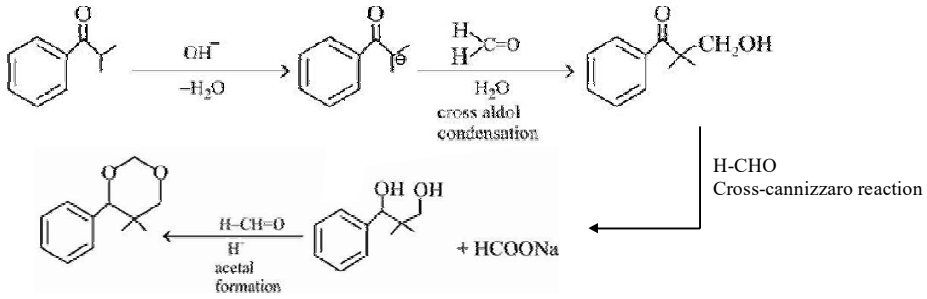
104.(C) $CH_3CHO + 3HCHO \xrightarrow[\text{Cross aldol condensation}]{HO^-} HOCH_2-\underset{CH_2OH}{\overset{CH_2OH}{\underset{|}{\overset{|}{C}}}}-CHO$

$$HOCH_2-\underset{CH_2OH}{\overset{CH_2OH}{\underset{|}{\overset{|}{C}}}}-CHO + HCHO + NaOH \xrightarrow[\text{(Cross-Cannizzaro reaction)}]{} C(CH_2OH)_4 + HCOONa$$

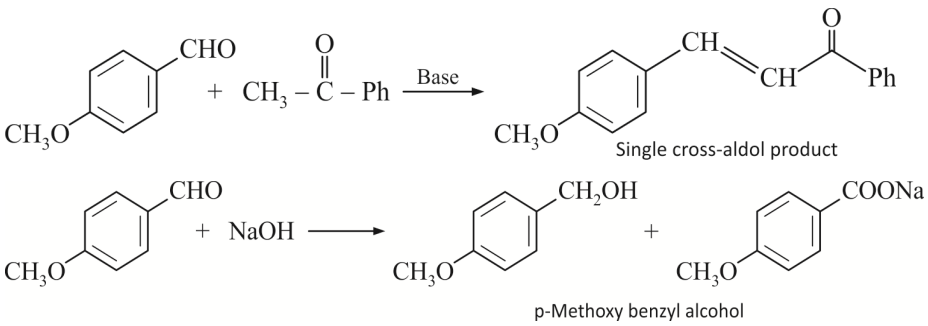
105.(A)



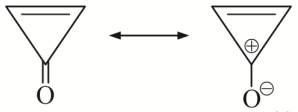
106.(ABD) Aldehyde gives positive Tollen's test.

α -Hydroxy ketones are also oxidized by mild oxidizing agent including Tollen's reagent.

107.(A)

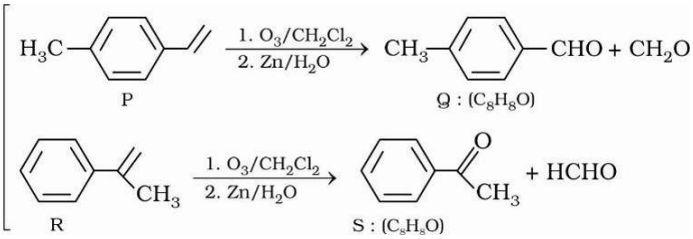


108.(A)

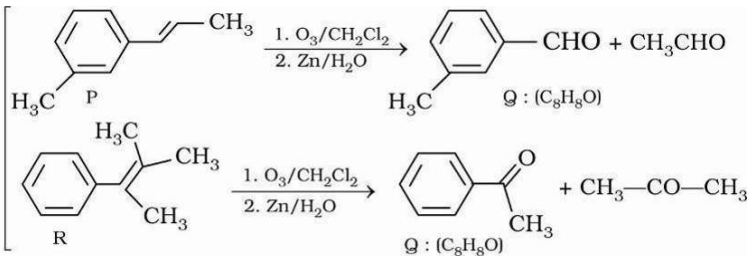


More stable contributor due to aromatic nature hence high dipole moment

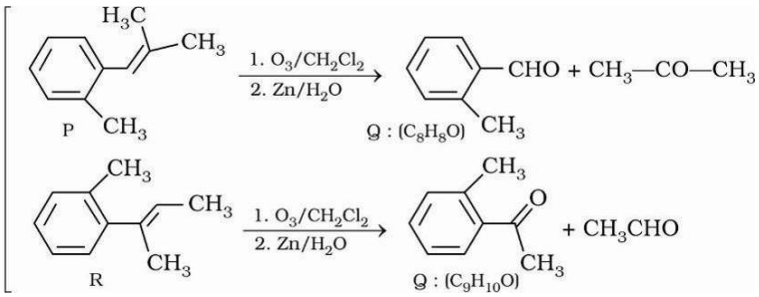
109.(AB) (A)



