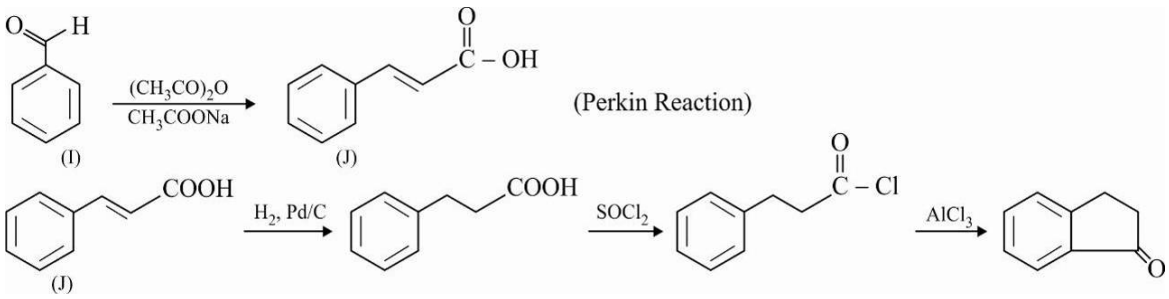
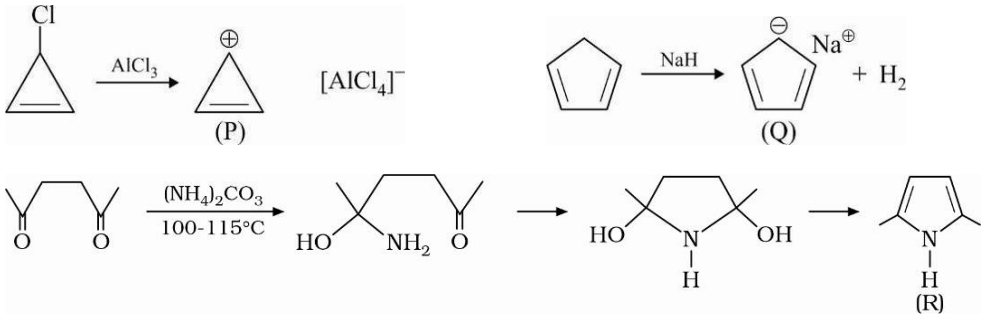
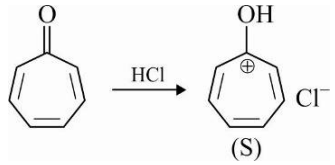
89.(A) 90.(C)



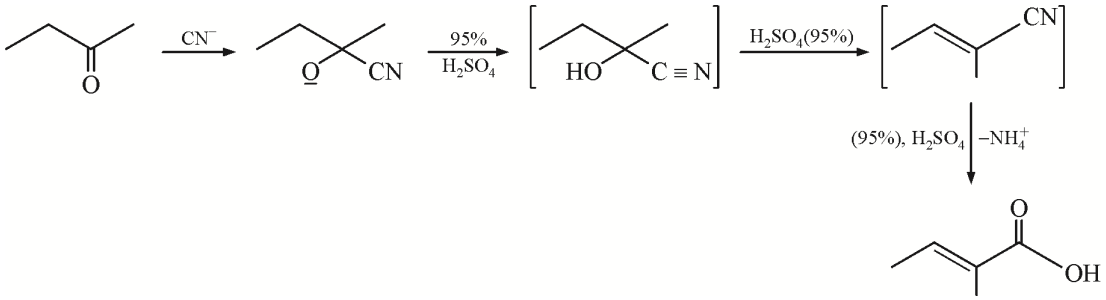
91.(ABCD)



