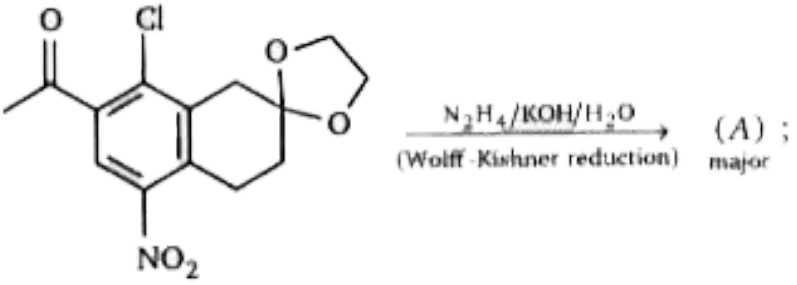
CHEMISTRY

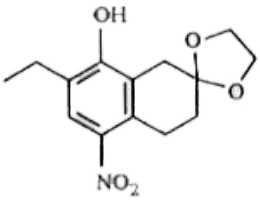
BOOKS - MS CHOUHAN

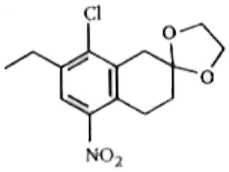
ALDEHYDES AND KETONES

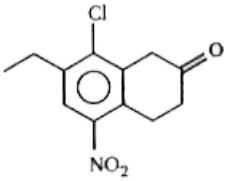
Level 1

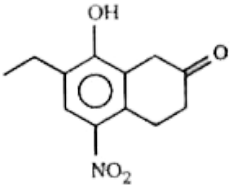
1. 

, Product A is :

A. 

B. 

C. 

D. 

Answer: A

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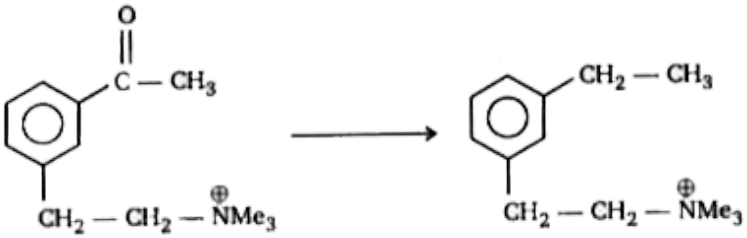
2. 

Above conversion can be achieved by :

A. Wolf-Kishner reduction

B. Clemmensen reduction

C. $LiAlH_4$

D. $NaBH_4$

Answer: B

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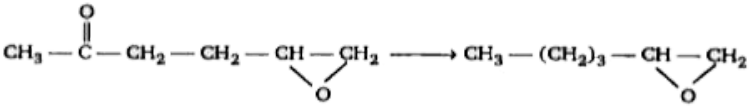
3. 

Above conversion can be achieved by :

A. Wolf-Kishner reduction

B. Clemmensen reduction

C. $HS-CH_2-CH_2-SH_2$ following by Raney Ni

D. None of these

Answer: D

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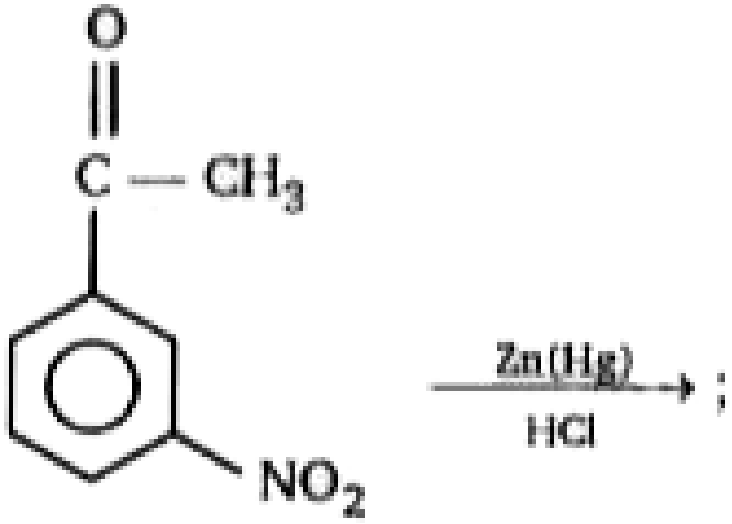
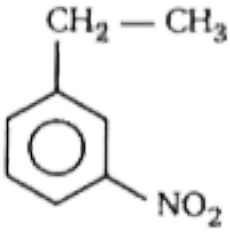


4. , Product of the Clemmensen reduction is :

A.



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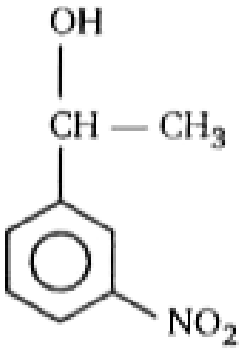
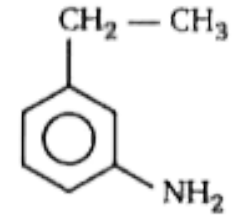
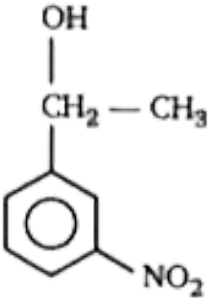


C.



D.



Answer: C

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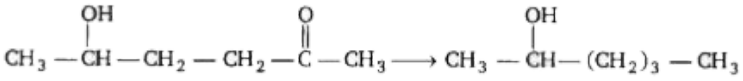
5.



Above conversion can be achieved by :

A. Wolf-Kishner reduction

B. Clemmensen reduction

C. $LiAlH_4$

D. $NaBH_4$

Answer: A

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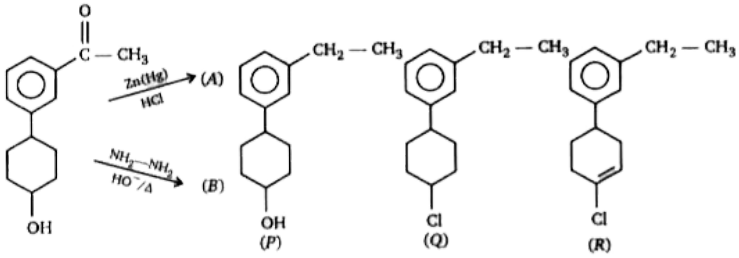
6.



Identify product (A) & (B) from the given product P, Q, R:

A. A = P, B = Q

B. A = Q, B = R

C. A = Q, B = P

D. A = R, B = P

Answer: C

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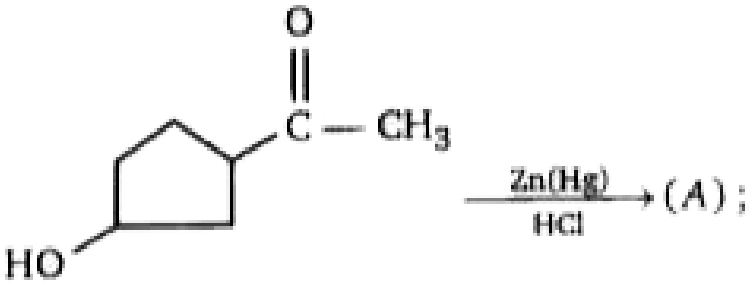
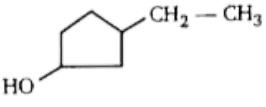
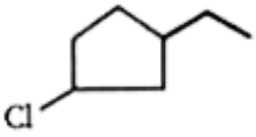
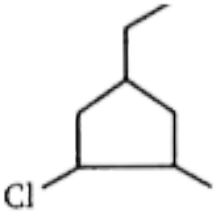
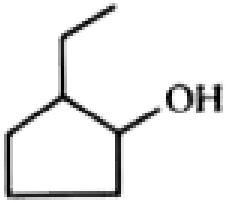
7. 

, Identify the A.

A. 

B. 

C. 

D. 

Answer: B

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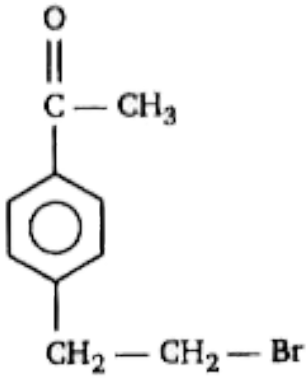
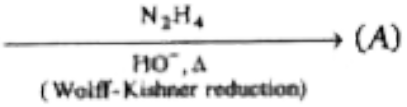
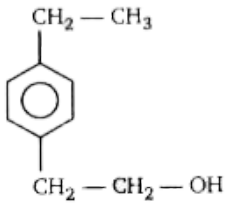
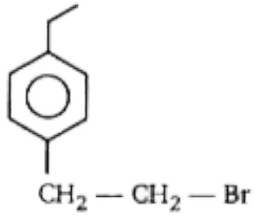
8. 

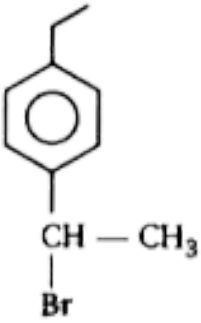


, Product (A) is :

A. 

B. 

C. 

D. 

Answer: B

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9. 

, Above conversion can be carried out by :

A. Clemmensen reduction

B. Wolf-Kishner reduction

C. $LiAlH_4$

D. $NaBH_4$

Answer: B

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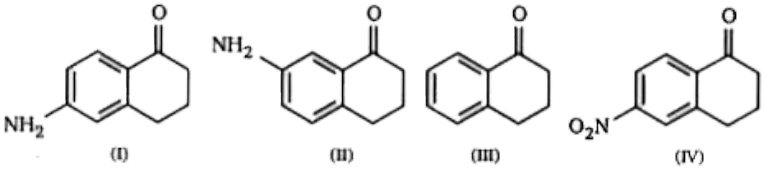
10. Increasing order of equilibrium constants for the formation of a hydrate:



A. $IV < III < II < I$

B. $IV < III < I < II$

C. $I < II < III < IV$

D. $II < III < I < IV$

Answer: C

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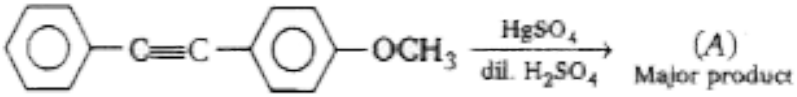
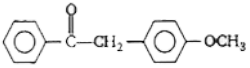
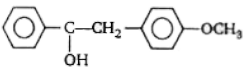
11.

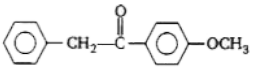


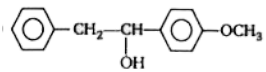
Product

(A) is :

A. 

B. 

C. 

D. 

Answer: C

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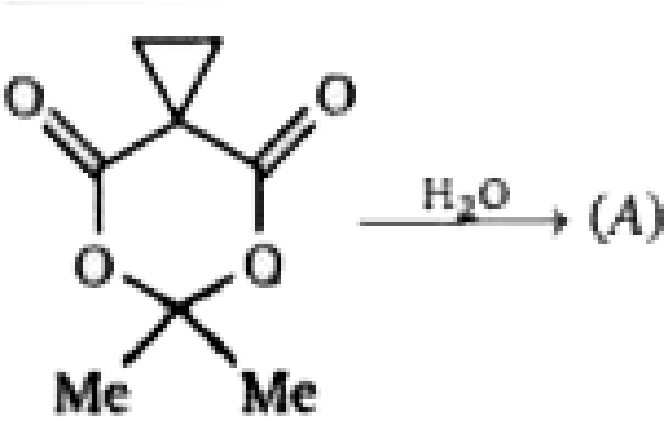
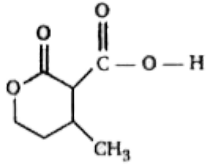
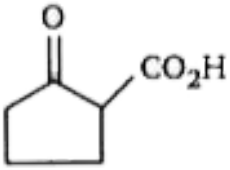
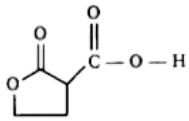
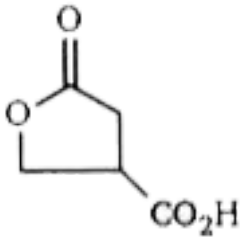
12. 

Predict the product of hydrolysis of the above molecule.

A. 

B. 

C. 

D. 

Answer: C

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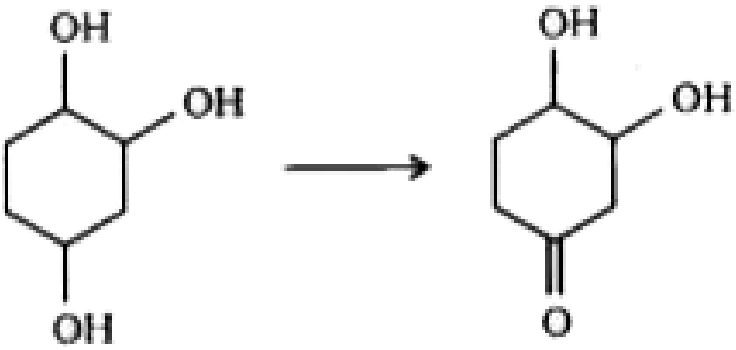
13. 

, This conversion can be achieved by :

A. $Me_2CO / H^+, H_3O^{\oplus}, KMnO_4 / HO^-$

B. $Me_2CO / H^+, KMnO_4, H_3O^+$

C. $KMnO_4 / NaO_4, Me_2CO / H^+, H_3O^+$

D. $KMnO_4 / NaIO_4, H_3O^+, Me_2CO / H^+$

Answer: B

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14. 

Compound (A) & (B) can be differentiated by :

A. 2-4-DNP

B. Fehling solution

C. Lucas reagent

D. $NaHSO_3$

Answer: B

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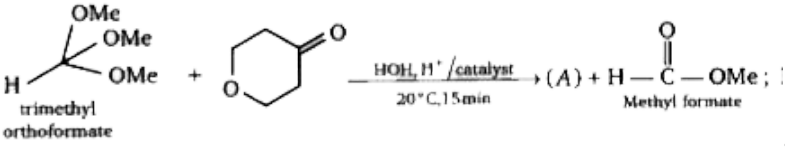
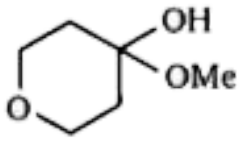
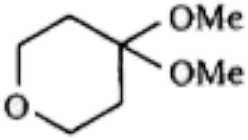
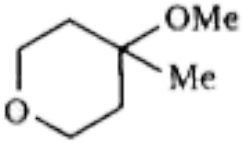
15. 

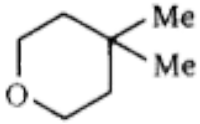
, Product

(A) is :

A. 

B. 

C. 

D. 

Answer: B

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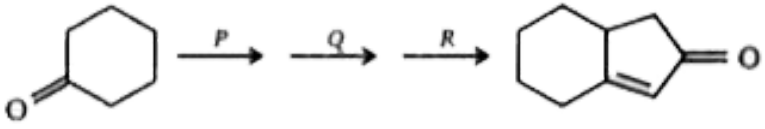
16. 

Reagents to carry out above conversion, P, Q, R respectively are :

A. $H_2C = CH - CH_2 - Br, \left(HO^{\ominus}\right), \left[HO^{\ominus}, \Delta\right],$ Wacker-process

B. $H_2C = CH - CH_2 - Br, \left(HO^{\ominus}\right),$ Wacker-process, $HO^{\ominus}, \Delta$

C. Wacker process, $H_2C = CH - CH_2 - Br, \left(HO^{\ominus}\right), HO^{\ominus}, (\Delta)$

D. Wacker process, $HO^{\ominus}(\Delta), H_2C = CH - CH_2 - Br, \left(HO^{\ominus}\right)$

Answer: B

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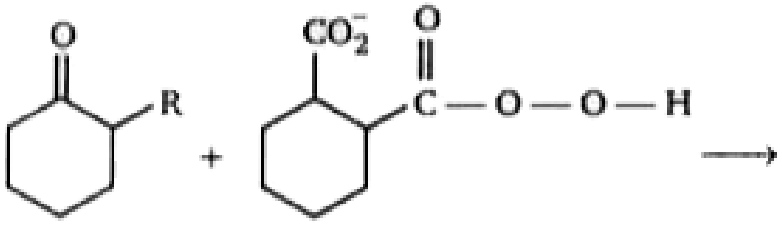
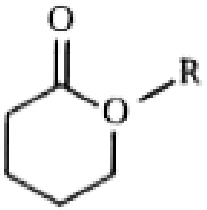
17.



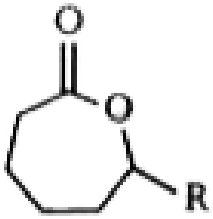
Above reaction is a Baeyer Villiger rearrangement of an asymmetric

ketone with magnesium mono peroxo pthalate hexahydrate (in the drawing, Mg^{+2} is omitted for clearity) Identify major product.

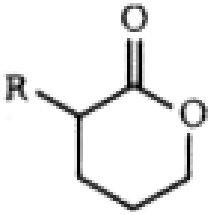
A.



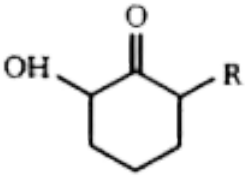
B.



C.



D.



Answer: B

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18.

Above compounds can be differentiated by following reagent:

A. 2-4 DNP (Brady reagent)

B. Tollen's reagent

C. Lucas reagent

D. $NaHSO_3$

Answer: B

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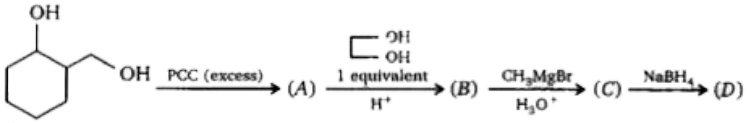
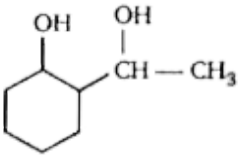
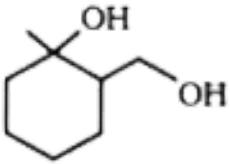
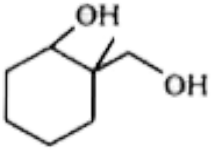


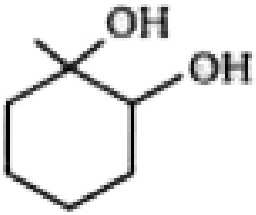
19.

