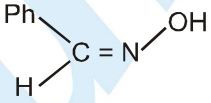
(C) 

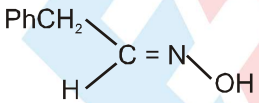
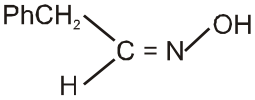
(D) 

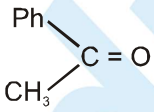
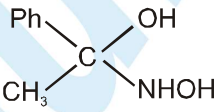
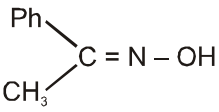
64. Consider the following sequence of reactions-.

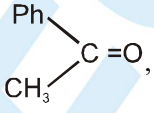
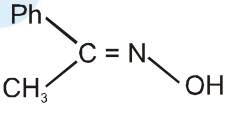
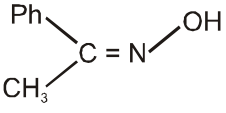


The products **(A)**, **(B)** and **(C)** are respectively,

(A) PhCHO,  and 

(B) $PhCH_2CHO$,  and 

(C)  ,  and 

(D)  ,  and 

65. $Ph-CH=CH-\underset{\underset{O}{\|}}{C}-H \xrightarrow{\text{(i) } CH_3CH_2MgBr} \xrightarrow{\text{(ii) } H_3O^{\oplus}} (X) \xrightarrow{Cu,\ \Delta} (Y)$

(A) X is 1, 4-addition product ; Y is $Ph-\underset{\underset{O}{\|}}{C}-CH=CH-CH_2-CH_3$

(B) X is 1, 2-addition product ; Y is $Ph-CH=CH-\underset{\underset{O}{\|}}{C}-CH_2-CH_3$

(C) X is 1, 4-addition product ; Y is $Ph-CH=CH-\underset{\underset{O}{\|}}{C}-CH_2-CH_3$

(D) X is 1, 2-addition product ; Y is $Ph-\underset{\underset{O}{\|}}{C}-CH=CH-CH_2-CH_3$

66. $\begin{matrix} CH_3CH_2 \\ H \end{matrix}\!\!>\!C=O \xrightarrow[\text{(ii) } LiAlH_4]{\text{(i) } KCN/H_2SO_4}$ Product is

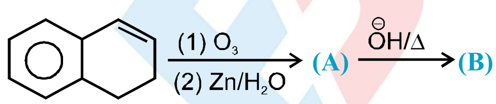
(A) $CH_3CH_2-\underset{\underset{OH}{|}}{CH}-CH_2NH_2$

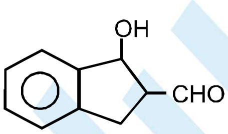
(B) $CH_3-CH_2-\underset{\underset{OH}{|}}{CH}-CH_2-NH-CH_3$

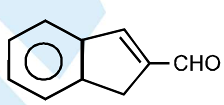
(C) $CH_3CH_2-\underset{\underset{OH}{|}}{CH}-CN$

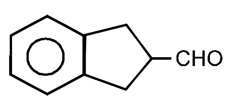
(D) $CH_3CH_2-CH_2-\underset{\underset{OH}{|}}{CH}-NH_2$

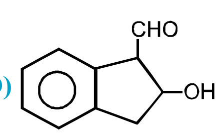
67. In the given reaction sequence B is

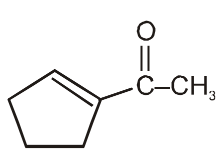


(A) 

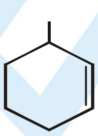
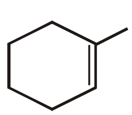
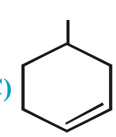
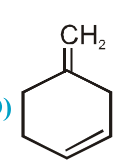
(B) 

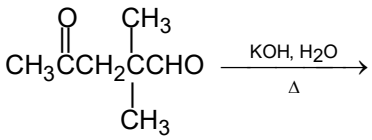
(C) 

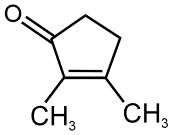
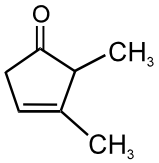
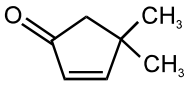
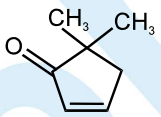
(D) 

68. **(A)** $\xrightarrow{O_3/Zn/H_2O}$ **(B)** $\xrightarrow[\Delta]{NaOH}$ 

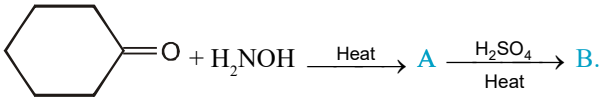
The reactant **(A)** will be :

(A)  **(B)**  **(C)**  **(D)** 

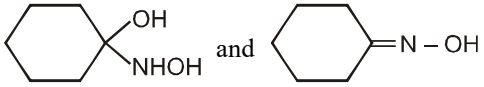
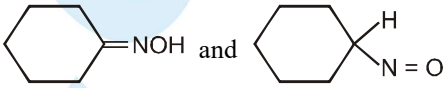
69.  Product ($C_7H_{10}O$) :

