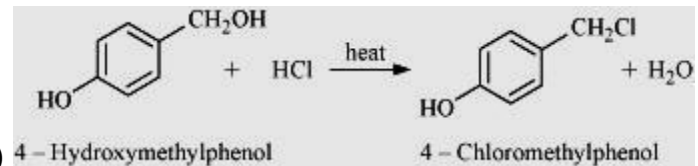
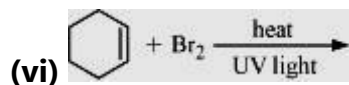
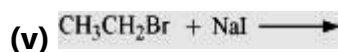
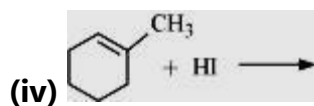
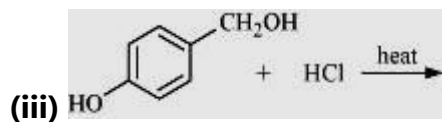
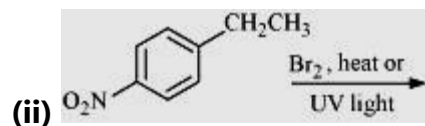
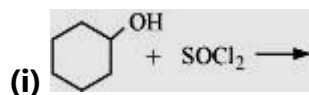
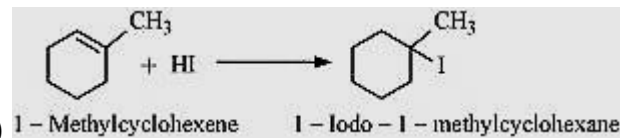


COMPLETE the REACTIONS

Q13 Draw the structures of major monohalo products in each of the following reactions:



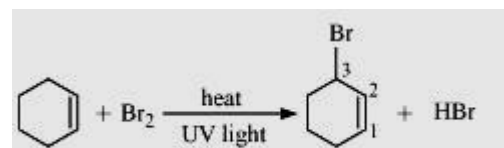
(iii) 4-Hydroxymethylphenol + HCl $\xrightarrow{\text{heat}}$ 4-Chloromethylphenol + H₂O



(iv) 1-Methylcyclohexene + HI \longrightarrow 1-Iodo-1-methylcyclohexane

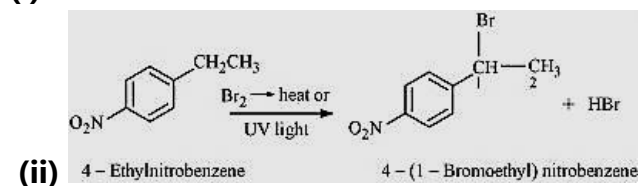
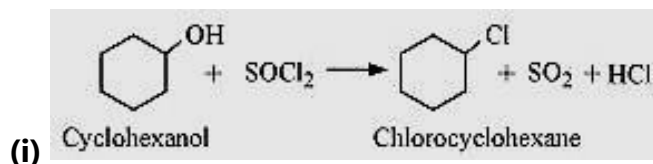


(v) Bromoethane \longrightarrow Iodoethane

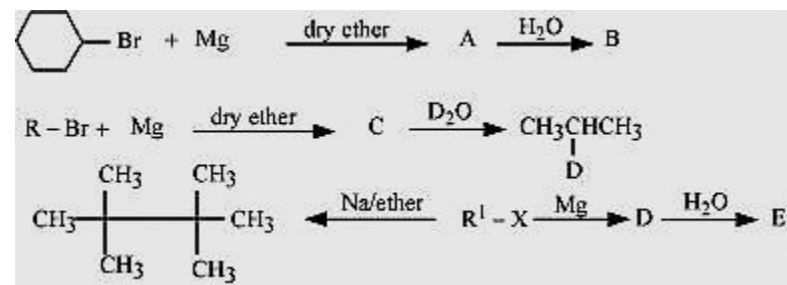


(vi) Cyclohexene + Br₂ $\xrightarrow{\text{heat, UV light}}$ 3-Bromocyclohexene + HBr

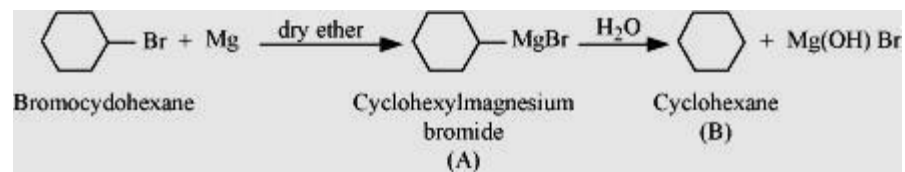
Answer



Q14 Identify A, B, C, D, E, R and R¹ in the following:



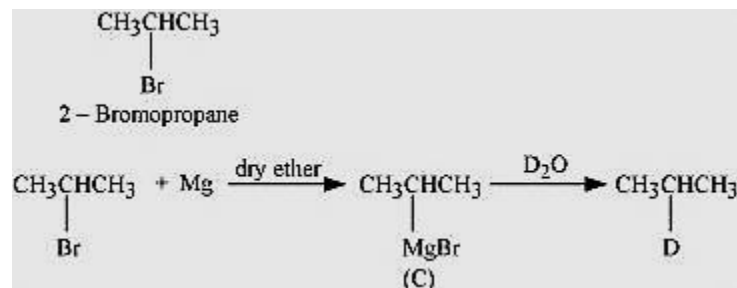
Answer



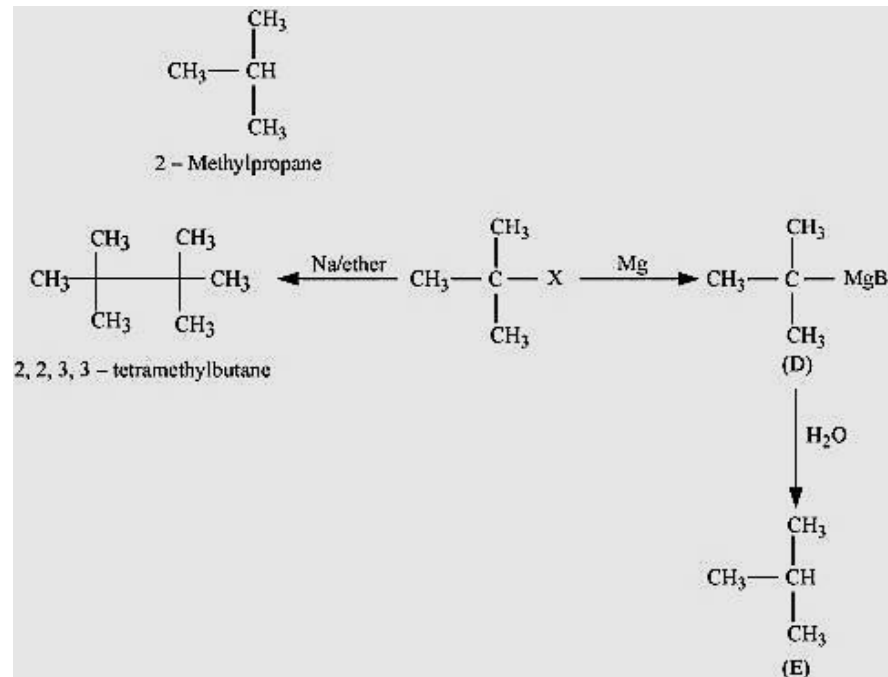
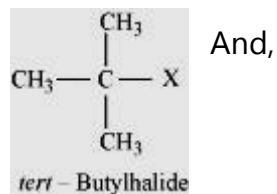
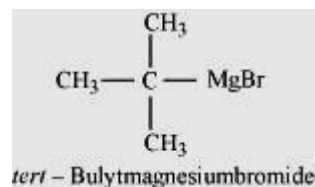
Since D of D₂O gets attached to the carbon atom to which MgBr is attached, C is



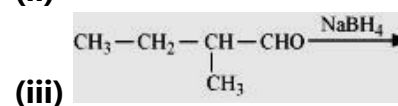
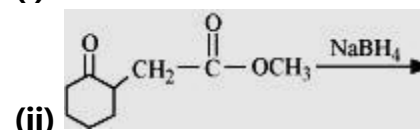
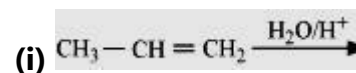
Therefore, the compound R - Br is



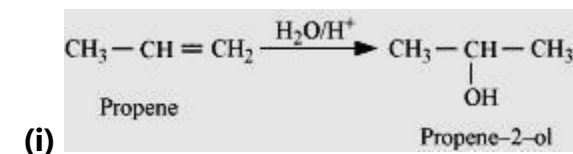
When an alkyl halide is treated with Na in the presence of ether, a hydrocarbon containing double the number of carbon atoms as present in the original halide is obtained as product. This is known as Wurtz reaction. Therefore, the halide, R¹-X, is Therefore, compound D is- compound E is