Product (D) will be :

A.


B.


C.


D.


Answer: B

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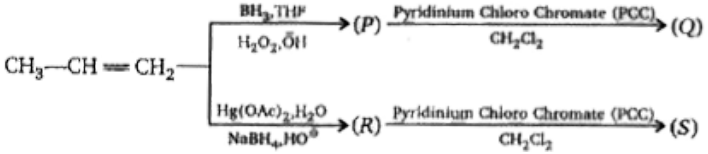
20.



Relationship between products (Q) and (S) is:

A. Positional isomer

B. Chain isomer

C. Stereoisomer

D. Functional isomer

Answer: D

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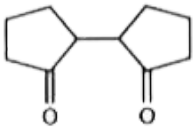
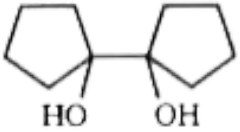
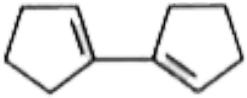
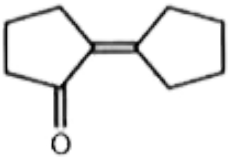
21. In the reaction,

, the product (X) is :

A. 

B. 

C. 

D. 

Answer: B

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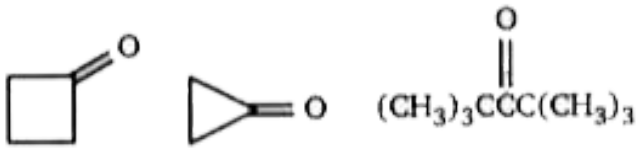
22. Rank the following in order of increasing value of the equilibrium constant for hydration, $K_{\text{hyd.}}$. (smallest value first).



A. $1 < 2 < 3$

B. $3 < 1 < 2$

C. $2 < 1 < 3$

D. $2 < 3 < 1$

Answer: B

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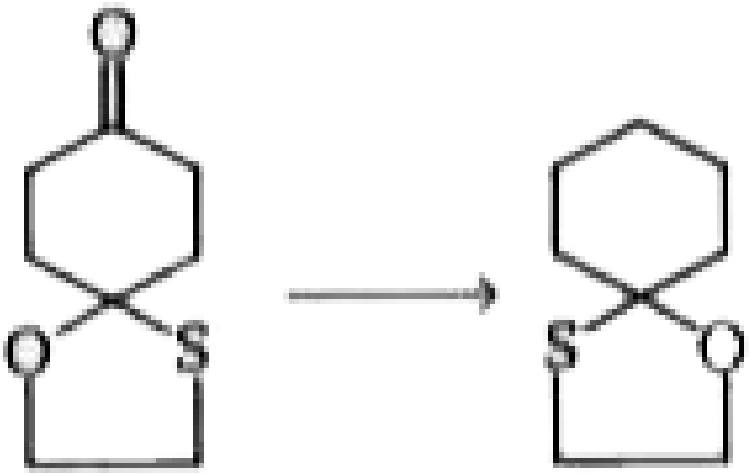

23.

Above conversion can be achieved by :

A. Zn(Hg), HCl

B. $NH_2 - NH_2 / KOH / \Delta$

C. $LiAlH_4$

D. H_2 / Ni

Answer: B

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24. Which sequence represents the best synthesis of hexanal ?

$CH_3CH_2CH_2CH_2CH_2CH=O$
Hexanal

(a) 1. $CH_3CH_2CH_2\ CH_2Br + NaC\equiv CH$
2. $H_2O,\ H_2SO_4, HgSO_4$

(b) 1. $CH_3CH_2CH_2CH=CH_2 + CH_3\overset{O}{\overset{\|}{C}}OOH$
2. CH_3MgBr, diethyl ether
3. H_3O^+
4. PCC, CH_2Cl_2

(c) 1. $CH_3CH_2CH_2CH_2\overset{O}{\overset{\|}{C}}CH_3$
2. $CH_3\overset{O}{\overset{\|}{C}}OOH$
3. $LiAlH_4$
4. H_2O
5. PCC, CH_2Cl_2

(d) 1. $CH_3CH_2CH_2CH_2MgBr + H_2C\text{—}CH_2$ (O)
2. H_3O^+
3. PCC, CH_2Cl_2

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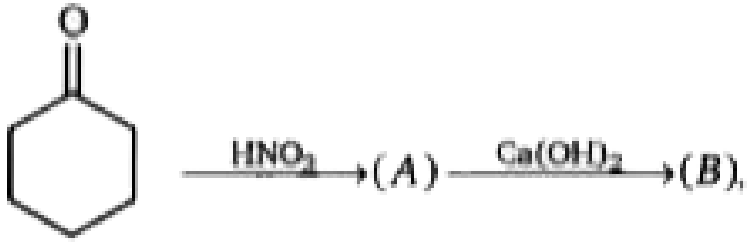
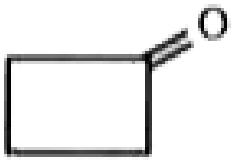
25.



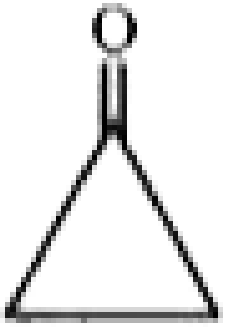
,

Product (B) in this reaction is :

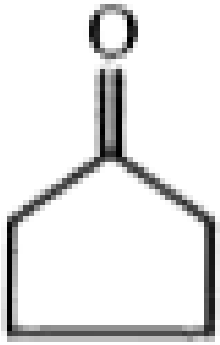
A.



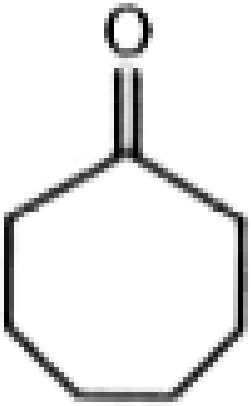
B.



C.



D.



Answer: C

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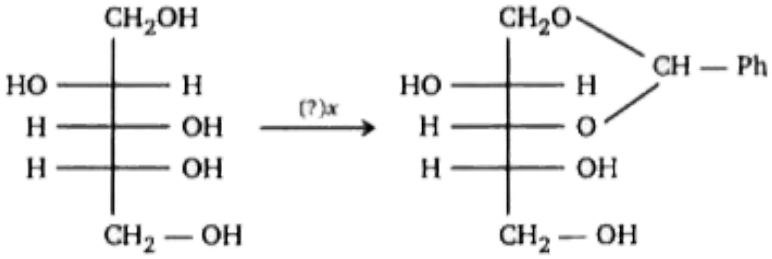
26.



,

Compound (x) in the above reaction is :

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

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

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

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

Answer: B

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27. $Ph - \overset{\overset{O}{||}}{C} - CH_3 \xrightarrow[HCl]{NaNO_2} (A) \xrightarrow[\text{heat}]{AC_2O} (B) \xrightarrow{H_3O^+} (C)$

Product (C) of the above reaction is :

A. $Ph - CO_2H$

B. $Ph - \overset{\overset{O}{||}}{C} - CO_2H$

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

D. $Ph - \overset{\overset{O}{||}}{C} - CH_2OH$

Answer: B

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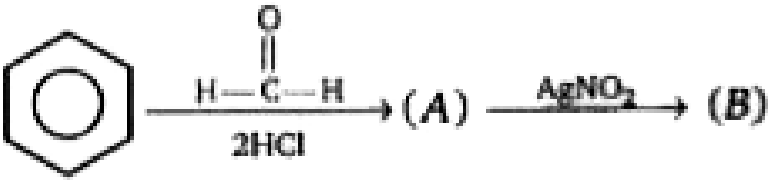
28. 

, Product (B) of the reaction is :

A. $Ph - CH_3 - NO_2$

B. $Ph - CH_3 - ONO$

C. $Ph - CHO$

D. $Ph - O - N = O$

Answer: A

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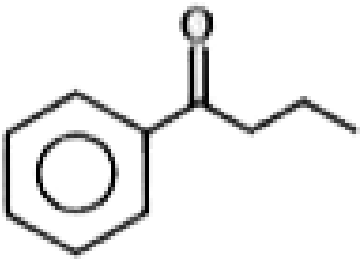
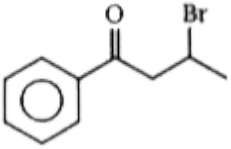
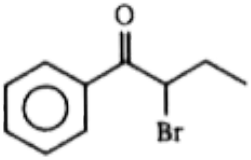


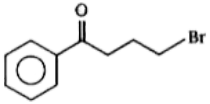
$\xrightarrow[0.75 \text{ mole \%}]{Br_2} (A)$; (100%)
$AlCl_3$ Et_2O

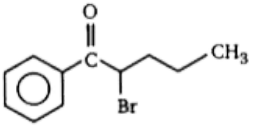
29.

Product (A) of the above reaction is (bromination occur not in the benzene ring) :

A. 

B. 

C. 

D. 

Answer: B

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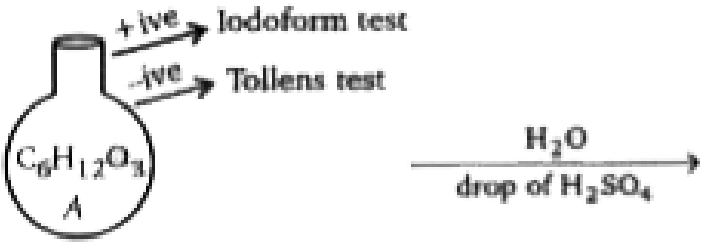
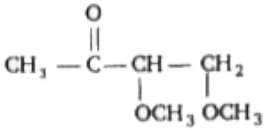
30.



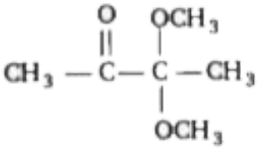
Positive

Tollens test Compound (A) is :

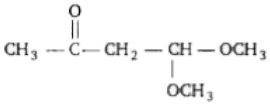
A.



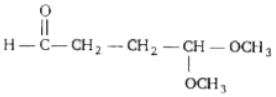
B.



C.



D.



Answer: C

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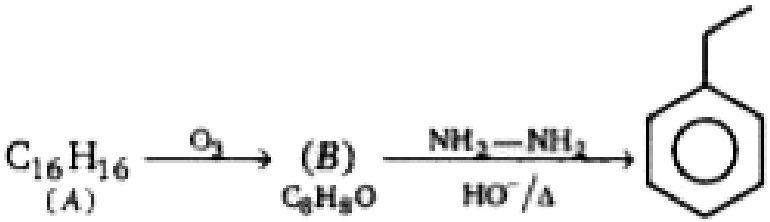
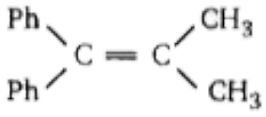
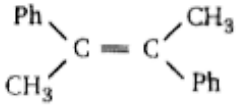
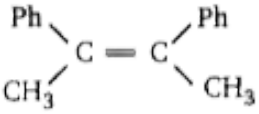
31. 

, Reactant (A) in this reaction is :

A. 

B. 

C. 

D. both (b) and ©

Answer: D

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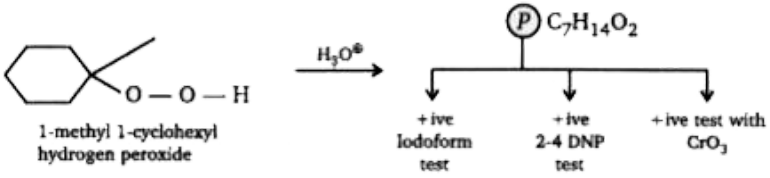
32.



Compound (P) is :

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

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

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

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

Answer: C

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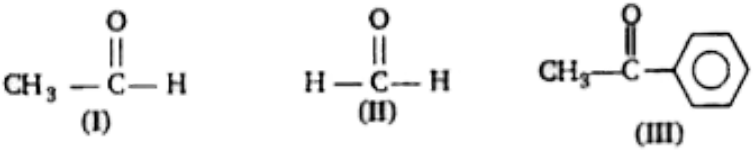
33. Correct order of reactivity of following compounds towards Grignard reagent?



A. $I > II > III$

B. $II > I > III$

C. $II > III > I$

D. $I > III > II$

Answer: B

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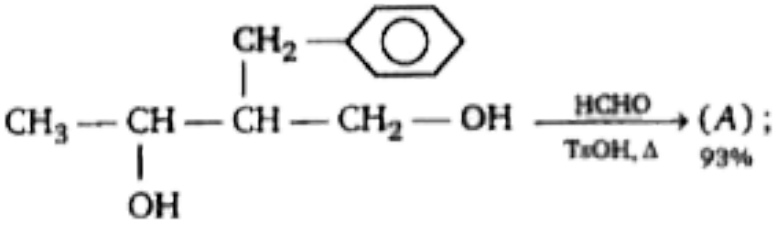
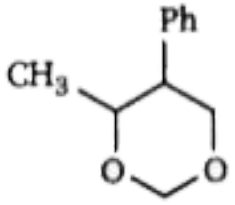
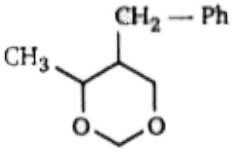


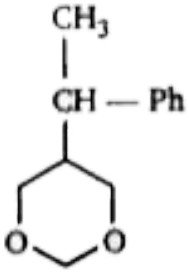
34. , Product (A) is :



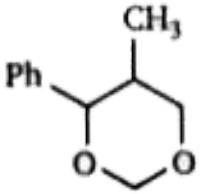
A.



B.



C.



D.

Answer: B

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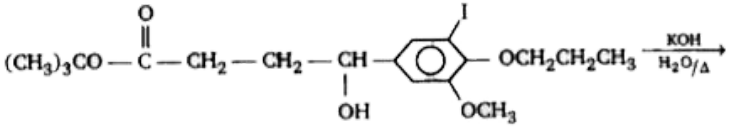
35.



The number of products obtained in above reaction is :

A. 2

B. 3

C. 4

D. 5

Answer: A

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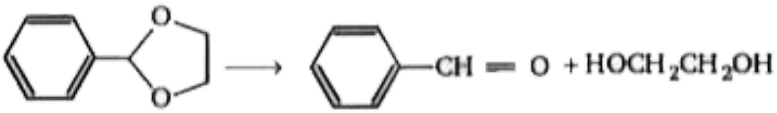
36. What reagent and/or reaction conditions would you choose to bring about the following conversion?



A. 1. $LiAlH_4$, 2. H_2O

B. H_2O, H_2SO_4, heat

C. H_2O, $NaOH$, heat

D. PCC , CH_2Cl_2

Answer: B

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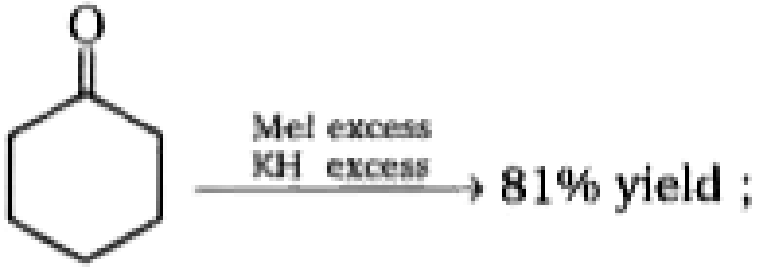
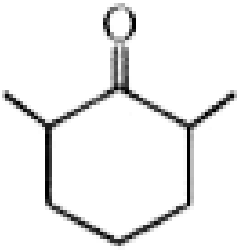
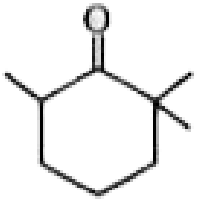
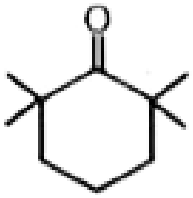
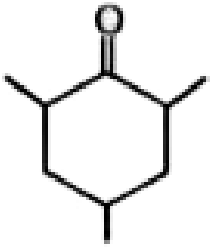
37. 

, Product of the reaction is :

A. 

B. 

C. 

D. 

Answer: C

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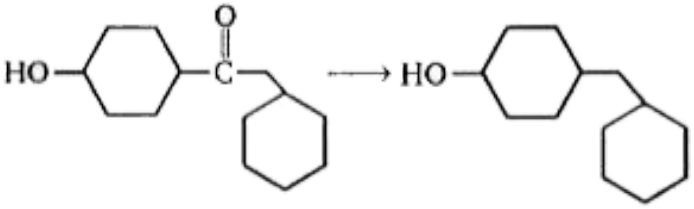

38.

The above reduction can be best carried out by :

A. Clemmensen reduction

B. Wolf-Kishner reduction

C. $NaBH_4$

D. None of these

Answer: D

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39. $CH_3 - C \equiv CH \xrightarrow[\text{dil.} H_2SO_4]{HgSO_4} (A)$

$CH_3 - C \equiv CH \xrightarrow[(2)\, H_2O_2 / HO^-]{(1)\, BH_3 . THF} (B)$

Product (A) and (B) is differentiated by :

A. 2-4-DNP

B. NaOI

C. Na-metal

D. $NaHSO_3$

Answer: B

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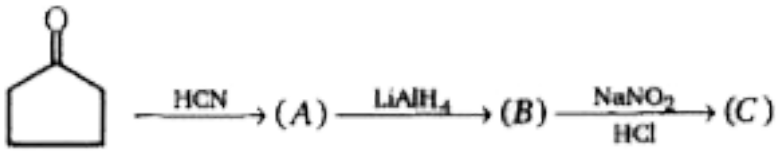
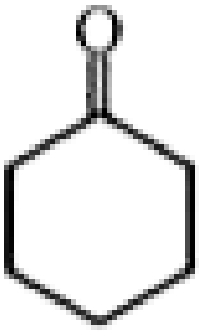
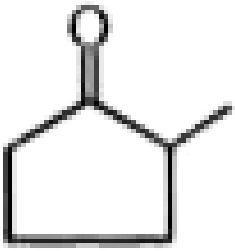
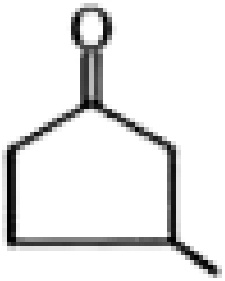
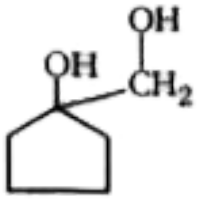
40. 