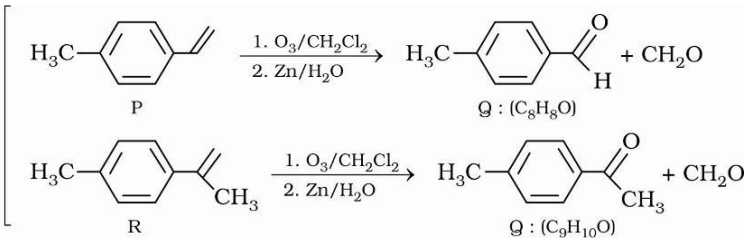
(B)



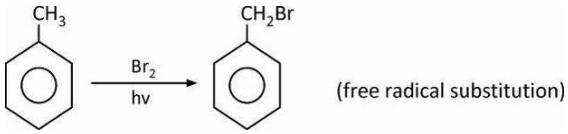
(C)



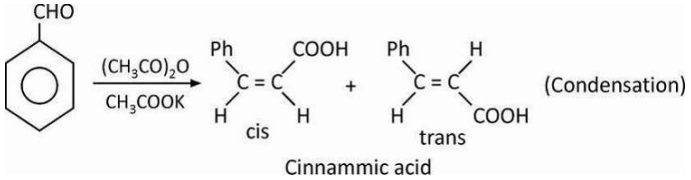
(D)



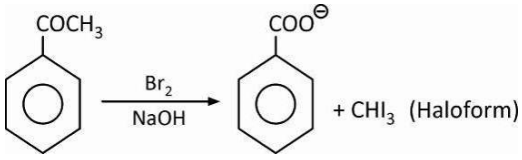
110.(B) I : (ii) → R



111.(A) III : (iii) →P



112.(B) II : (i)→S



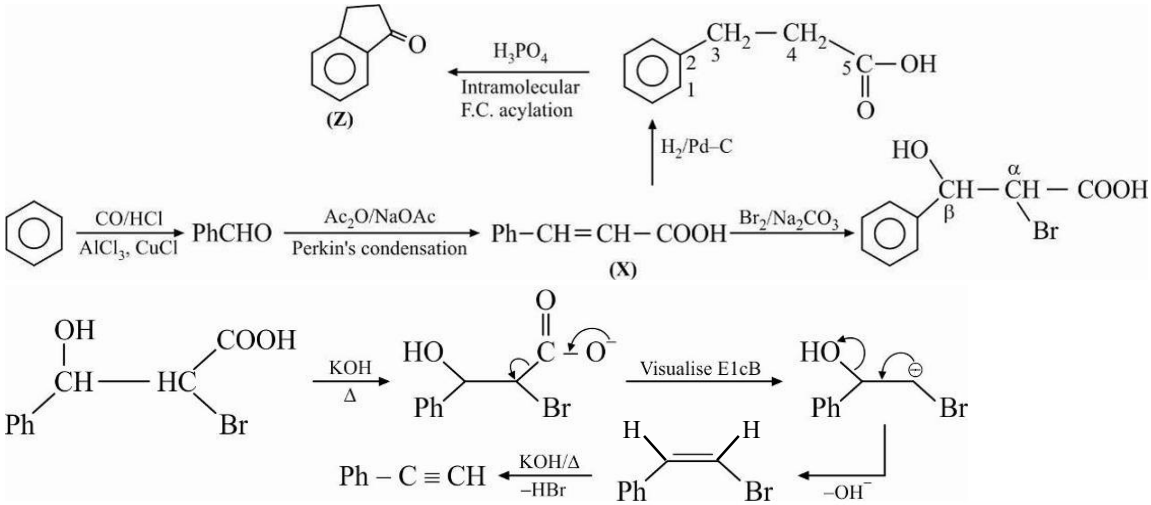
113.(ABD) **(A)** $3CH_3COCH_3 + 3H_2O \longrightarrow$ 1, 3, 5-Trimethylbenzene (Mesitylene)