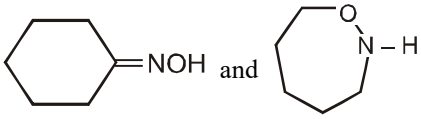
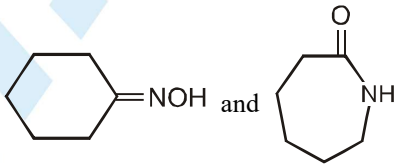
(A)  **(B)**  **(C)**  **(D)** 

70. Consider the following sequence of reactions :

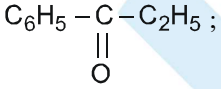
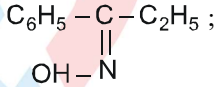
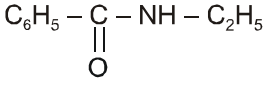
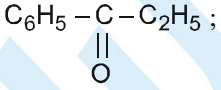
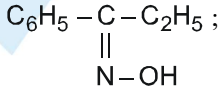
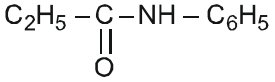
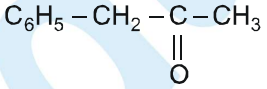
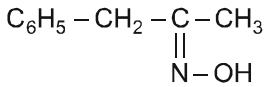
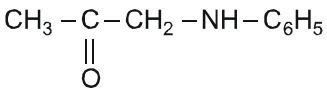
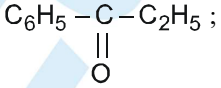
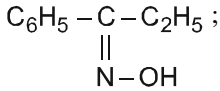
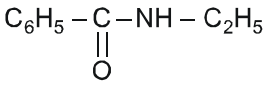


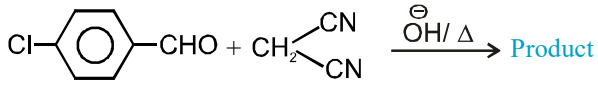
The products **(A)** and **(B)** are, respectively :

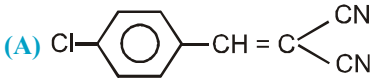
(A)  **(B)** 

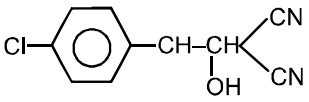
(C)  **(D)** 

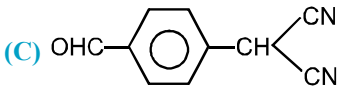
71. Compound (X) $C_9H_{10}O$ gives yellow coloured ppt with 2,4 DNP but does not give red coloured ppt with Fehling's solution. (X) on treatment with NH_2OH/H^+ gives compound (Y) $C_9H_{11}NO$. (Y) when treated with PCl_5 gives isomeric compound (Z). (Z) on hydrolysis gives propanoic acid and aniline. What will be the correct structure of (X), (Y) and (Z) ?

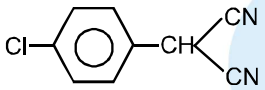
	(X)	(Y)	(Z)
(A)			
(B)			
(C)			
(D)			

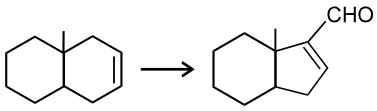
72. 

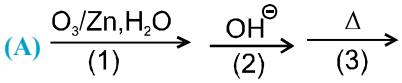
(A) 

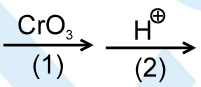
(B) 

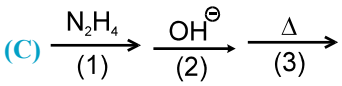
(C) 

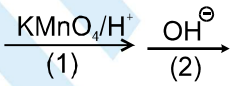
(D) 

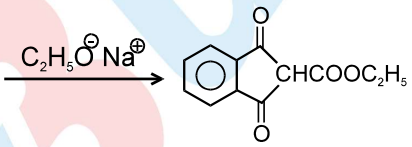
73. 

(A) 

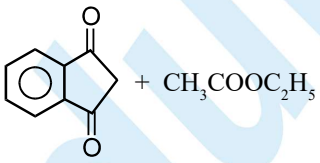
(B) 

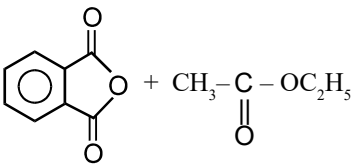
(C) 

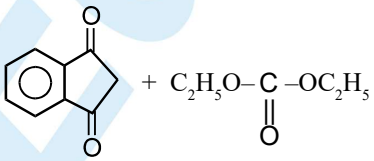
(D) 