End product (C) in above reaction is :

A. 

B. 

C. 

D. 

Answer: A

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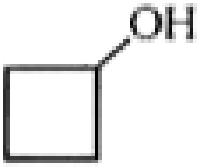
41. Compound (X) C_4H_8O, which reacts with 2,4-DNP derivative and gives negative haloform test is :

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

B. $CH_3 - \underset{\underset{CH_3}{|}}{CH} - CHO$

C. 

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

Answer: B

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42. When a nucleophile encounters a ketone, the site of attack is :

A. the carbon atom of the carbonyl

B. the oxygen atom of the carbonyl

C. both the carbon and oxygen atoms, with equal probability

D. no attack occurs as ketones do not react with nucleophiles

Answer: A

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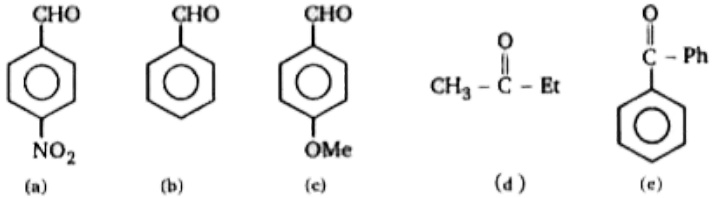
43. The correct order of rate of reaction toward nucleophilic addition reaction:



A. $a > b > c > d > e$

B. $a > b > d > c > e$

C. $a > d > e > b > c$

D. $a > b > e > d > c$

Answer: A

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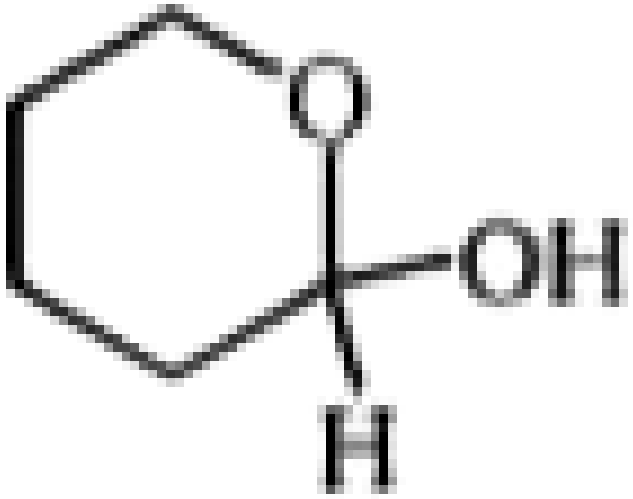
44. The structure



would be best classified as a (an) :

A. Acetal

B. Hemiacetal

C. Hydrate

D. Cyanohydrin

Answer: B

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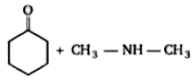
45. Which of the following pairs of reactants is most effective in forming an enamine ?

A. $CH_3CH_2\overset{O}{\overset{||}{C}}H + \left[(CH_3)_2CH\right]_2NH$

B. 

C. $(CH_3)_3C\overset{O}{\overset{||}{C}}H + (CH_3)_2NH$

D. None of these form an enamine.

Answer: B

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46. The reaction of $C_6H_5CH = CHCHO$ with $LiAlH_4$ gives :

A. $C_6H_5CH_2CH_2CH_2OH$

B. $C_6H_5CH = CHCH_2OH$

C. $C_6H_5CH_2CH_2CHO$

D. $C_6H_5CH_2CHOHCH_3$

Answer: A

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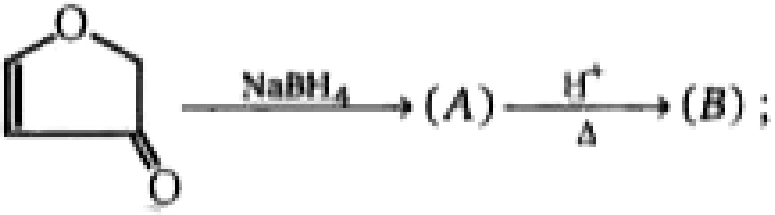
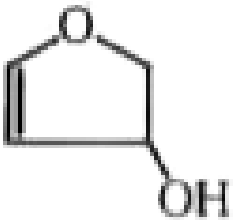
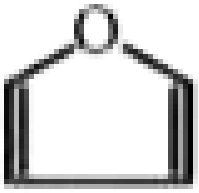
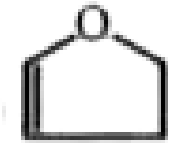
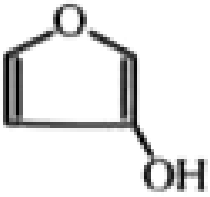
47. 

, Product (B) of the reaction is :

A. 

B. 

C. 

D. 

Answer: B

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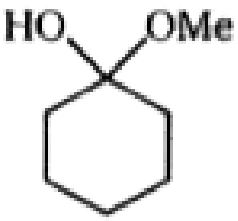
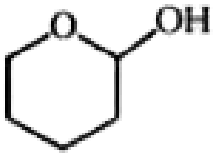
48. Which of following compound is hemiacetal ?

A. 

B. 

C. 

D. all of these

Answer: D

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49. $Ph - CH_2 - C \equiv N \xrightarrow[THF]{LDA} \xrightarrow{CH_3I} 71\,\%$, End product of the reaction will be :

A. $Ph - CH_3 - CH_2 - NH_2$

B. $Ph - CH_2 - NH_2$

C. $Ph - \underset{\underset{CH_3}{|}}{CH} - C \equiv N$

D. $Ph - CH = C = N - CH_3$

Answer: C

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50. $Ph - CH = CH - \overset{\overset{O}{||}}{C} - CH_3 \rightarrow Ph - CH = CH - CO_2H$

Above conversion can be achieved by :

A. $KMnO_4$, Δ followed by H^+

B. $I_2 / NaOH$ followed by H^+

C. H_2 / Pt

D. $LiAlH_4$

Answer: B

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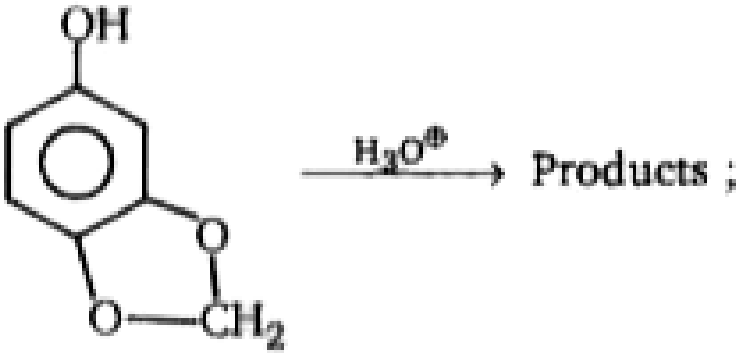
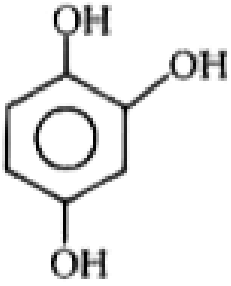
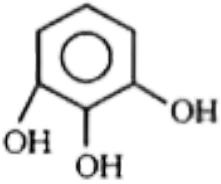
51. 

Products,

Product of the reaction is/are :

A. 

B. 

C. HCHO

D. Both (a) and (c)

Answer: D

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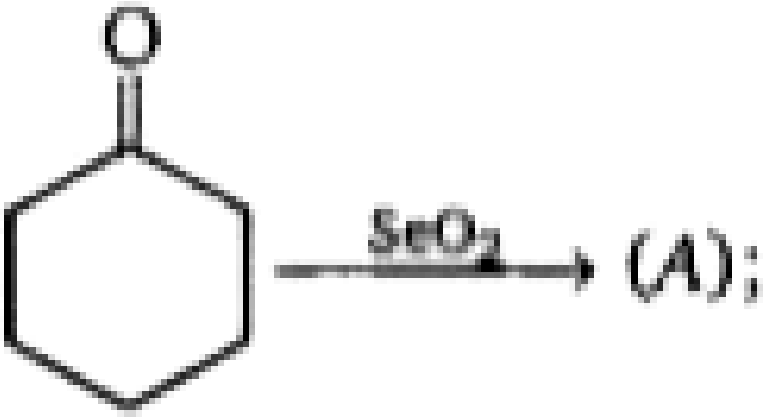
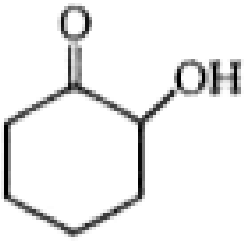
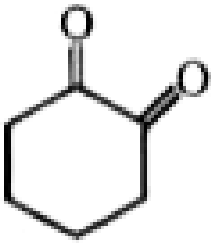


52. , Product

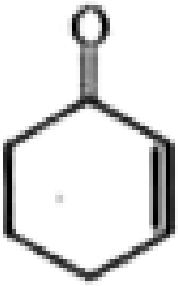
(A) of the reaction is :

A. 

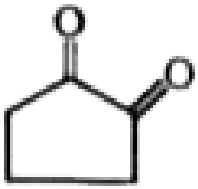
B.



C.



D.



Answer: B

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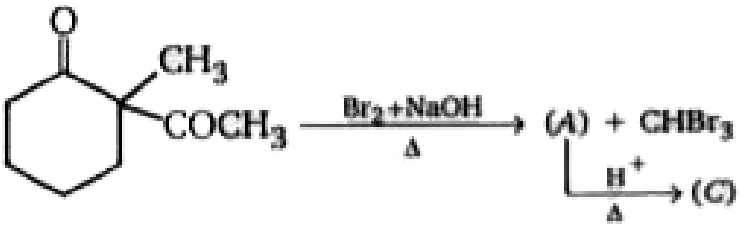
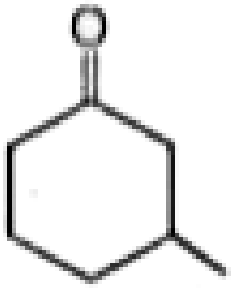
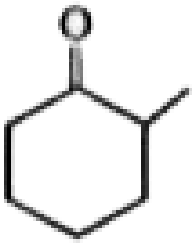


53. , Product (C) of the reaction is :

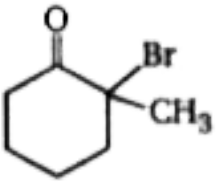
A.

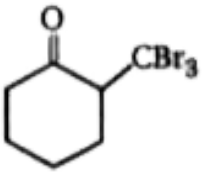


B.



C.



D. 

Answer: B

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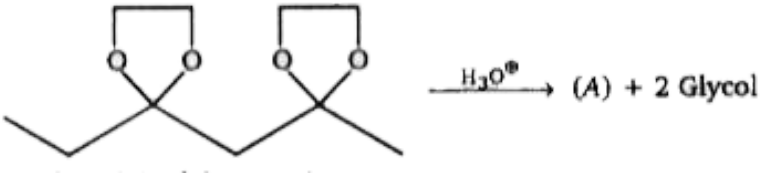
54. 

Product (A) of the reaction will be :

A. 

B. 

C. 

D. 

Answer: C

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55. $R-\overset{\overset{O}{||}}{C}-H \xrightarrow{R-NH_2} R-CH=N-R$. This reaction gives best yield at :

A. pH 1 - 2

B. pH 4 - 5

C. pH 10 -11

D. pH 13 - 14

Answer: B

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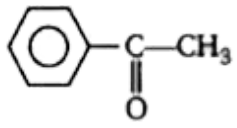
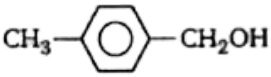
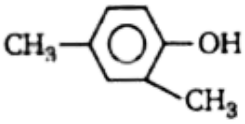
56. An organic compound having the molecular formula $C_8H_{10}O$ on being heated with I_2 and dilute NaOH gives a yellow precipitate. The

expected compound is :

A. 

B. $C_6H_5CHOHCH_3$

C. 

D. 

Answer: B

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57. Compound A (molecular formula C_3H_8O) is treated with acidifed potassium dichromate to form a product B (molecular formula C_3H_6O). B forms a shining sliver mirror on warming with ammonical silver nitrate, B when treated with an aqueous solution of

$NH_2NHCONH_2$ and sodium acetate gives a product C. Identify the structure of C

A. $CH_3CH_2CH = NNHCONH_2$

B. $CH_3\underset{\underset{CH_3}{|}}{C} = NHHCONH_2$

C. $CH_3\underset{\underset{CH_3}{|}}{C} = NCONHNH_2$

D. $CH_3CH_2CH = NCONHNH_2$

Answer: A

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58. In the reaction, the acid obtained will be :

$$CH_3CHO - HCN \rightarrow CH_3CH(OH)CN \xrightarrow{H-OH} CH_3CH(OH)COOH$$

A. D-isomer

B. L-isomer

C. (80%D + 20%L) mixture

D. (50%D + 50%L) mixture

Answer: D

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59. In the following sequence :

$CH_3CH_2Cl \xrightarrow{NaCN} (i) \xrightarrow{Ni/H_2} (ii) \xrightarrow{\text{acetic anhydride}} (iii)$, Product (iii) is :

A. $CH_3CH_2CH_2NH_2$

B. $CH_3CH_2CH_2CONHCH_3$

C. $CH_3CH_2CH_2NHCOCH_3$

D. $CH_3CH_2CH_2CONHCOCH_3$

Answer: C

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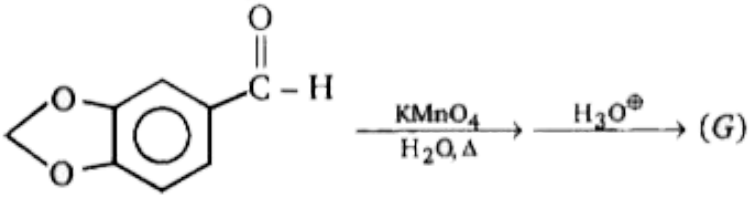
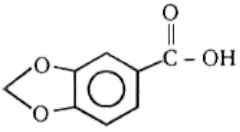
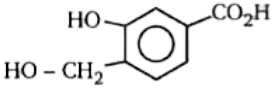
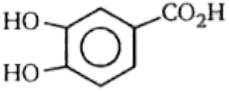
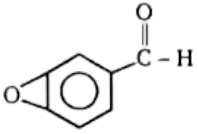
60. 

Product (G) is :

A. 

B. 

C. 

D. 

Answer: C

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61. Carbonyl compounds can generally be converted to hydrocarbons by :

A. H_2 / Pt

B. $LiAlH_4$

C. $N_2H_4 - KOH / \Delta$

D. $K_2Cr_2O_7 - H_2SO_4$

Answer: C

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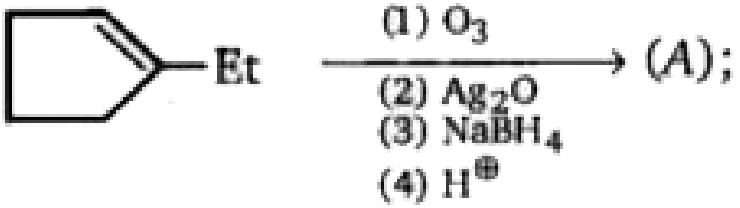
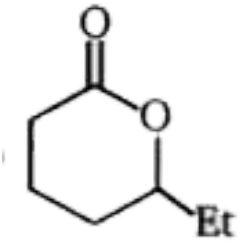
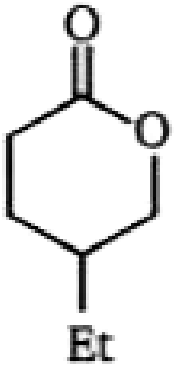


62. , Product (A) is :

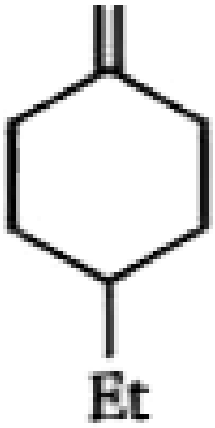
A.

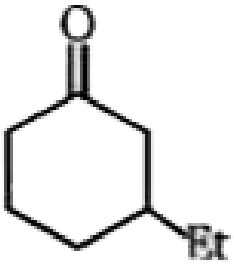


B.



C.





D.

Answer: A

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63. Which statement about the aldol condensation is correct ?

A. A Lewis acid is commonly used as a catalyst

B. The initial step is probably the formation of a carbanion

C. A Lewis base is employed to induce carbocation formation

D. The carbon chain is lengthend through the elimination of 1 mole of water.

Answer: B

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64. A compound gives a positive test with $I_2 / NaOH$ and is extracted from benzene by saturated $NaHSO_3$. It may be :

A. $CH_3(CH_2)_4CHO$

B. $CH_3(CH_2)_3COCH_3$

C. $CH_3CH_2COCH_2CH_3$

D. $CH_3(CH_2)_4CH_2OH$

Answer: B

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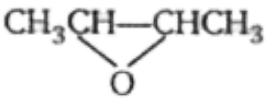
65. Which of the following compounds on reaction with excess CH_3MgBr and subsequent hydrolysis will give a tertiary alcohol?

A. C_2H_5CHO

B. $C_2H_5CO_2CH_3$

C. C_2H_5COOH



D.