Acid catalyzed aldol condensation

(B) $Me - C \equiv CH \xrightarrow{\text{Red hot iron tube}}$ 1, 3, 5-Trimethylbenzene

Gas phase trimerization

114.(C) 115.(A)

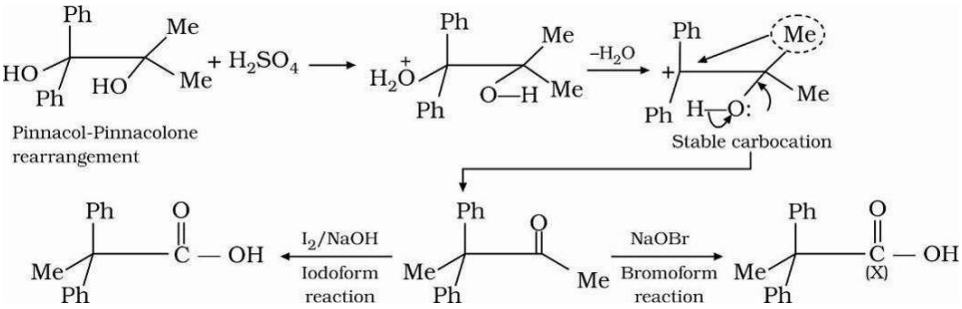


116.(D) [P-1, 5] [Q-2, 3] [R-1, 5] [S-2, 3]

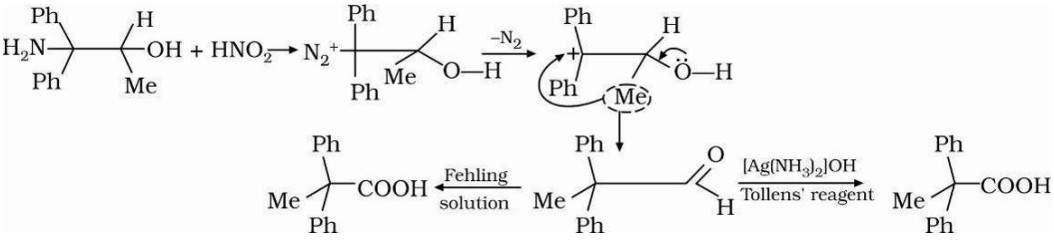
Observe carefully that in question, the migratory aptitude is different from that which is usually observed.

Given : Aryl > Alkyl > H (Typical order is H > Aryl > Alkyl)

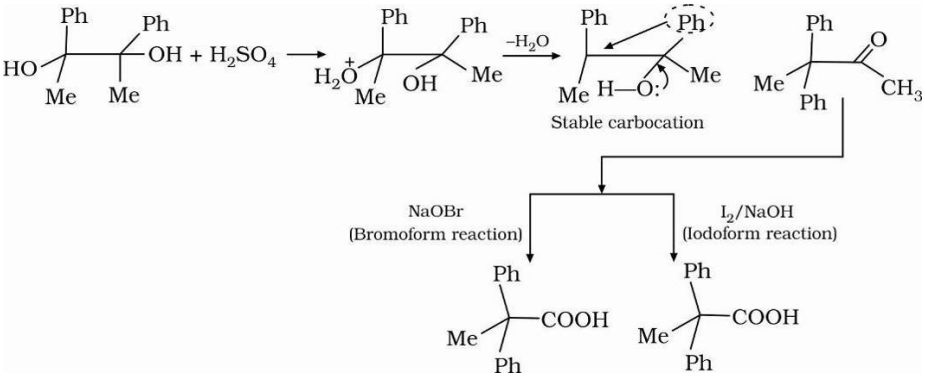
P :



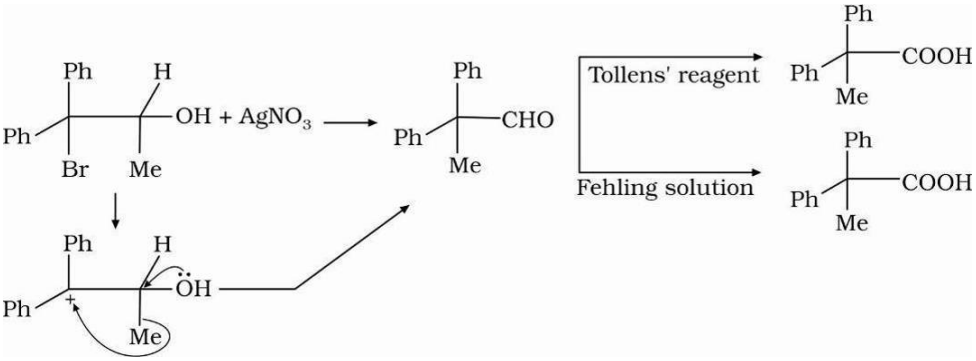
Q :