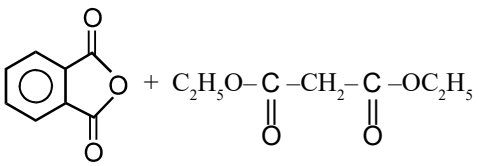
74. In the following reaction, A + B 

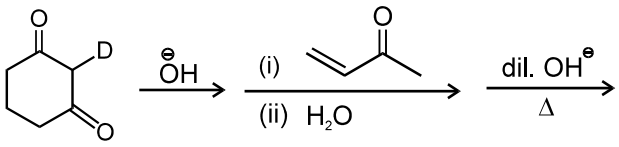
A and B respectively are :

(A) 

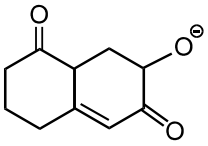
(B) 

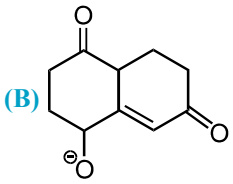
(C) 

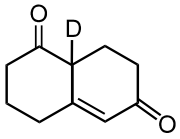
(D) 

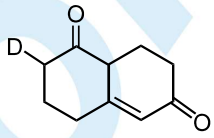
75. 

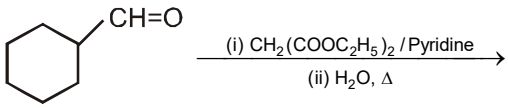
(X) Identify.

(A) 

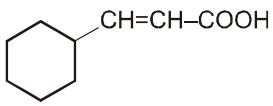
(B) 

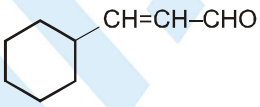
(C) 

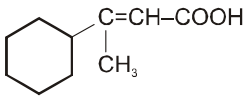
(D) 

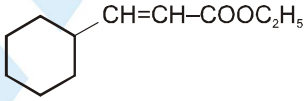
76. 

(P) is

(A) 

(B) 

(C) 

(D) 

77. 

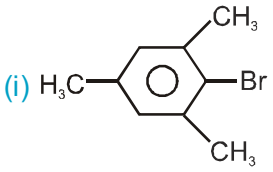
The incorrect statement is

(A) Total five alkenes are obtained

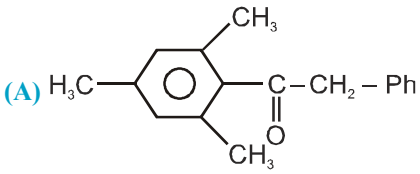
(B) Total six different carbonyl compounds are obtained on ozonolysis

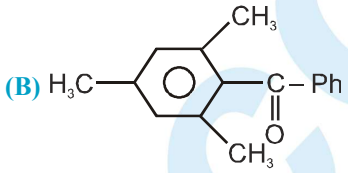
(C) All carbonyl compounds can give aldol reaction when treated with dil KOH

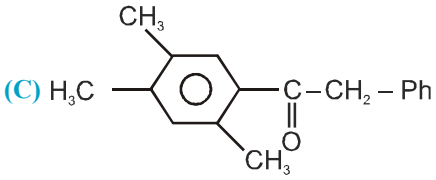
(D) Only two carbonly compounds give positive iodoform test

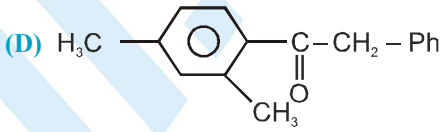
78. (i)  $\xrightarrow{Mg/Ether}$ [A] $\xrightarrow[(ii)H_2O/H^{\oplus}]{(i)CO_2}$ [B] $\xrightarrow{SOCl_2}$ [C] $\xrightarrow{(i)\,(C_6H_5CH_2)_2CuLi}$ [D]

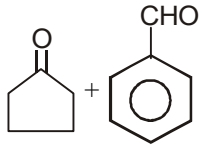
Identify **(D)** in the following sequence of reaction.

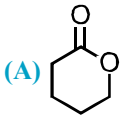
(A) 

(B) 

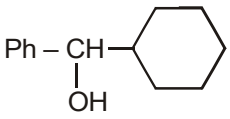
(C) 

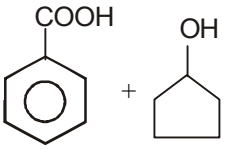
(D) 

79.  $\xrightarrow{\Theta\ OH/\Delta}$ Product is.

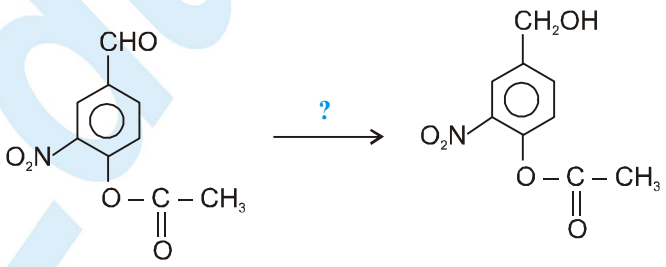
(A) 

(B) 

(C) 

(D) 

80. The suitable reagent for the following reaction is :



(A) $LiAlH_4$ **(B)** Na / C_2H_5OH **(C)** H_2 / Ni **(D)** $CH_2 = O / OH^{\Theta}$