Answer: B

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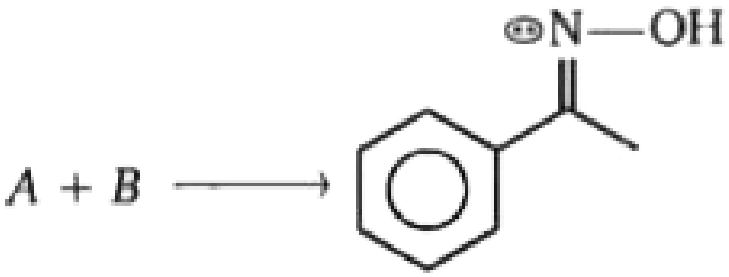

66.

Reactant (A) and (B) is :

A. $Ph - CH_2 - CH = O + NH_2 - OH$

B. $Ph - CH = O + NH_3 - OH$

C. $Ph - \overset{\overset{O}{||}}{C} - CH_3 + NH_2 - NH_2$

D. $Ph - \overset{\overset{O}{||}}{C} - CH_3 + NH_2 - OH$

Answer: D

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67. $CH_3 - \overset{\overset{O}{||}}{C} - OH \xrightarrow[\Delta]{Ca(OH)_2} (A)$

Product (A) is :

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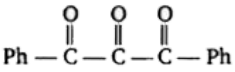
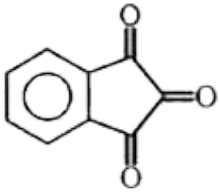
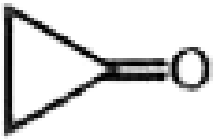
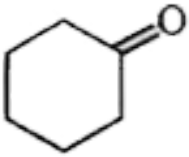
68. Which of the following does not form a stable hydrate on addition of H_2O ?

A. 

B. 

C. 

D. 

Answer: D

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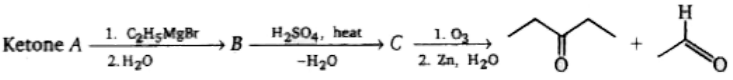
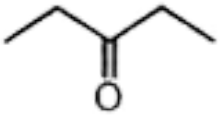
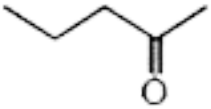
69. Consider the following sequence of reactions.

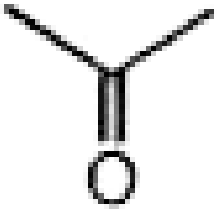


The ketone (A) is :

A. 

B. 

C. 

D. 

Answer: B

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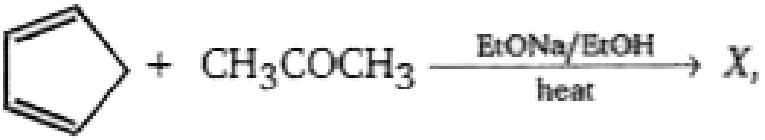
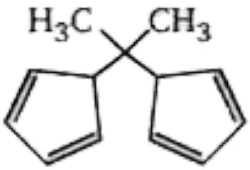
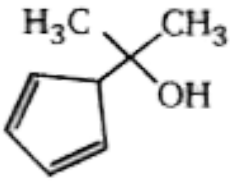
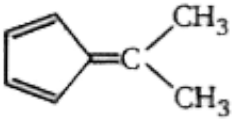
70. In the reaction,

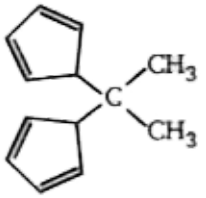


, the product (X) is :

A. 

B. 

C. 

D. 

Answer: C

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71. The conversion of acetophenone into benzoic acid can be achieved by its reaction with :

A. sodium hydroxide followed by acidification

B. iodine and sodium hydroxide, followed by acidification

C. hydroxylamine followed by reaction with H_2SO_4

D. m-chloroperoxobenzoic acid

Answer: B

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72. In which of the following compounds the methylenic 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

Answer: D

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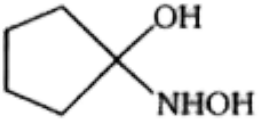
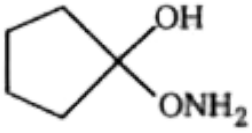
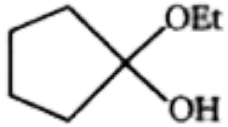
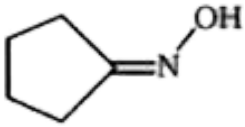
73. Which is the major product of the following reaction ?

A. 

B. 

C. 

D. 

Answer: D

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74. $Ph - \overset{O}{\overset{||}{C}} - OH \xrightarrow{SOCl_2} (A) \xrightarrow[Pd-BaSO_4]{H_2} (B)$

Product (B) is :

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

B. $Ph - CH_2 - OH$

C. $Ph - CH_2 - Cl$

D. $Ph - CH = CH_2$

Answer: A

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75. The presence of unsaturation in organic compounds can be tested with :

A. Schiff's reagent

B. Tollen's reagent

C. Fehling's reagent

D. Baeyer's reagent

Answer: D

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76. Which of the following gives iodoform test?

A. CH_3CH_2OH

B. C_2H_5CHO

C. $(CH_2OH)_2$

D. None of these

Answer: A

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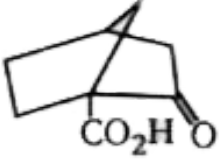
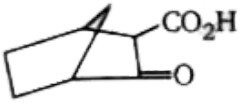
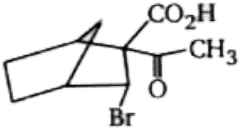
77. Which of the following $btea$-keto carboxylic acid does not undergo decarboxylation on heating?

A. 

B. 

C. 

D. None of these

Answer: A

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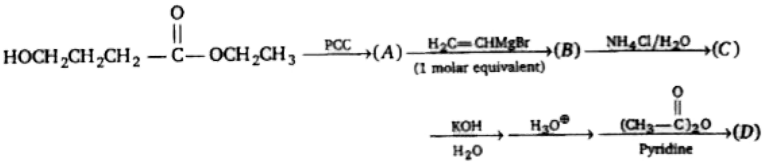
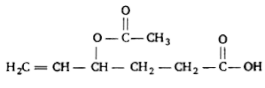
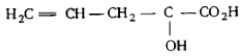
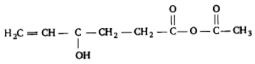
78.

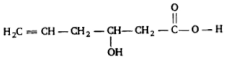


Product (D) is :

A. 

B. 

C. 

D. 

Answer: A

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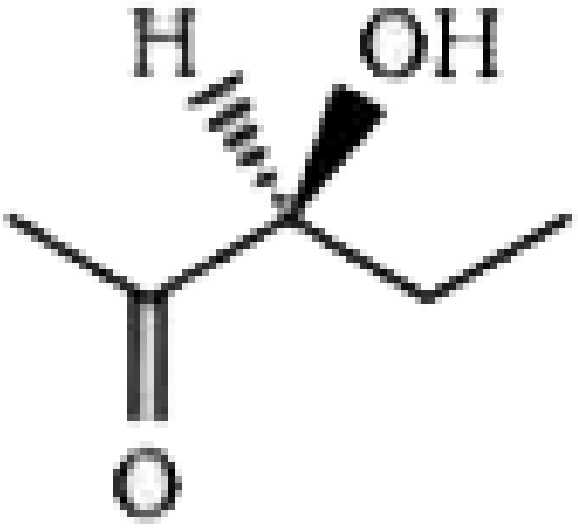
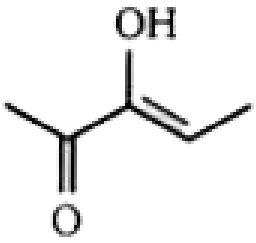
79. The compound shown in the below undergoes racemization on reaction with aqueous acid.

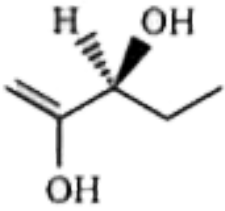


Which of the following structures best represents the intermediate responsible for this process ?

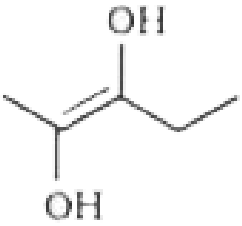
A.



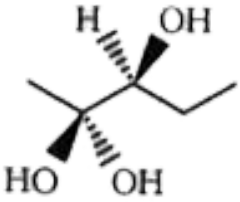
B.



C.



D.



Answer: C

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80. The final product of the following sequence of reaction is :

$$(CH_3O)_2CHCH_2CH_2CH_2Br \xrightarrow{Mg} \xrightarrow{H_2C=O} \xrightarrow[\text{heat}]{H_3O^+}$$

A. $CH_3O\overset{\overset{O}{||}}{C}CH_2CH_2CH_2CH_2OH$

B. $CH_3\overset{\overset{O}{||}}{C}CH_2CH_2CH_2CH_2OH$

C. $HC(=O)CH_2CH_2CH_2CH_2OH$

D. $HC(=O)CH_2CH_2CH_2C(=O)H$

Answer: C

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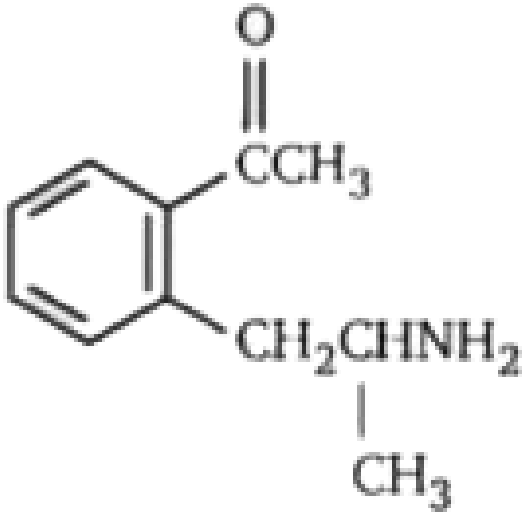
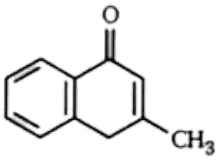
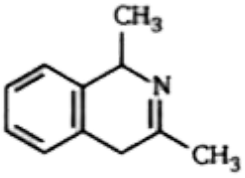
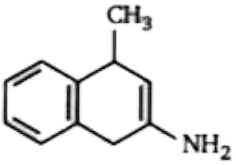
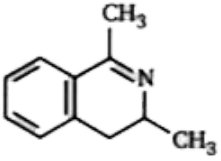
81. The amino ketone shown below undergoes a spontaneous cyclization on standing. What is the major product of this intramolecular reaction ?



A. 

B. 

C. 

D. 

Answer: D

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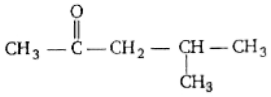
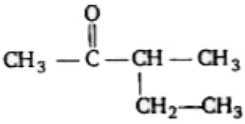
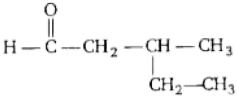
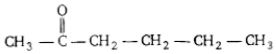
82. Compound (A) $C_6H_{12}O$ is optically active. Compound (A) give negative Tollens test and positive test with 2-4-di-nitro phenyl

hydrazine. Identify A.

A. 

B. 

C. 

D. 

Answer: B

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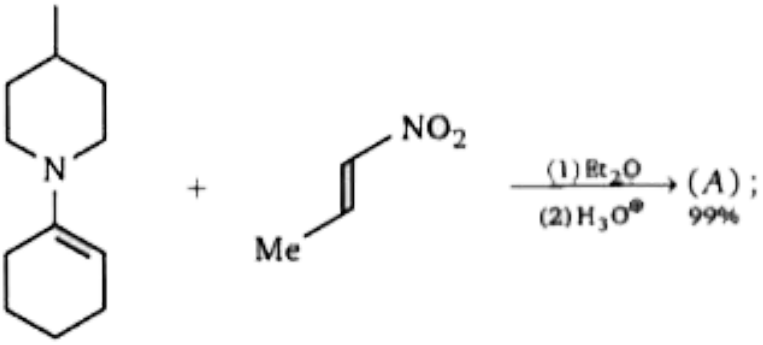
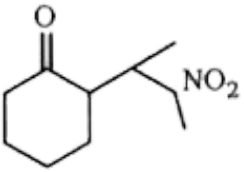
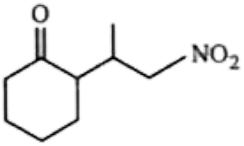
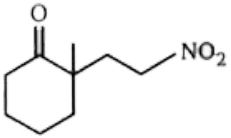
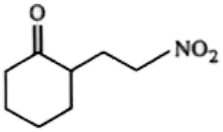


83. , Product (A) of the reaction is :

A. 

B. 

C. 

D. 

Answer: B

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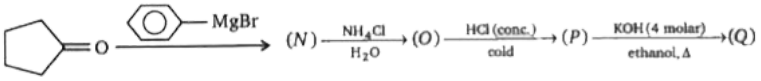
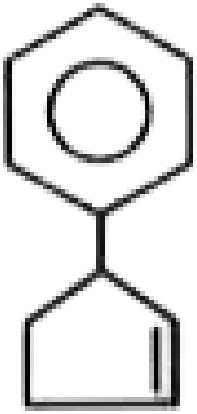
84.

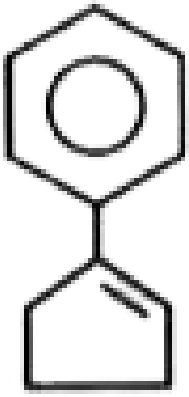


Product (Q) will be:

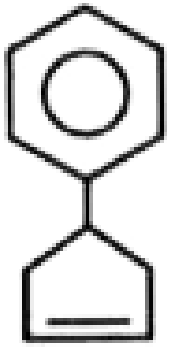


A.

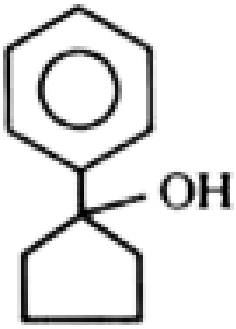
B.



C.



D.



Answer: B

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85. $Ph - CH_3 \xrightarrow{CrO_2Cl_2} (A) \xrightarrow{conc.KOH} Ph - CH_2OH + (B)$

Product (B) of above the reaction is :

A. $Ph - CO_2H$

B. $Ph - CO_2^-$

C. $Ph - CHO$

D. $Ph - CH_3$

Answer: B

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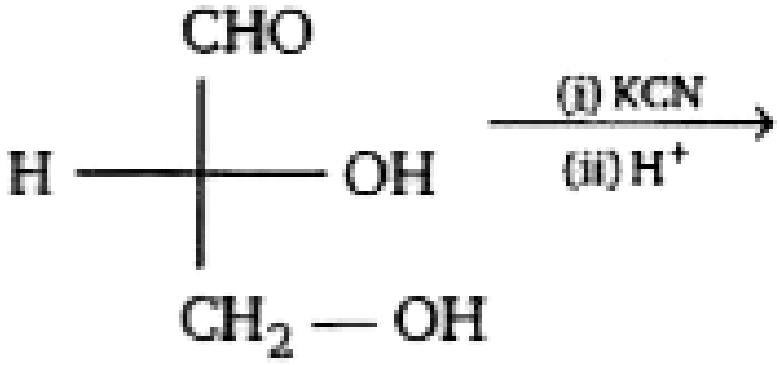
86. 

, Product obtained in the reaction is :

A. Diastereomer

B. Racemic

C. Meso

D. Optically pure enantiomer

Answer: A

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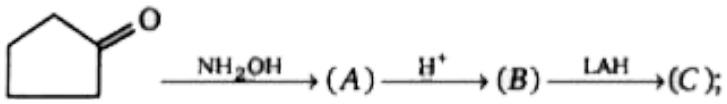
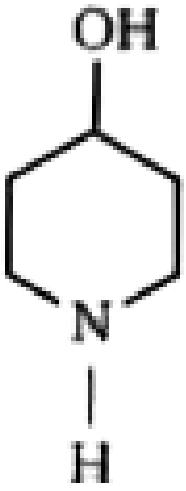
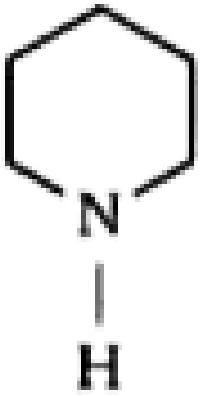
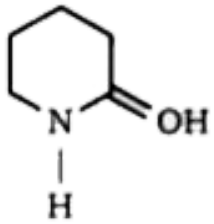
87. 

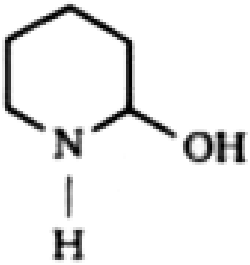
, Product (C) of the reaction is :

A. 

B. 



C.



D.

Answer: B

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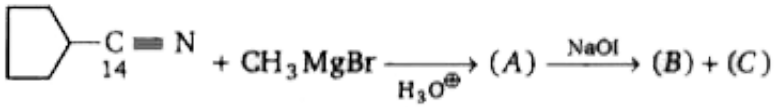
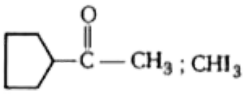
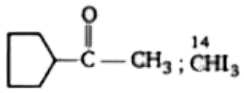
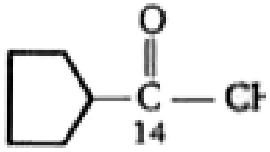


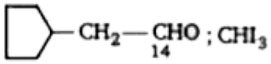
88.

Product (A) and (C) is :

A. 

B. 

C. 

D. 

Answer: C

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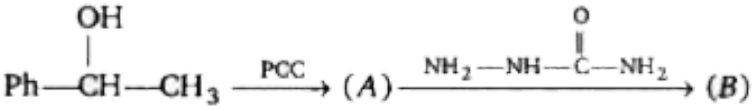
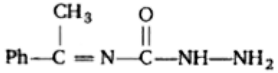
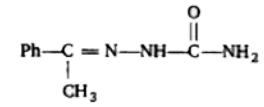
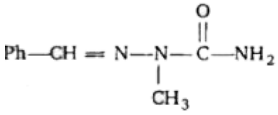
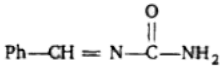
89. 