R :

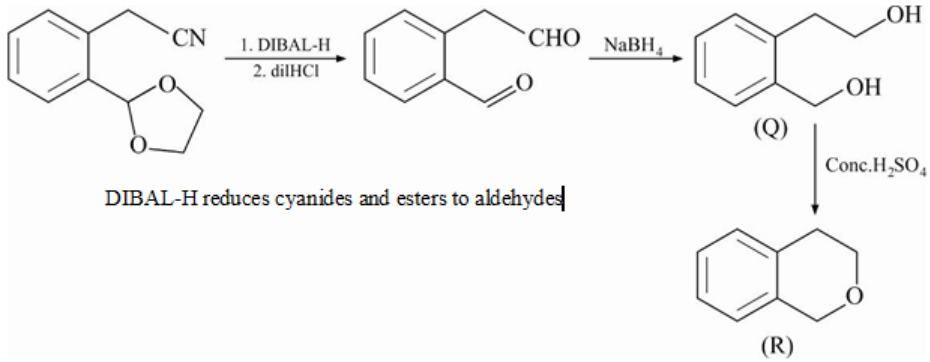


S :



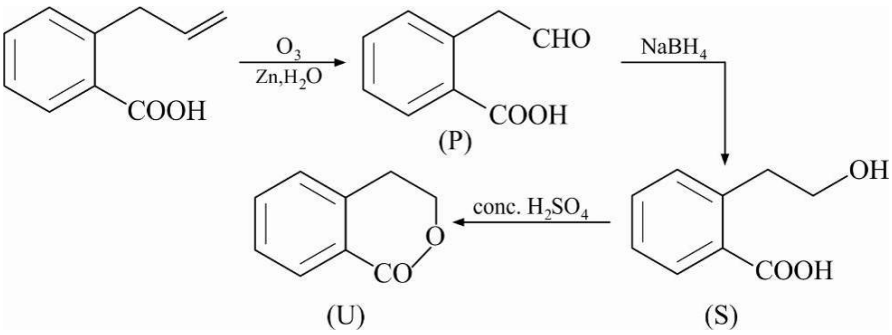
117.(D) **118.(C)**

(I)

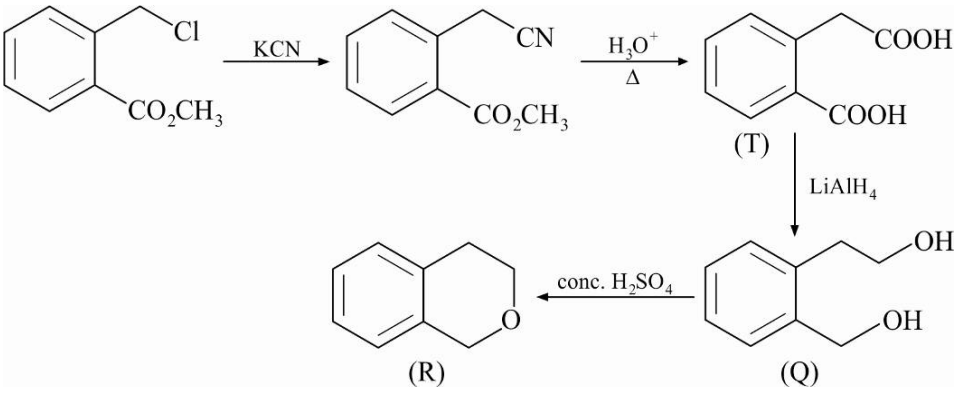


DIBAL-H reduces cyanides and esters to aldehydes

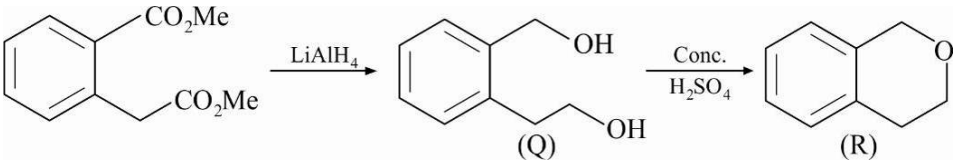
(II)