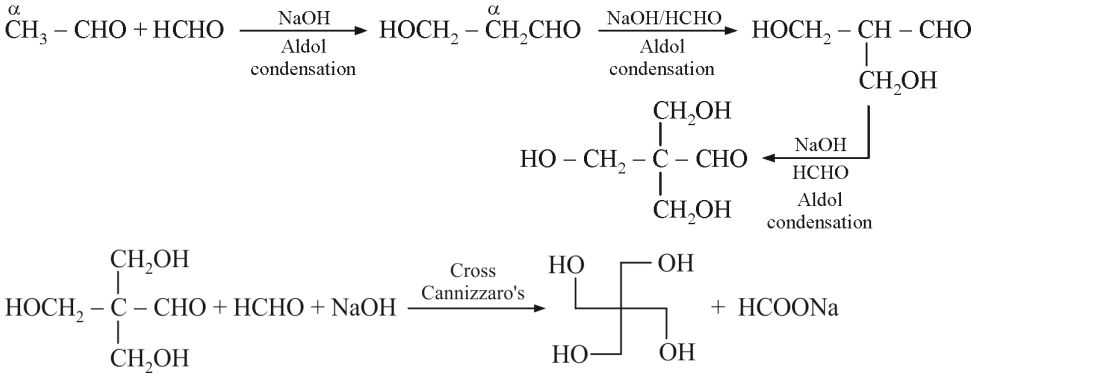
(Visualise Nucleophilic addition of NH_3 across C = O followed by dehydration)

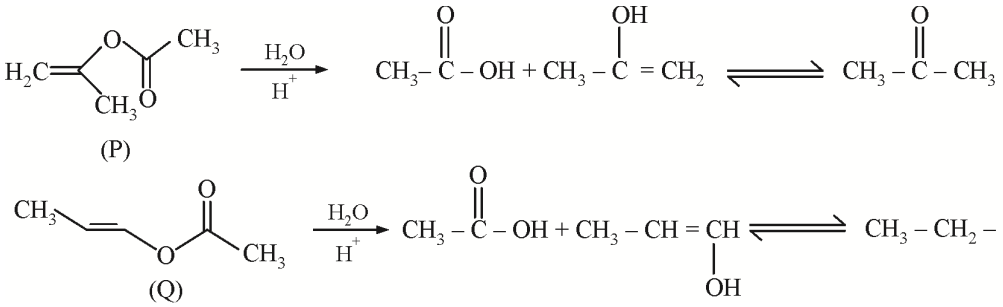


92.(A)



93.(C)



94.(C) 

(P)

(Q)

Aldehyde and ketone can be distinguished by Fehling's solution.

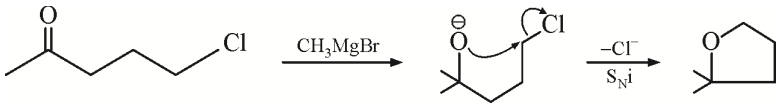
95.(C) In basic medium, trihalogenation takes place and then haloform is finally formed; while in acidic medium, monohalogenation will take place.

Reaction 1 : $CH_3-CO-CH_3 + 3Br_2 + 4NaOH \longrightarrow \underset{(T)}{CH_3-CO-ONa} + \underset{(U)}{CHBr_3} + 3NaBr + 3H_2O$

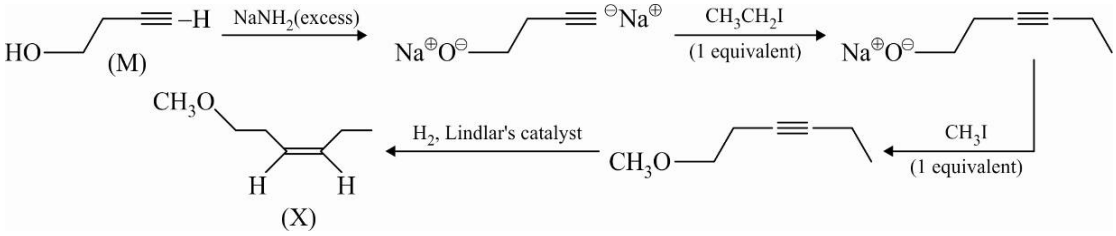
$\Rightarrow$ For 1 mol of Br_2, 1/3 mol of acetone will be consumed (Br_2 : a limiting reagent) in the bromoform reaction (*as shown above*) and 2/3 mol of actone along with products (T) and (U) are left.

Reaction 2 : $\underset{(1\,mol)}{CH_3-CO-CH_3} + \underset{(1\,mol)}{Br_2} \xrightarrow{CH_3COOH} \underset{(P)}{CH_3-CO-CH_2Br} + HBr$

$\Rightarrow$ 1 mol to Br_2 combines with 1 mol of acetone to give 1 mol of product (P).

96.(D) 

97.(A) **98.(C)**



Note : Nucleophilic character of carbanion is stronger than that of alkoxide, so CH_3CH_2- will be attached to alkynide ion and CH_3- will be attached to alkoxide ion.