Product (B) is :

A. 

B. 

C. 

D. 

Answer: B

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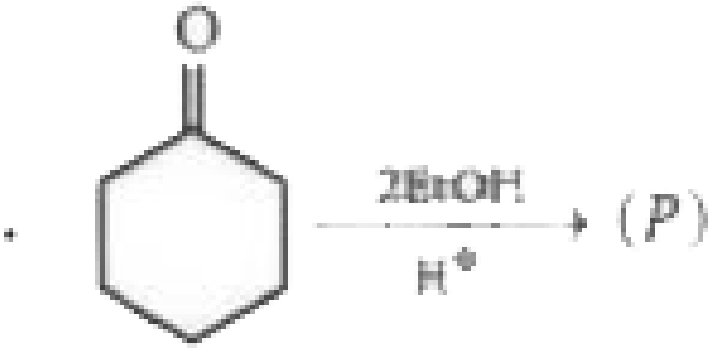
90.



Product (P) is :

A. Hemiacetal

B. Acetal

C. Alcohol

D. Alkane

Answer: B

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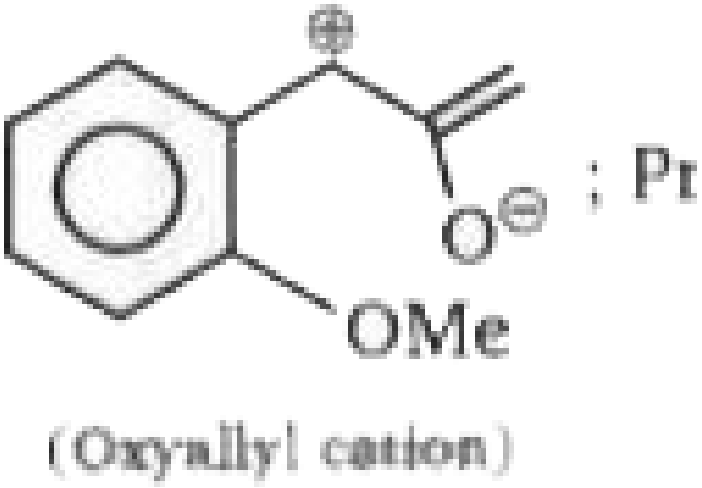
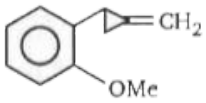
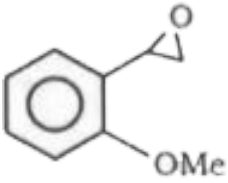


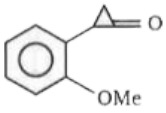
(Oxyallyl cation)

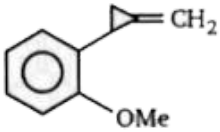
91. , Product

of rearrangement is :

A. 

B. 

C. 

D. 

Answer: C

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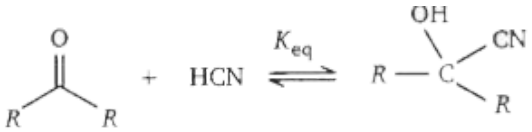
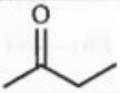
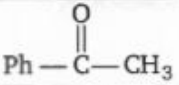
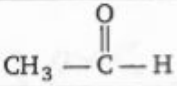


Reactant	$K_{eq.}$
PhCHO	a
	b
	c
	d

92.

The correct order of decreasing value of K_{eq} is :

A. $a > b > c > d$

B. $d > a > b > c$

C. $d > b > a > c$

D. $d > a > c > d$

Answer: B

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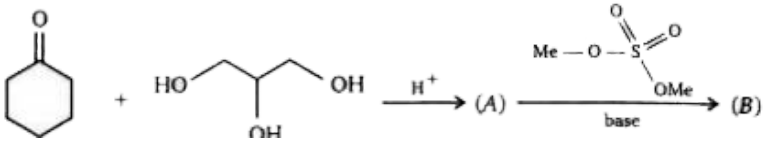
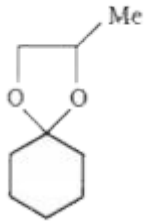
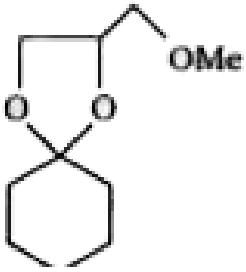
93. Product (B) of the given reaction is :



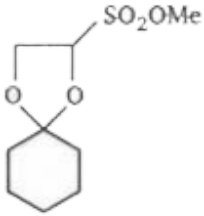
A.



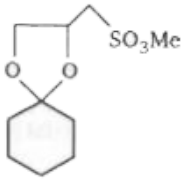
B.



C.



D.



Answer: B

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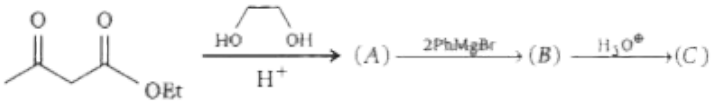
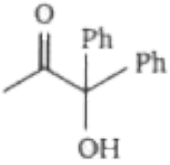
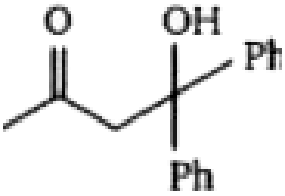
94. End product (C) of the reaction is :

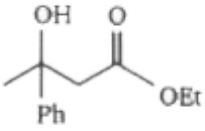




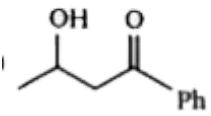
A.



B.



C.



D.

Answer: B

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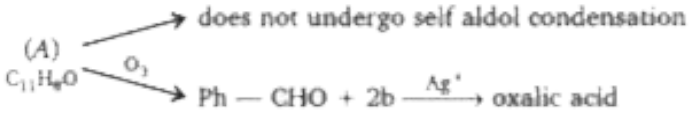
95.



Compound (A) will be :

A. $Ph - C \equiv C - C \equiv C - CHO$

B. $Ph - C \equiv C - CH = CH - CHO$

C. $Ph - CH = CH - C \equiv C - CHO$

D. $Ph - CH = CH - C = CH - CO_2H$

Answer: C

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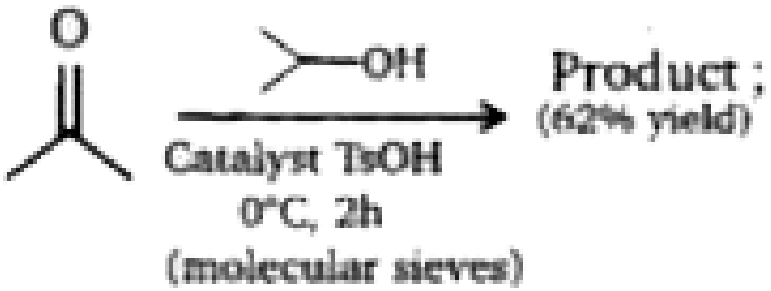
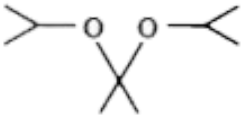


96. , Product of the reaction is :

A. 

B. 

C. 

D. 

Answer: C

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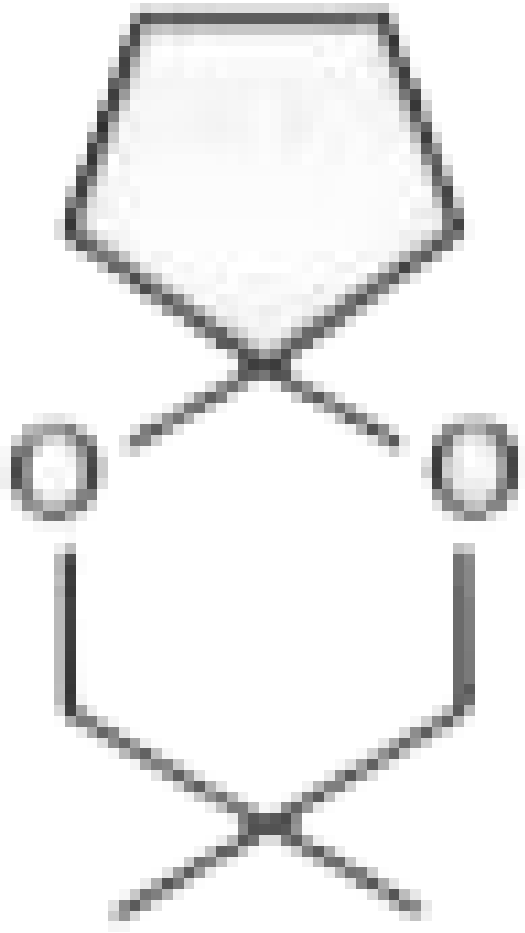
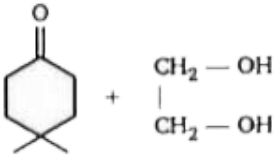
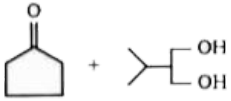
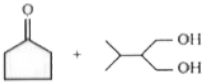
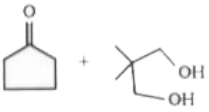
97. Which pair of reactants compounds may be used to make given acetal ?



A. 

B. 

C. 

D. 

Answer: D

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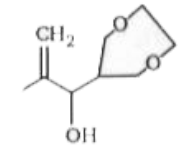
(A)

98. , (A) & (B) are isomers , Isomer (B) is :

A.


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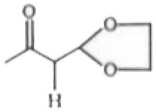

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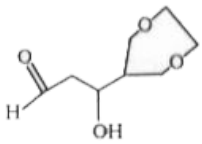
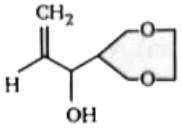


D.


Answer: B

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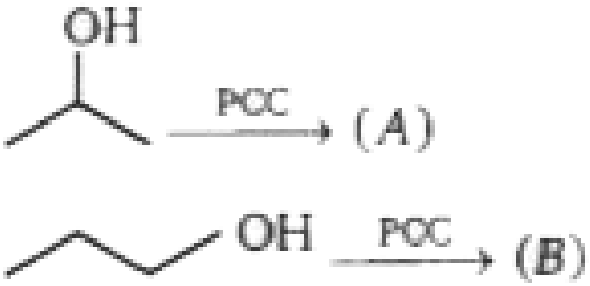

99.

(A) and (B) is differentiated by:

A. NaH

B. 2-4 DNA

C. Tollen's reagent

D. $NaHSO_3$

Answer: C

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100. Which of the following pairs cannot be differentiated by Tollen's reagent ?

A. Benzaldehyde and benzyl alcohol

B. Hexanal and 2-hexanone

C. 2-Hexanol and 2-hexanone

D. Pentanal and diethyl ether

Answer: C

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101. An optically active compound A $(C_6H_{12}O)$ gives positive test with 2,4-D NP, but negative test with Tollen's reagent. Compound A is

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

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

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

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

Answer: C

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102. Compound (A) $C_6H_{12}O_3$, when treated with I_2 in aqueous sodium hydroxide gives yellow precipitate. When A is treated with Tollens reagent no reaction occur. When A is hydrolysed and then treated with Tollens reagent, a silver mirror is formed in test tube. Compound (A) will be :

A. $CH_3 - \overset{\overset{O}{||}}{C} - CH_2 - CH_2 - \underset{\underset{OCH_3}{|}}{CH} - OH$

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

C. $CH_3 - \overset{O}{\overset{||}{C}} - CH_2 - CH(OCH_3)_2$

D. $CH_3 - \overset{O}{\overset{||}{C}} - CH_2 - CH_2 - CH(OCH_3)_2$

Answer: C

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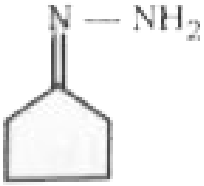
103. $\begin{matrix} CH_2-CH_2-CO_2H \\ | \\ CH_2-CH_2-CO_2H \end{matrix} \xrightarrow[BaCO_3]{\Delta} A \xrightarrow{NH_2-NH_2} B \xrightarrow[KOH]{heat} (C),$, Product

(C) obtained is :

A. $CH_3 - CH = CH - CH_2$

B. 

C.



D.

Answer: C

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104. Which of following does not react with $NaHSO_3$ (sodium bisulphite)?

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

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

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

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

Answer: C

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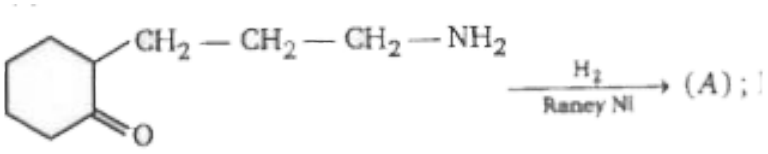
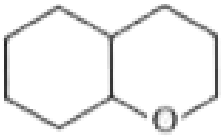
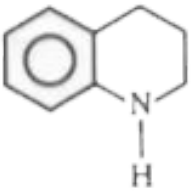
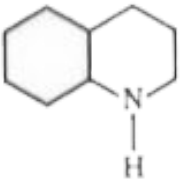
105. 

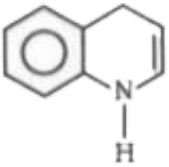
, Product

(A) is :

A. 

B. 

C. 

D. 

Answer: C

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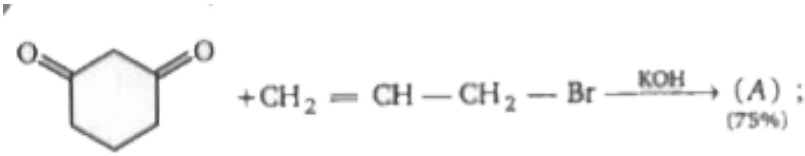
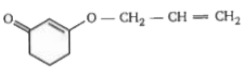
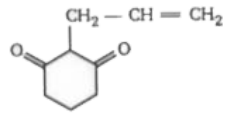
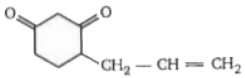
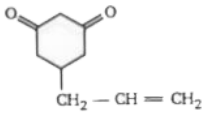
106.  , Product (A) is :

A. 

B. 

C. 

D. 

Answer: B

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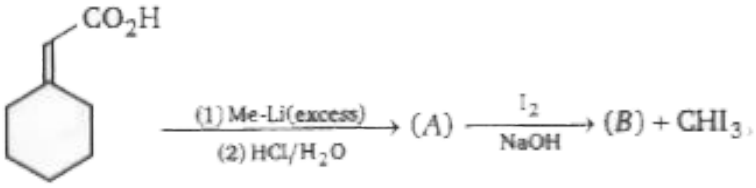
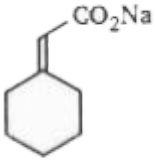
107. 

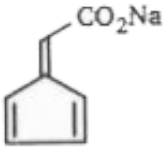
, Product

(B) in this reaction is :

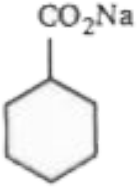
A.



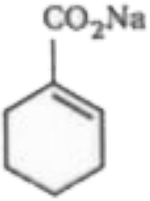
B.



C.



D.



Answer: A

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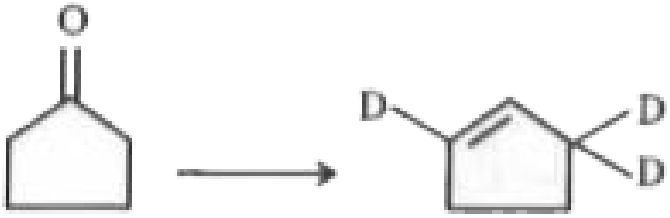
108. 

Arrange the following reagent in the correct order in which above transformation is carried out :

A. $KOD/D_2O, H^+/\Delta, LiAlH_4$

B. $H^+/\Delta, KOD/D_2O, LiAlH_4$

C. $KOD/D_2O, LiAlH_4, H^+/\Delta$

D. $LiAlH_4, H^+/\Delta, KOD/D_2O$

Answer: C

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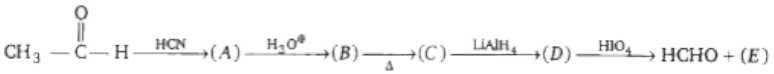
109. 

Compound (C) can show geometrical isomerism. Product (E) of the reaction will be:

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

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

C. $CH_3 - CHO$

D. HCHO

Answer: C

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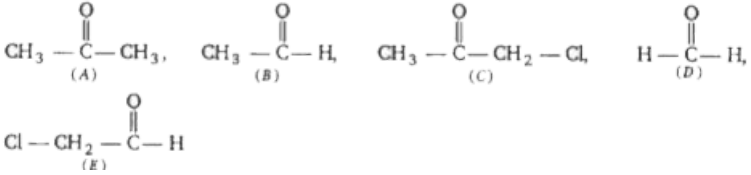
110. Arrange in their increasing order of equilibrium constants for hydration ?



A. $A < B < C < D < E$

B. $A < C < B < E < D$

C. $A < C < E < B < D$

D. $C < A < B < E < D$

Answer: B

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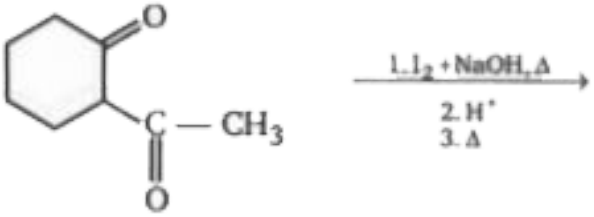
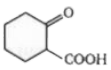
111. End products of the following sequence of reactions are :



A. yellow ppt. of CHI_3, 

B. yellow ppt. of CHI_3, 

C. yellow ppt. of CHI_3, 

D. yellow ppt. of CHI_3, 

Answer: C

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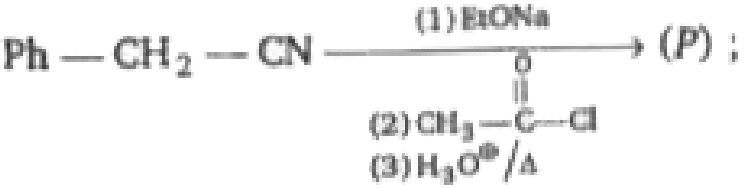

112. , Product

(P) of the reaction will be :

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

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

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

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

Answer: B

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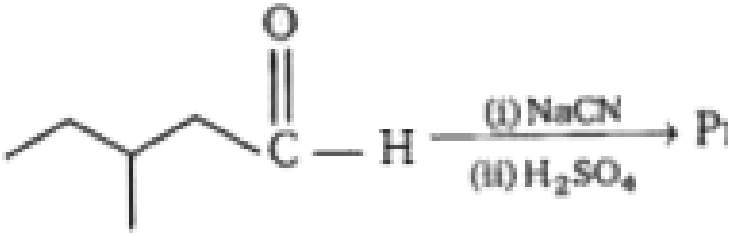
113. 