(III)



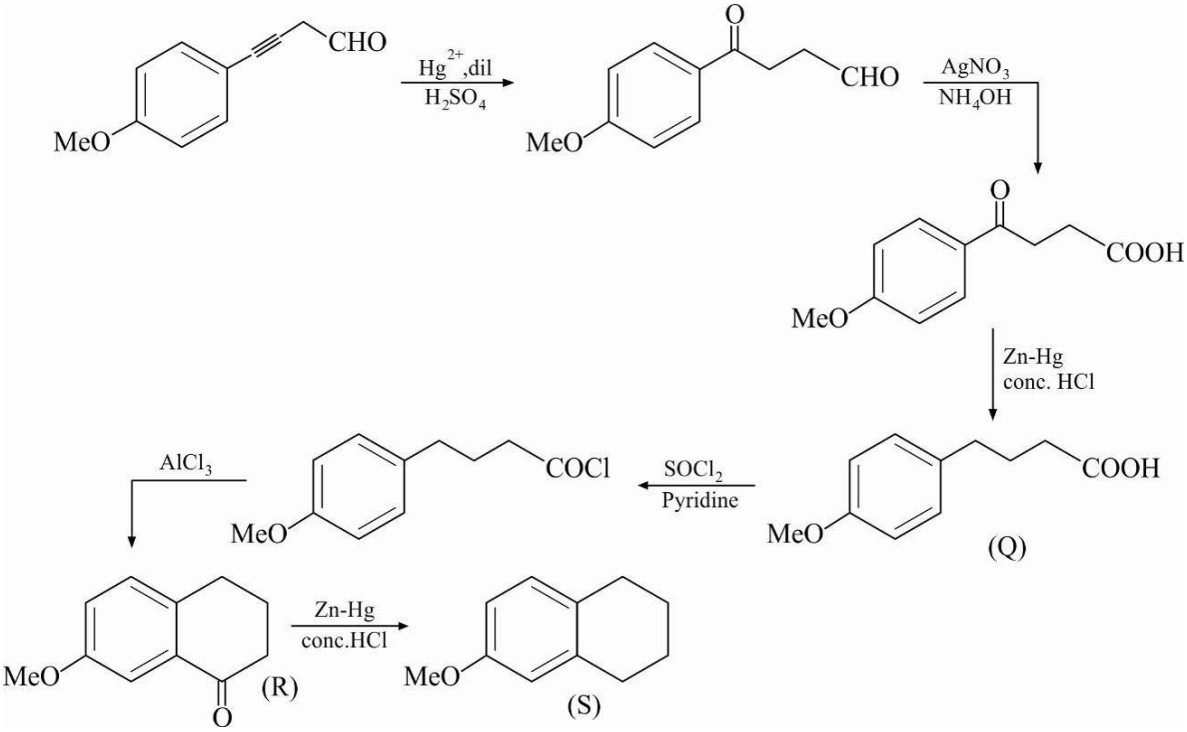
(IV)



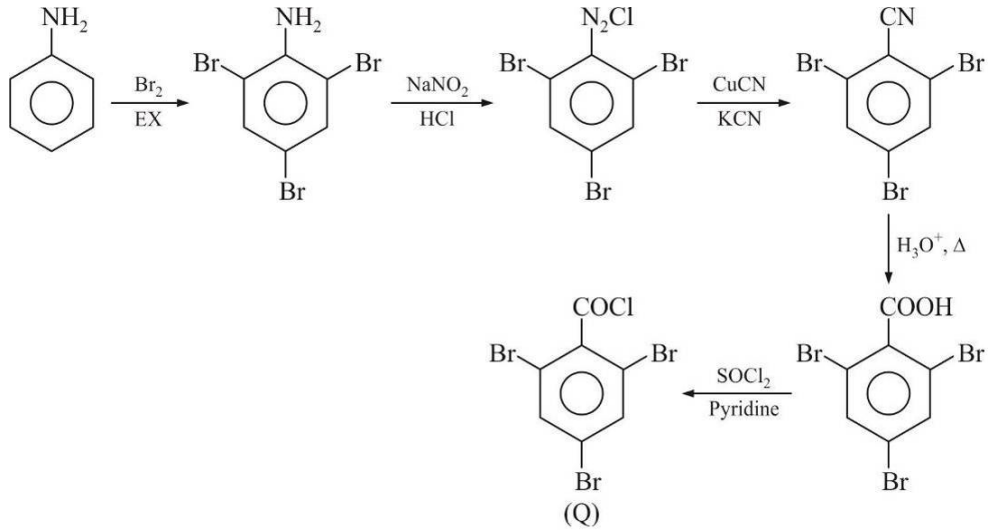
The correct matching is :