98.(C) $CH_3CH_2C\equiv C-H \xrightarrow{NaNH_2} CH_3CH_2C\equiv \bar{C} \xrightarrow{BrCH_2-CH(OH)-CH_3} CH_3CH_2C\equiv C-CH_2CH(OH)CH_3$

$CH_3CH_2C\equiv C-CH_2CH(OH)CH_3 \xrightarrow{H_2/Pd-C} CH_3(CH_2)_4CH(OH)CH_3 \xrightarrow{CrO_3} CH_3(CH_2)_4COCH_3$

Note : H_3O^+ (mild) is used to neutralise the excess $NaNH_2$.

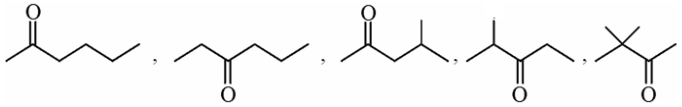
Clearly, Y is a methyl ketone, so it will give positive iodoform test. Observe that Y is a functional isomer of X.

99.(5) $C_nH_{2n}O$ is general formula of a ketone

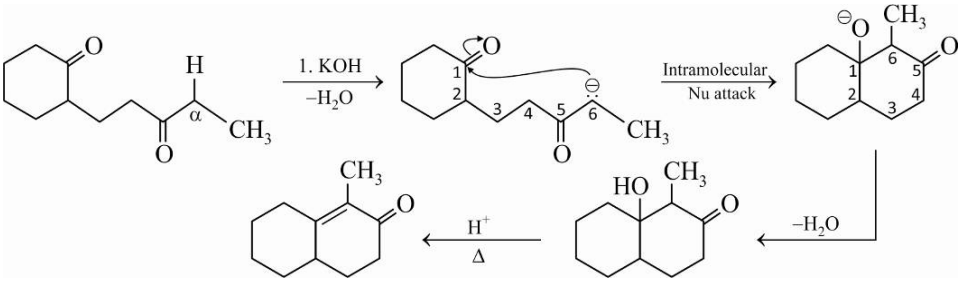
$12n + 2n + 16 = 100 \quad \Rightarrow \quad n = 6$

Hence ketone is $C_6H_{12}O$. Look for unsymmetry ketones as they will form racemic mixture on reaction on reduction (Nucleophilic addition by hydride ion).

Following ketones form racemic mixture.

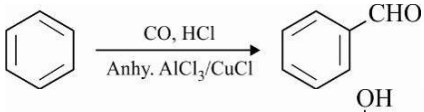


100.(A) It is intramolecular aldol condensation.

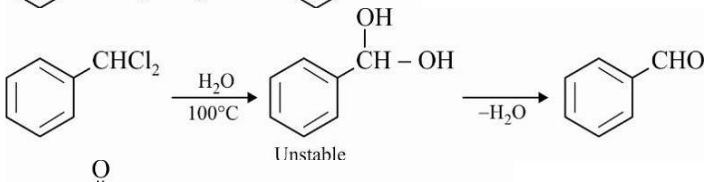


101.(ABCD)

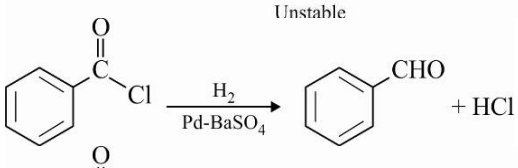
(A)



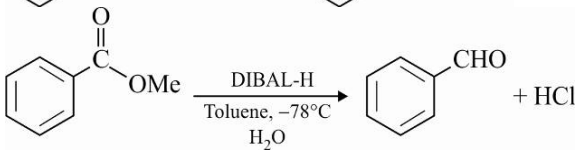
(B)



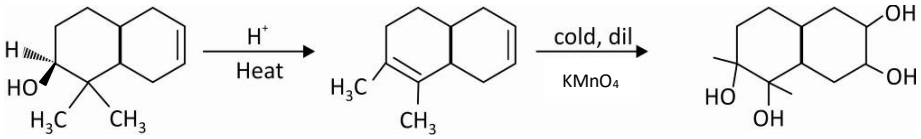
(C)



(D)



102.(4)



Note : Visualise E1 dehydration in the substrate including rearrangement to get the product P

103.(D)