. Products of the reaction are :

A. Racemic mixture

B. Diastereomers

C. Meso

D. Mixture of meso compound and optically active compound

Answer: B

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114.

$\therefore$ reactant (A) is :

A. $CH_3 - C \equiv CH$

B. $HC \equiv CH$

C. $CH_3 - C \equiv C - CH_3$

D. $Ph - CH = CH_2$

Answer: C

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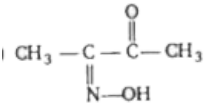
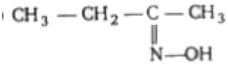
115. $CH_3CH_2 - \overset{\overset{O}{||}}{C} - CH_3 \xrightarrow[HCl]{NaNO_2}$, Major product of this reaction is :

A. $CH_3\underset{\underset{NO}{|}}{C}H - \overset{\overset{O}{||}}{C} - CH_3$

B. $CH_3 - CH_2 - \overset{\overset{O}{||}}{C} - CH = N - OH$

C. 

D. 

Answer: C

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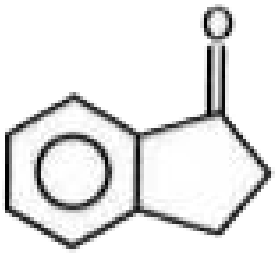
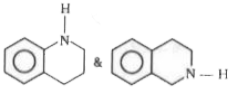
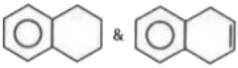


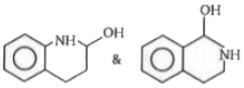
$\xrightarrow[(2)H^+,\Delta]{(1)NH_2OH} (A) + (B).$
$(3)LiAlH_4$

116. . Product

(A) & (B) are :

A. 

B. 

C. 

D. 

Answer: A

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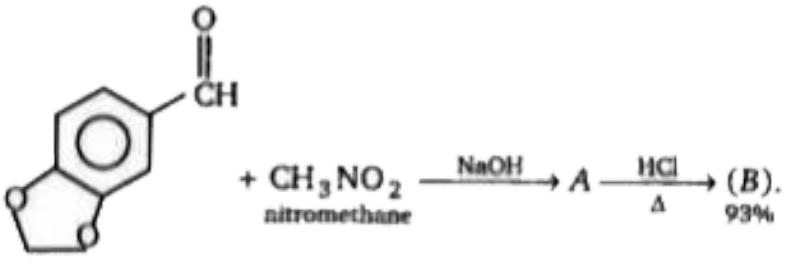
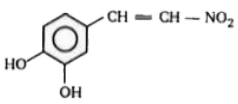
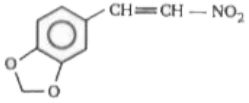
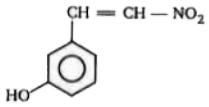


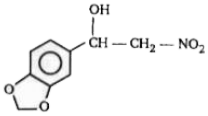
3, 4-Methylene dioxybenzaldehyde

117. . Product (B) is :

A. 

B. 

C. 

D. 

Answer: A

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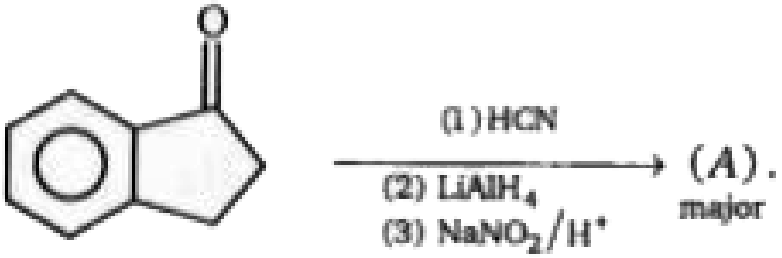
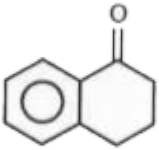
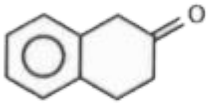
118. 

. Product

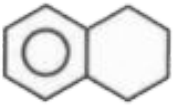
(A) is :



A.



B.



C.

D.

Answer: A

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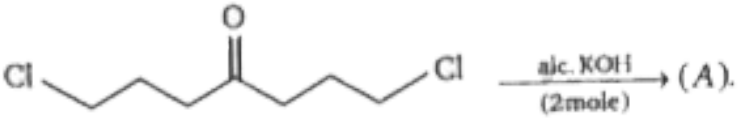
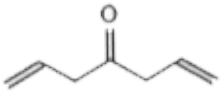
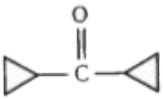
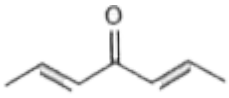
119. 

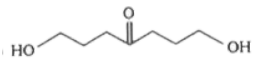
. Product

(A) is :

A. 

B. 

C. 

D. 

Answer: B

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120. $R-\overset{\overset{O}{||}}{C}-R \underset{(\text{catalyst})}{\overset{HCN}{\rightleftharpoons}} R-\overset{\overset{OH}{|}}{\underset{\underset{CN}{|}}{C}}-R$

Which of following can be used as a catalyst in the above reaction?

A. Cl^-

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

C. $Et-O^-$

D. HSO_4^-

Answer: C

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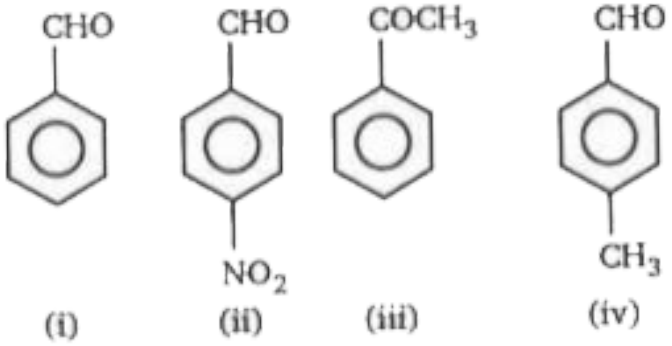
121. Arrange the following carbonyl compounds in decreasing order of their reactivity in nucleophilic addition reaction.



A. $ii > iii > i > iv$

B. $ii > i > iv > iii$

C. $iii > ii > i > iv$

D. $iii > i > iv > ii$

Answer: B

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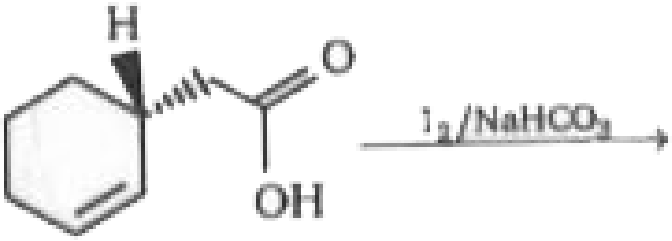
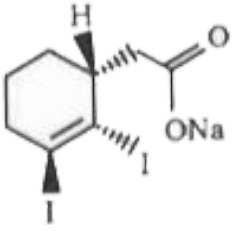
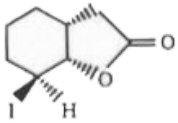
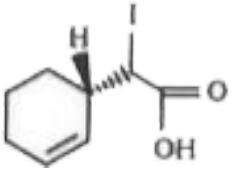
122. The following reaction were carried out.

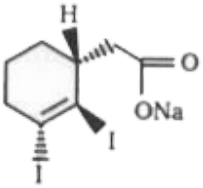


The finalproduct formed in the above reaction sequence is :

A. 

B. 

C. 

D. 

Answer: B

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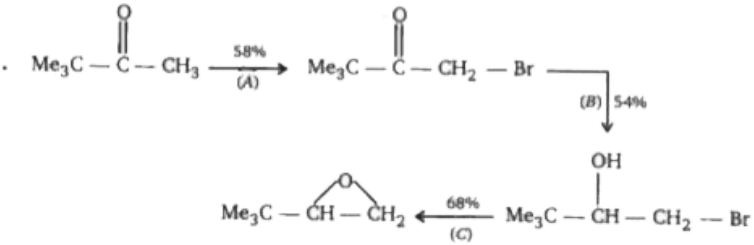
123.



Yield of each step as actually carried out in the laboratory is given above. What is overall yield of reaction?

A. 0.42

B. 0.31

C. 0.21

D. 0.6

Answer: C

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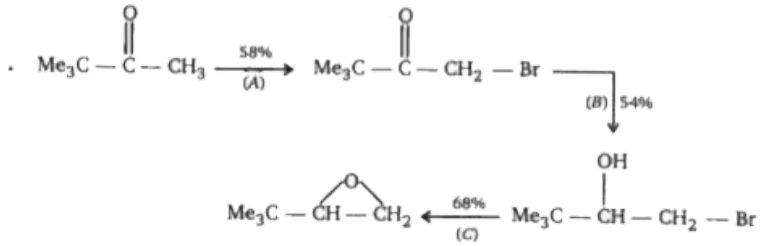
124. 

What is the appropriate reagent to carry out above synthesis, i.e., A, B, C respectively are :

A. $Br_2 / H^+, LiAlH_4, H^{\oplus}$

B. $Br_2 / H^+, NaBH_4, HO^-$

C. $NBS, AlCl_3, HO^-$

D. $Br_2 / HO^-, BF_3, HO^-$

Answer: B

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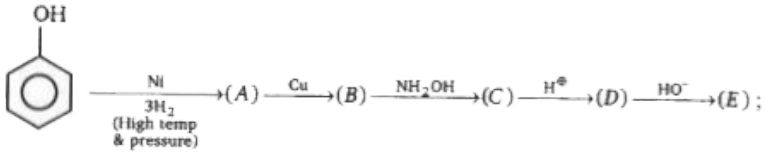

125. Product (E) is : , Product (E) is :

A. Nylon 66

B. Nylon 6

C. Styrene

D. Polystyrene

Answer: B

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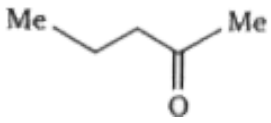
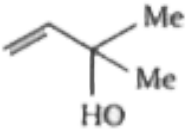
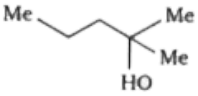
126. Methyl vinyl ketone on reaction with $LiCuMe_2$ gives a major product, whose structure is :

A. 

B. 

C. 

D. 

Answer: A

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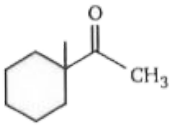
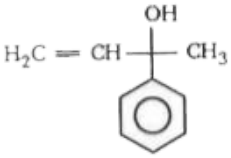
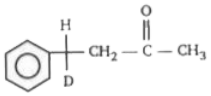
127. Which of following is in capable to show iodoform test ?

A. 

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

C. 

D. 

Answer: C

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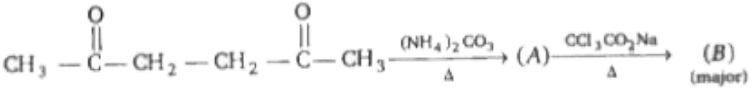
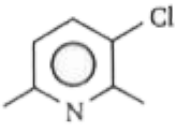
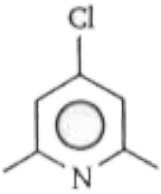
128. 

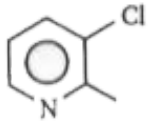
Product (B) of above reaction is :

A. 

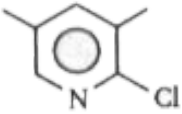
B.



C.



D.



Answer: A

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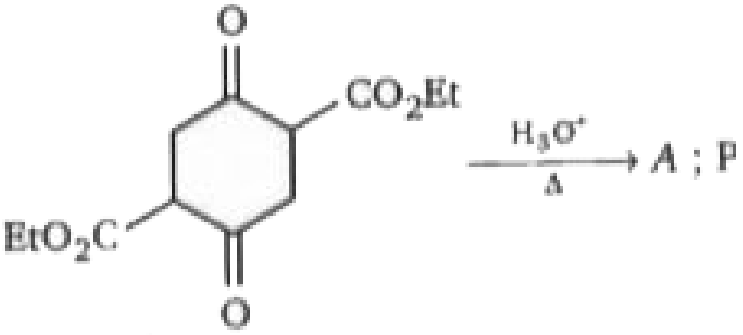
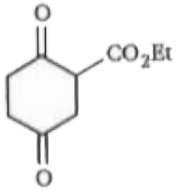
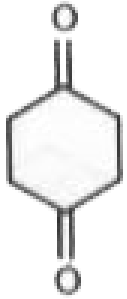
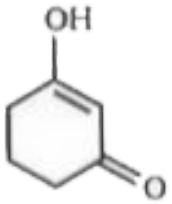
129. 

, Product obtained is :

A. 

B. 



C.

D. None of these

Answer: B

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130. $\underset{\text{Symmetrical Ketone}}{(A)} \xrightarrow{LiAlH_4} (B) \xrightarrow[\Delta]{H^{\oplus}} \text{Diastereomers}$

Reactent (A) is :

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

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

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

D. $CH_3 - CH_2 - CH_2 - CH = O$

Answer: C

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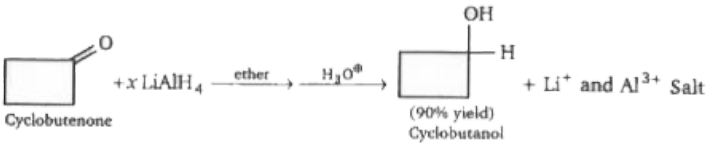

131.

Value of x in above reaction is :

A. 1

B. 2

C. 3

D. 4

Answer: A

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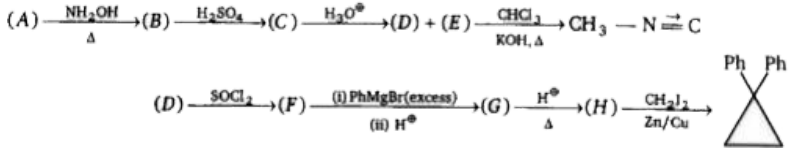
132.



Molecular weight of compound (A) is :

A. 58

B. 120

C. 60

D. 182

Answer: A

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133. $Ph_2CH - \overset{O}{\overset{||}{C}} - H \xrightarrow{\text{aqueous acid}} \underset{81\,\%}{(A)} + \underset{2\,\%}{\text{enol}} + \underset{17\,\%}{\text{aldehyde}}$

Product (A) of above reaction will be :

A. $Ph - \underset{\underset{Ph}{|}}{C} = CH - O$

B. $Ph_2CH - \overset{\overset{OH}{|}}{CH_2}$

C. $Ph_2CH - \overset{\overset{OH}{|}}{CH} - OH$

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

Answer: C

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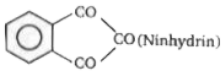
134. Which of the following will form stable hydrate ?

A. CCl_3CHO (Chloral)

B. 

C. $(CF_3)_2CO$

D. all of these

Answer: D

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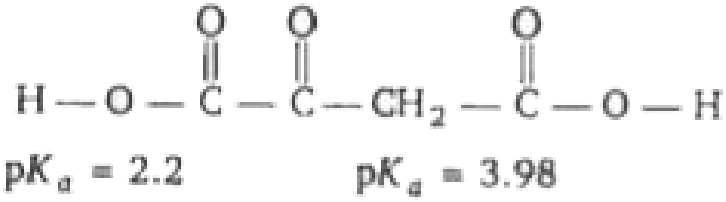
135. The pH at which maximum hydrate is present in an solution of oxaloacetic acid :



A. pH = 0

B. pH = 12

C. pH = 4

D. pH = 6

Answer: A

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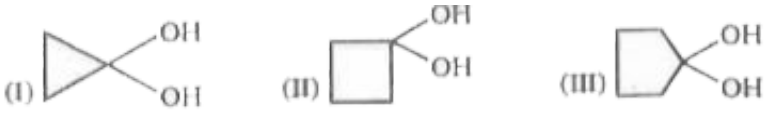
136. Arrange their stabilities of given gem-diols in decreasing order.



A. $I > II > III$

B. $III > II > I$

C. $I > III > II$

D. $III > I > II$

Answer: A

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137. Maximum hydration takes place of :

A. $CF_3\overset{\overset{O}{||}}{C}CF_3$

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

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

D. $C_6H_5\overset{\overset{O}{||}}{C}C_6H_5$

Answer: A

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138. The conversion, $PhCN \rightarrow PhCOCH_3$, can be achieved most conveniently by reaction with:

A. CH_3MgBr followed by hydrolysis

B. $I_2 - NaOH, CH_3I$

C. dil. H_2SO_4 followed by reaction with CH_2N_2

D. LAH followed by reaction with CH_3I

Answer: A

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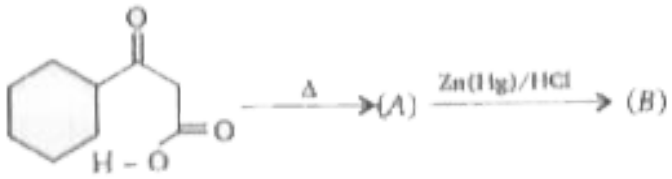
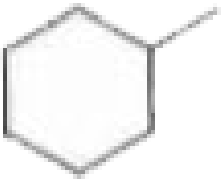
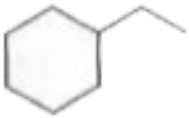
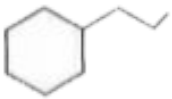


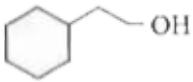
139.