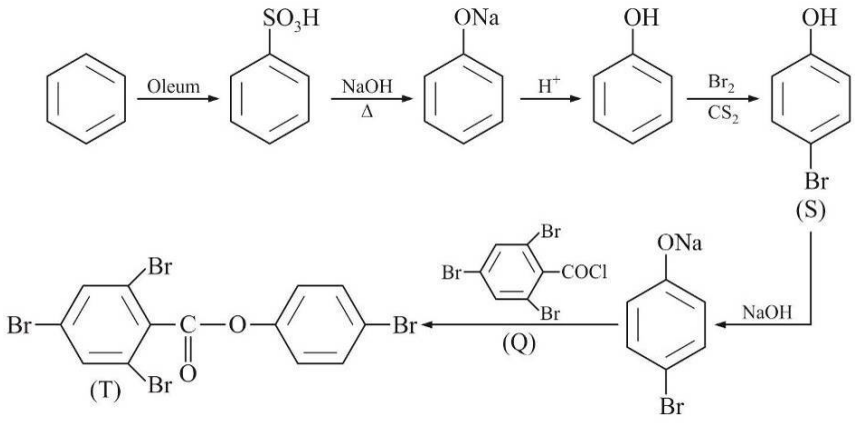
(I) Q, R **(II)** P, S, U **(III)** Q, R, T **(IV)** Q, R

119.(BD)

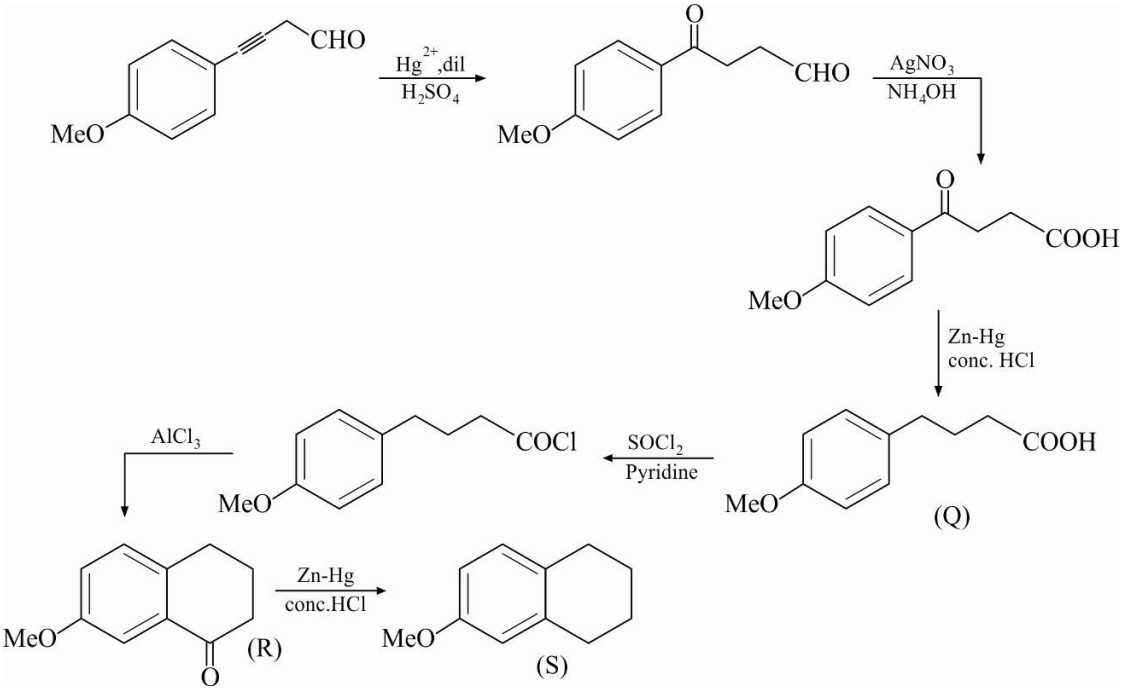


120.(4)





121.(BD)



122.(6.00)