In the above reaction, product (B) is :

A. 

B. 

C. 

D. 

Answer: B

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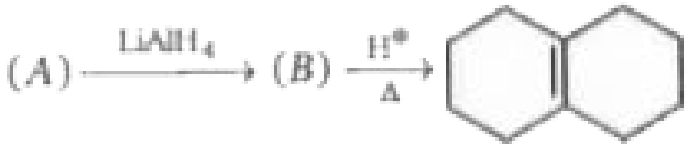
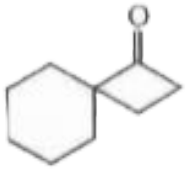
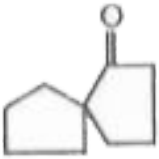
140.



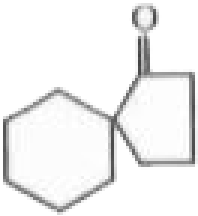
Structure of A is :



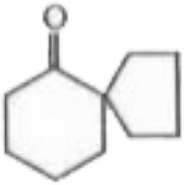
A.



B.



C.



D.

Answer: D

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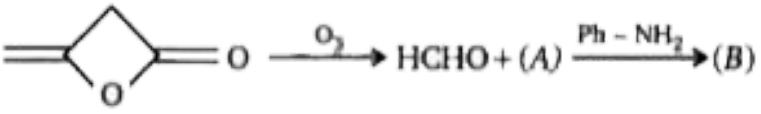
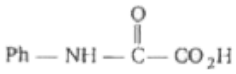
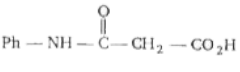
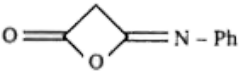
141.

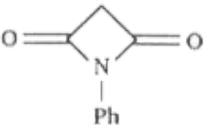


Product (B) is :

A. 

B. 

C. 

D. 

Answer: B

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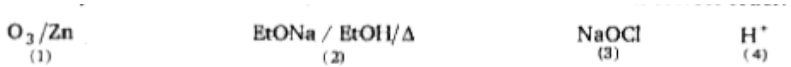
142. 

To carry out about conversion, arrange the following reagents in

correct order.



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

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

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

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

Answer: D

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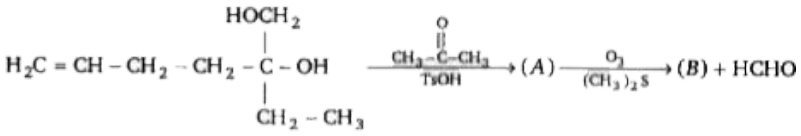
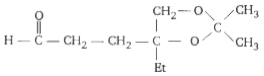
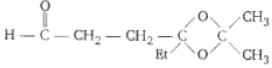
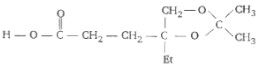
143.

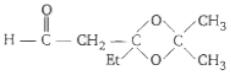


Product (B) is :

A. 

B. 

C. 

D. 

Answer: A

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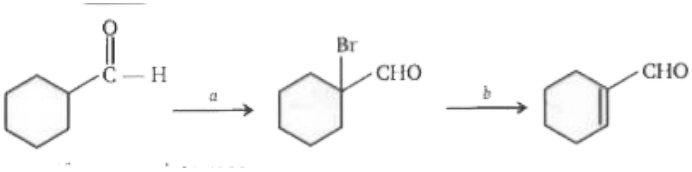
144. 

Identify appropriate reagents for the above reaction :

A. $a = Br_2/CCl_4, b = aq.\ KOH$

B. $a = Br_2/H^+, b = aq.\ KOH$

C. $a = Br_2/H^+, b = alc.\ KOH$

D. $a = Br_2/OH^-, b = aq.\ KOH$

Answer: C

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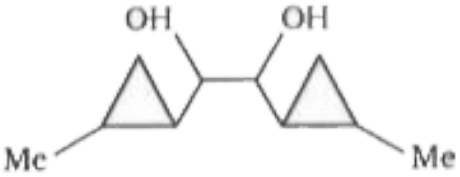
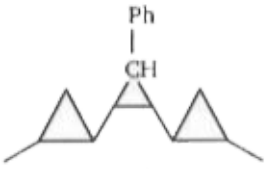
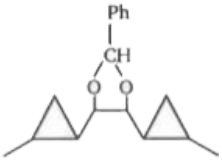
145. 

, Product

(X) of this reaction is :

A. 

B. 

C. 

D. 

Answer: B

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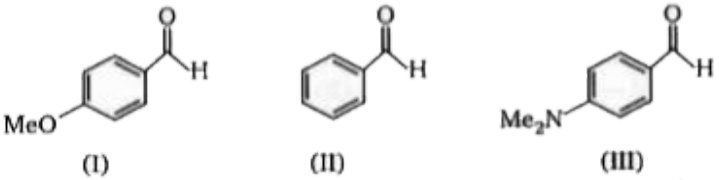
146. The $K_{eq.}$ values in HCN addition to following aldehydes are in the order :



A. $I > II > III$

B. $II > III > I$

C. $III > I > II$

D. $II > I > III$

Answer: D

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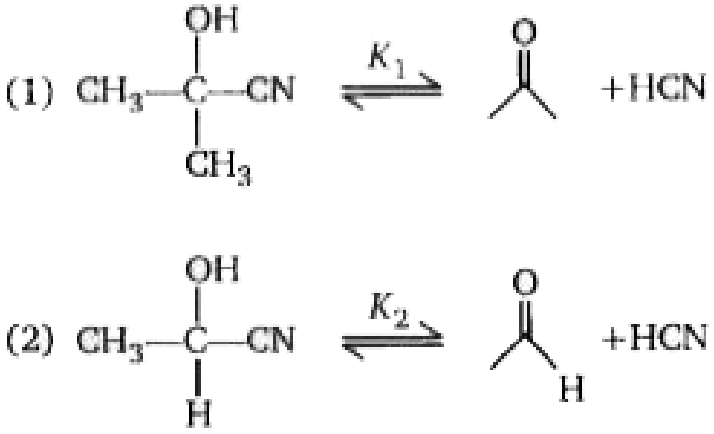
147.



Relation between K_1 and K_2 is :

A. $K_1 = K_2$

B. $K_1 > K_2$

C. $K_2 > K_1$

D. $K_1 = K_2 = 1$

Answer: B

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148. Which of the following is correct for the reaction ?

A. A is cyanohydrin

B. Nucleophilic-addition reaction

C. The above reaction is not shown by alkenes

D. All of these

Answer: D

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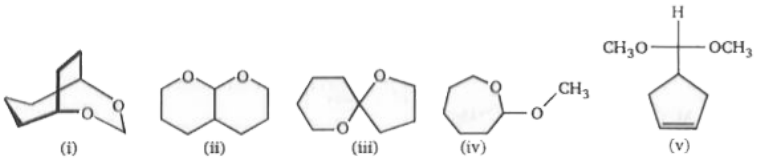
149. Which of the following compounds (i through v) should not be classified as an acetal?



A. ii and iii

B. iv

C. i

D. none (they are all acetals)

Answer: D

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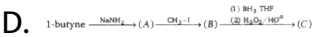
150. In which of reactions final product is NOT a ketone :

A. $CH_3-C\equiv C-H \xrightarrow{NaNH_2} (A) \xrightarrow{CH_3-I} (B) \xrightarrow[H_2SO_4]{HgSO_4} (C)$

B. $H-C\equiv C-H \xrightarrow{NaNH_2} (C) \xrightarrow{CH_3-CH_2-I} (D) \xrightarrow[NaBH_4, H^+]{Hg(OAc)_2, H_2O} (E)$

C. $R-\overset{O}{\overset{\|}{C}}-OH \xrightarrow{NaOH} (A) \xrightarrow{CH_3-I} (B)$

D. 

Answer: C

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151. The reaction of ethyl methyl ketone with $Cl_2 / \text{excess} OH^-$ gives the following major product

A. $ClCH_2CH_2COCH_3$

B. $CH_3CH_2COCCl_3$

C. $ClCH_2CH_2COCH_2Cl$

D. $CH_3CCl\_(2)COCH_2Cl$

Answer: B

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152. The product obtained from the following sequence of reactions is

$$CH_3 - C \equiv CH \xrightarrow[H_2SO_4]{HgSO_4} A \xrightarrow{NaBH_4} B$$

A. propanol

B. 2-propanol

C. 1-propanol

D. propane

Answer: B

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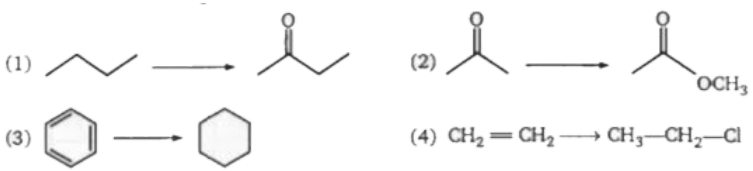
153. Which of the following shows oxidation of reactant.



A. 1

B. 1, 2

C. $1, 2, 3$

D. All of these

Answer: B

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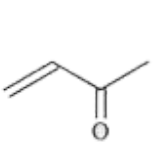
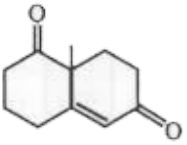
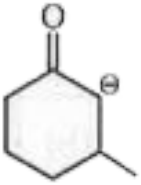
154. The enolate ion that reacts with



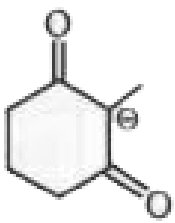
to form



A.



B.



C.

D.

Answer: C

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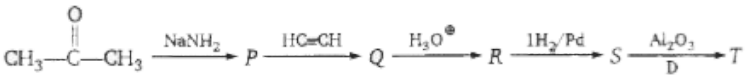
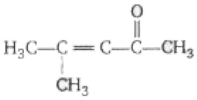
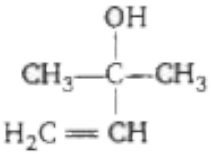
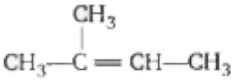
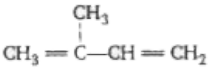
155. 

What is the final product T.

A. 

B. 

C. 

D. 

Answer: D

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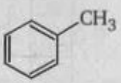
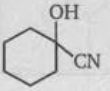
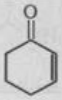
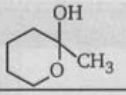
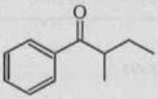
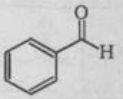
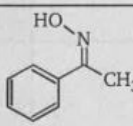
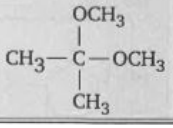
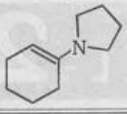
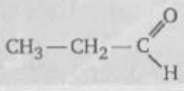
Level 2

1. Select the best choice for example (A to L) from the examples (a to n) given below. Write your choice in the box given.

A.	An acetal derivative of a ketone.	
B.	A chiral ketone.	
C.	An aldehyde that gives a aldol condensation with itself.	
D.	An oxime derivative	
E.	A reagent that reduces aldehydes to 1°- alcohols.	
F.	An α, β-unsaturated ketone.	
G.	A reagent that oxidizes aldehydes to carboxylic acids.	
H.	A reagent that reduces ketones to alkanes.	
I.	An enamine derivative of a ketone.	
J.	An intermediate in imine formation.	
K.	A cyclic hemiacetal.	
L.	A cyanohydrin derivative.	

(a)		**(b)**		**(c)**	
(d)		**(e)**		**(f)**	$Zn(Hg)H_3O^{(+)}$
(g)		**(h)**	$NaBH_4$ aq. alcohol	**(i)**	
(j)	$Ag(NH_3)_2^{(+)}OH^{(-)}$	**(k)**		**(l)**	

(m)		**(n)**			

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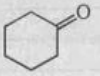
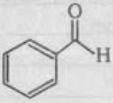
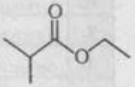
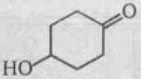
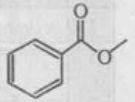
2. The following questions refer to the compounds (A to G) shown below :

i.	Which compounds are reduced by sodium borohydride ?	ii.	Which compounds are hydrolyzed by hot aqueous acid ?	iii.	Which compound are oxidisized by CrO_3/pyridine?

A		E		A		E		A		E	
B		F		B		F		B		F	
C		G		C		G		C		G	
D		H		D		H		D		H	

A.		B.		C.		D.	
E.		F.		G.		H.	

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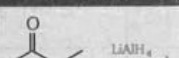
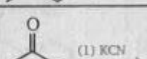
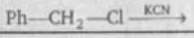
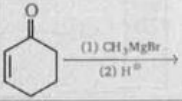
3. Match of the column :

	Column (I)		Column (II)
(a)		(p)	racemic mixture
(b)		(q)	Diastereomers
(c)		(r)	Nu-addition reaction
(d)		(s)	Nu-Substitutions reaction

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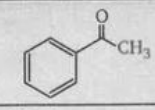
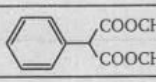
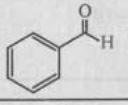
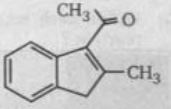
4. Complete the following table.

	REACTANT	REAGENT(S)/ CONDITIONS	MAJOR ORGANIC PRODUCTS
a.		$H_2/Pd-C$ in ethanol (solvent)	A
b.		$H^+/H_2O/\Delta$	B
c.		$(CH_3)_2\bar{C}-\overset{+}{P}(C_6H_5)_3$	C
d.		1. $Li^+[(CH_3)_2Cu]^-$ in dry ether 2. H^+/H_2O	D
e.	E	OH^-/ethanol/Δ	

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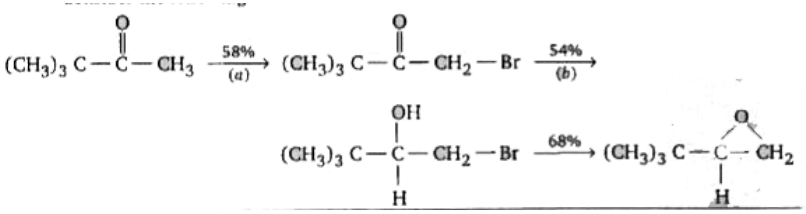
5. Consider the following reactions and answer A and B.



Suggest a reagent appropriate step (a) the synthesis.

A. HO^- / Br_2 (1 mole)

B. H^+ / Br_2 (1 mole)

C. both (a) and (b)

D. None of these

Answer: C

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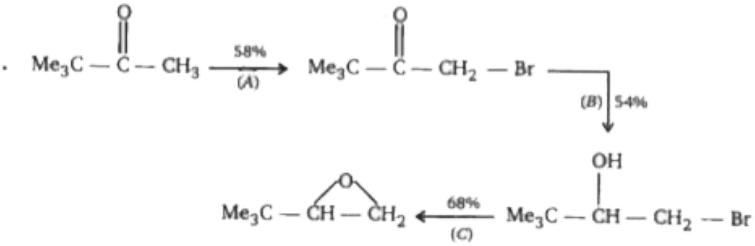
6.



Yield of each step as actually carried out in the laboratory is given above. What is overall yield of reaction?

A. 0.6

B. 0.21

C. 0.4

D. 0.68

Answer: B

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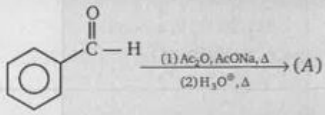
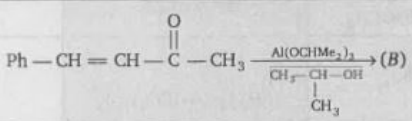
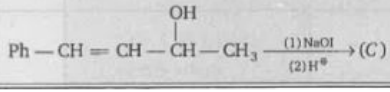
7.

Reaction 1.	
Reaction 2.	
Reaction 3.	

Degree of unsaturation present in compound (A + B + C) is ?

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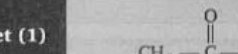
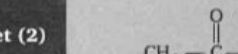
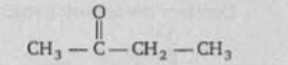
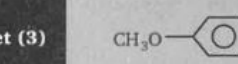
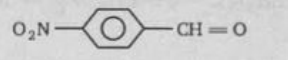
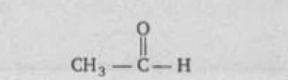
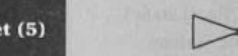
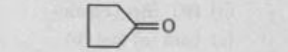
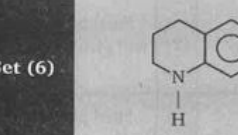
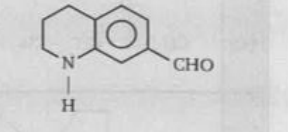
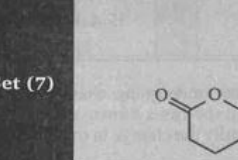
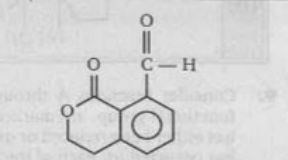
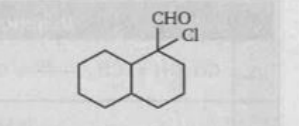
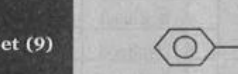
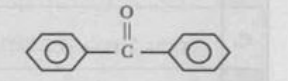
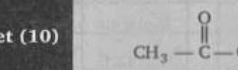
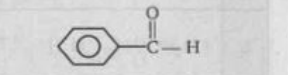
8. Within each set, which compound should be more reactive toward carbonyl addition reaction ?

	A	B
Set (1)		
Set (2)		
Set (3)		
Set (4)		
Set (5)		

Set (6)		
Set (7)		
Set (8)		
Set (9)		
Set (10)		

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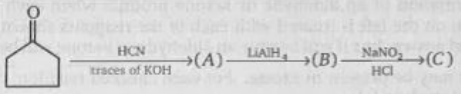
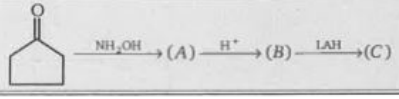
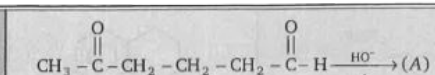
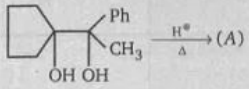
9. Match the Column (I) and Column (II). (Matrix)

Column (I)		Column (II)	
(A)		(p)	Formation of six member ring takes place
(B)		(q)	Final product is Ketone
(C)		(r)	Final product formed will give positive Tollens test
(D)		(s)	Final product formed will react with 2,4-DNP. (2,4-di-nitrophenyl hydrazine)

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10. Consider reactions A through F. Those carbon atoms undergoing change, as part of a functional group, are marked as C^{12}, C^{14} or starred. In the cases shown, each carbon atom has either been reduced or oxidized. Your job is to identify the change in oxidation

state that has occurred for each of the marked carbon.

	Reaction	C^{12}	C^{14}
A.	$CH_3\overset{12}{C}H=\overset{14}{C}H_2 \xrightarrow{Br_2} CH_3CHBrCH_2Br$	Reduced / Oxidized	Reduced / Oxidized
B.	$CH_3\overset{12}{C}H=\overset{14}{C}H_2 \xrightarrow[(ii)\,H_2O_2,NaOH]{(i)\,B_2H_6} CH_3CH_2CH_2OH$	Reduced / Oxidized	Reduced / Oxidized
C.	$CH_3CH_2\overset{*}{C}H=O \xrightarrow{NaBH_4} CH_3CH_2CH_2OH$	Reduced / Oxidized	
D.	$CH_3CH_2\overset{*}{C}H=O \xrightarrow[H_2O,\,pH>8]{Ag^{(+)}} CH_3CH_2CO_2H$	Reduced / Oxidized	
E.	$CH_3CO\overset{12}{C}H_2\overset{14}{C}O_2H \xrightarrow{Heat} CH_3COCH_3 + O=C=O$	Reduced / Oxidized	Reduced / Oxidized
F.	$H_2\overset{12}{C}=\overset{14}{C}(OH)C_2H_5 \xrightarrow{\text{tautomerization}} H_3CCOC_2H_5$	Reduced / Oxidized	Reduced / Oxidized

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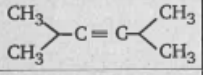
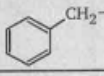
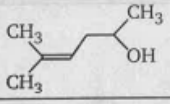
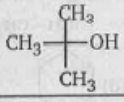
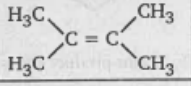
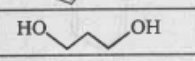
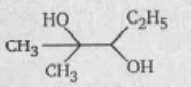
11. Consider the possible formation of an aldehyde or ketone product when each of the ten compounds in the column on the left is treated with each of the reagents shown in the top row. Check the designated answer box if you believe an aldehyde or ketone will be formed. Assume that the reagents may be present in excess. For each checked

reaction, try to draw the structure of the major product (s).

Starting	PCC $C_5H_5NHCrO_3Cl$	Jone's Reagent CrO_3 in aq. acid	$Pb(OAc)_4$ [or HIO_4]	(i) O_3, (ii) Zn dust	$H_3O^{\oplus}$	(i) BH_3 in THF (ii) H_2O_2 + NaOH
						
						
						
						
						
						
						
						
						
						

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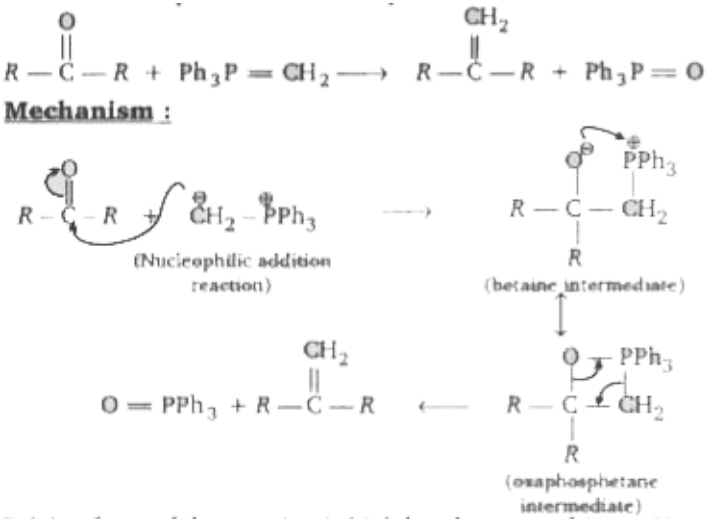
12. Wittig reaction :

The reaction of a phosphorus ylide with an aldehyde (or) ketone

introduces a carbon-carbon double bond is place of the carbonyl bond.



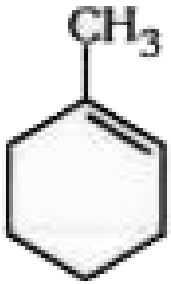
Driving froce of the reaction is high bond energy of (P = O). $(\Delta H = -ve)$.

$+ \ Ph_3P = CH_2 \longrightarrow (A)$ **(major),**

, Major product (A) is :

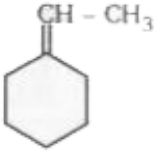
A.

B.



C.

D.



Answer: A

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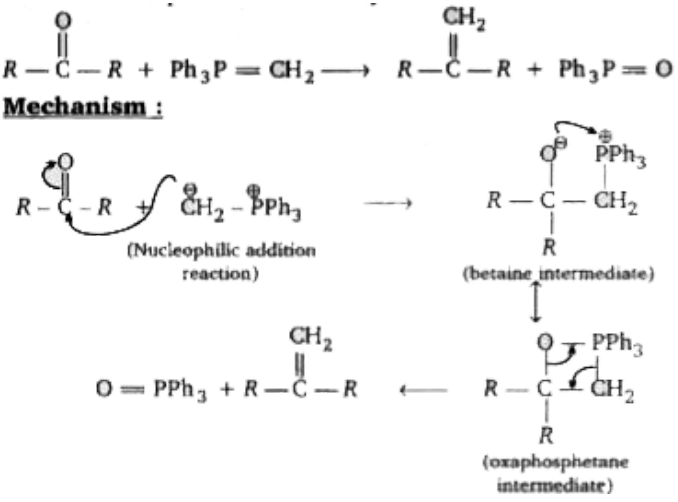
13. Wittig reaction :

The reaction of a phosphorus ylide with an aldehyde (or) ketone introduces a carbon-carbon double bond is place of the carbonyl bond.



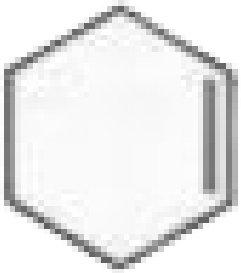
Driving froce of the reaction is high bond energy of (P = O). $(\Delta H = -ve)$.

$CH_3 - \overset{O}{\overset{||}{C}} - CH_2 - CH_2 - CH_2 - CH_2 - \overset{\oplus}{P}Ph_3 \xrightarrow[\Delta]{Ph-Li} (A)$, Major product (A) is :

A. 

B. 

C. 



D.

Answer: A

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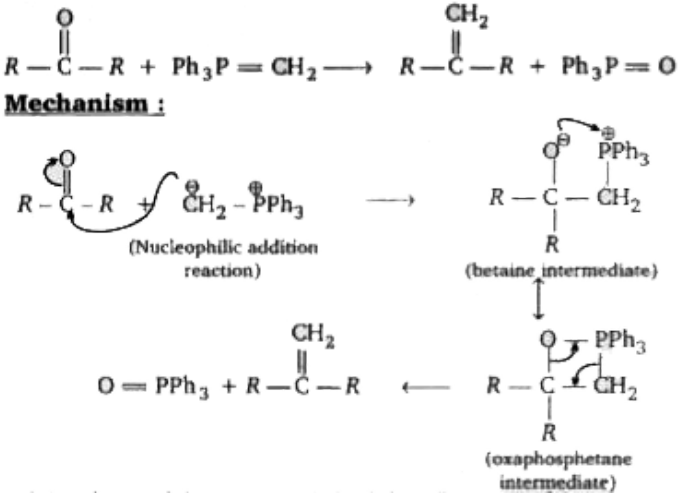
14. Wittig reaction :

The reaction of a phosphorus ylide with an aldehyde (or) ketone introduces a carbon-carbon double bond is place of the carbonyl bond.



Driving froce of the reaction is high bond energy of (P = O). $(\Delta H = -ve)$.

, Major product (A) is

A. cis-2-butene

B. trans-2-butene

C. iso-butene

D. 1-butene

Answer: B

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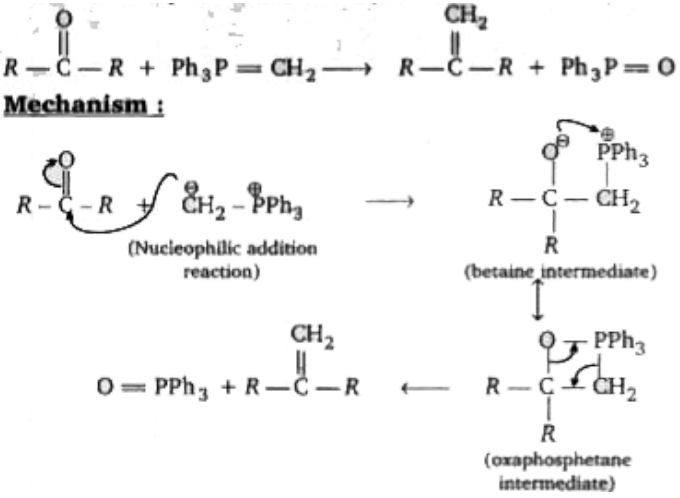
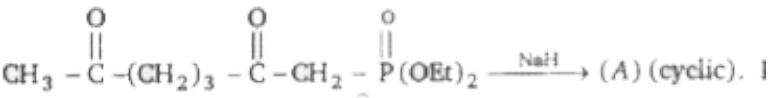
15. Wittig reaction :

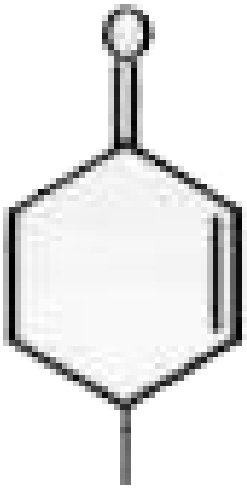
The reaction of a phosphorus ylide with an aldehyde (or) ketone introduces a carbon-carbon double bond is place of the carbonyl bond.

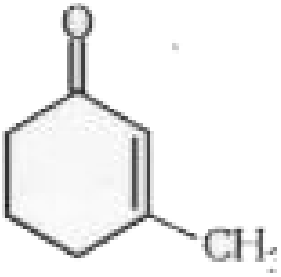


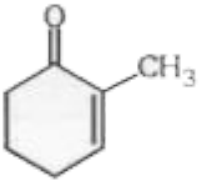
Driving froce of the reaction is high bond energy of (P = O). $(\Delta H = -ve)$.

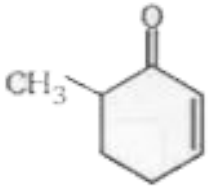


. Product (A) is :

A. 

B. 

C. 



D.

Answer: B

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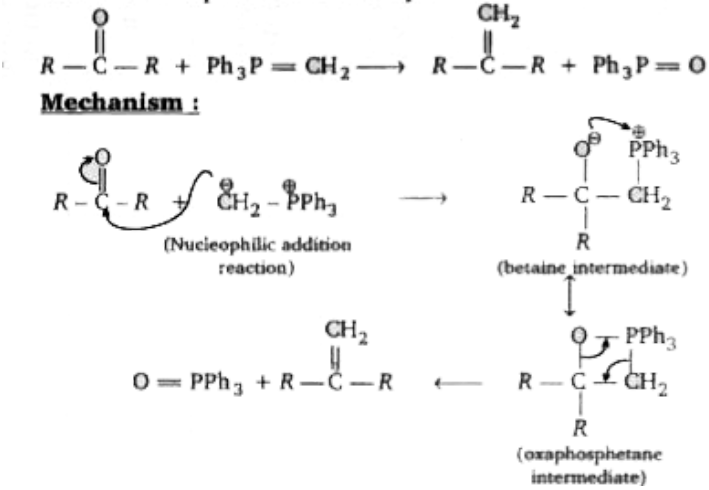
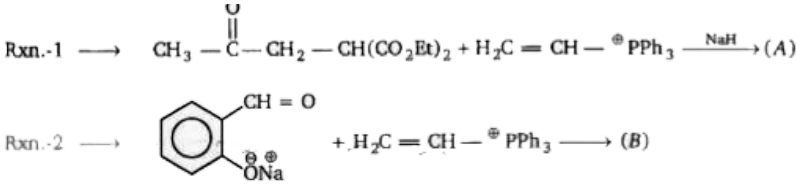
16. Wittig reaction :

The reaction of a phosphorus ylide with an aldehyde (or) ketone introduces a carbon-carbon double bond is place of the carbonyl bond.



Driving froce of the reaction is high bond energy of (P = O). $(\Delta H = -ve)$.

Identify major product in given intramolecular wittig reaction :



Product (A) and (B) respectively are :

A. 

B. 

C. 

D. 

Answer: A

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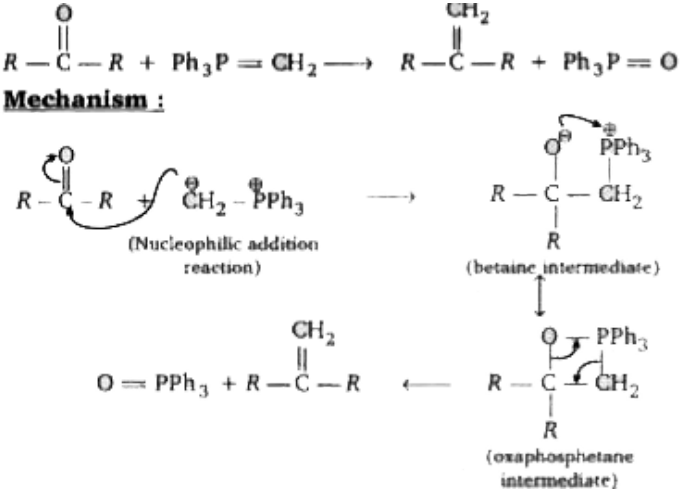
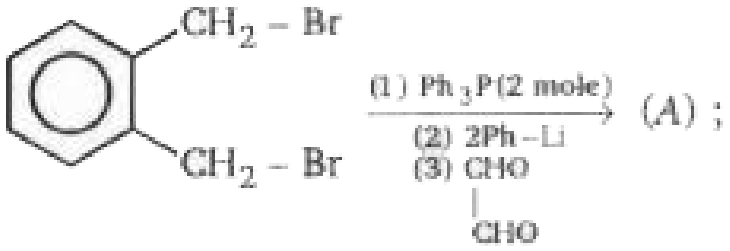
17. Wittig reaction :

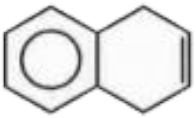
The reaction of a phosphorus ylide with an aldehyde (or) ketone introduces a carbon-carbon double bond is place of the carbonyl bond.



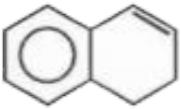
Driving froce of the reaction is high bond energy of (P = O). $(\Delta H = -ve)$.

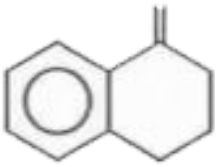


, Product (A) is :

A. 

B. 

C. 

D. 

Answer: B

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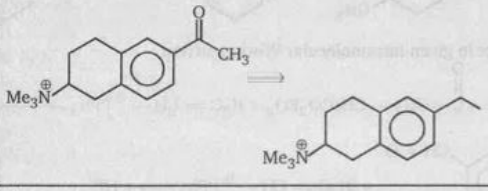
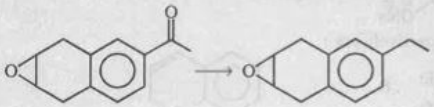
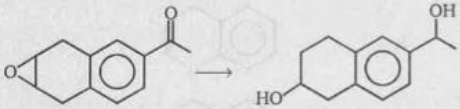
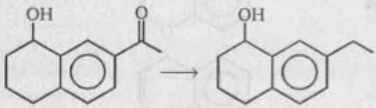
18. Match the column :

Column (I)		Column (II)	
Conversion		Reagent	
(a)		(p)	$NH_2/NH_2/HO^{\ominus}$, Δ (Wolff-Kishner reduction)
(b)		(q)	Zn(Hg), HCl (Clemmensen reduction)
(c)		(r)	$LiAlH_4$
(d)		(s)	None

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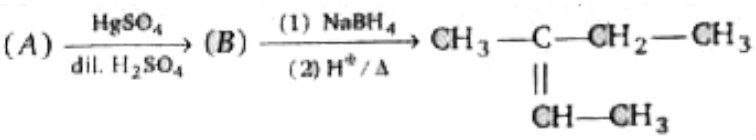
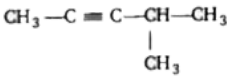
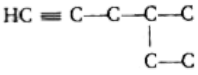
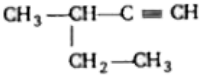
19. 

Reactant (A) is :

A. 

B. 

C. 

D. $CH_3 - C \equiv C - CH_2 - CH_2 - CH_3$

Answer: C

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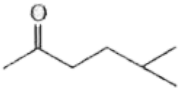
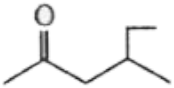
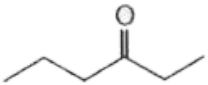
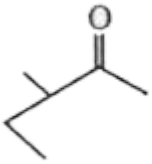
20. $(A) \xrightarrow[\text{dil. } H_2SO_4]{HgSO_4} (B) \xrightarrow[(2)\ H^{\oplus}/\Delta]{(1)\ NaBH_4} CH_3-\underset{\underset{CH-CH_3}{\|}}{C}-CH_2-CH_3$

Product (B) is :

A. 

B. 

C. 

D. 

Answer: D

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