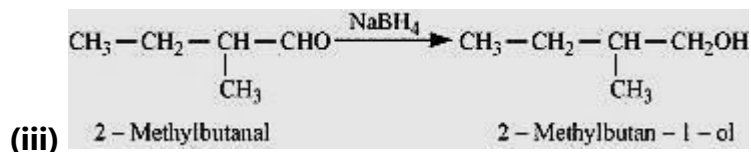
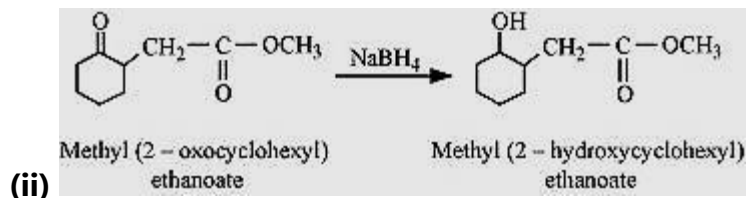


Q15 Write structures of the products of the following reactions:

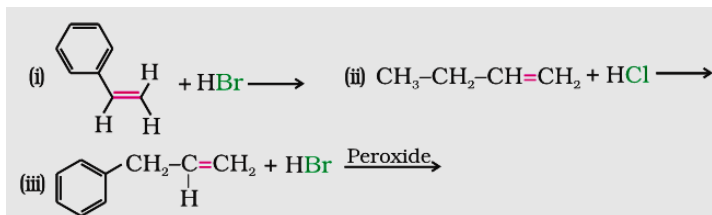


Answer

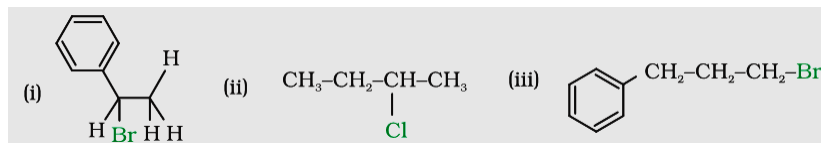




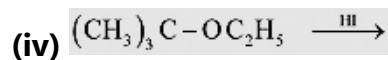
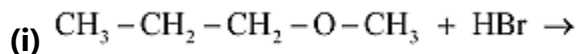
Q16 Write the products of the following reactions:



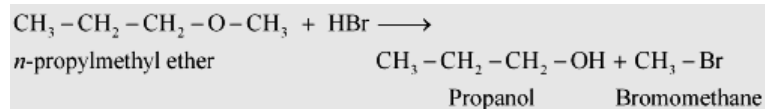
Answer



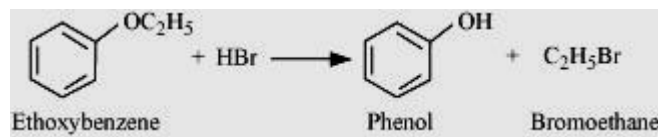
Q17 Predict the products of the following reactions:



Answer



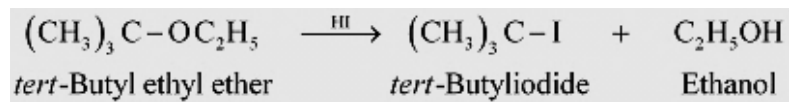
(i)



(ii)



(iii)



(iv)

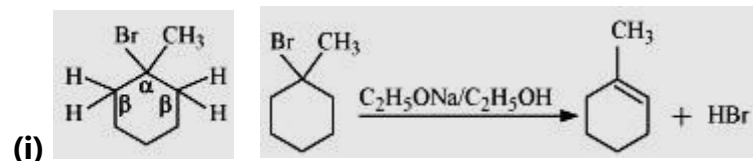
Q18 Predict all the alkenes that would be formed by dehydrohalogenation of the following halides with sodium ethoxide in ethanol and identify the major alkene:

(i) 1-Bromo-1-methylcyclohexane

(ii) 2-Chloro-2-methylbutane

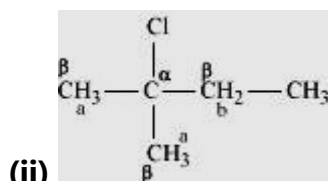
(iii) 2,2,3-Trimethyl-3-bromopentane.

Answer

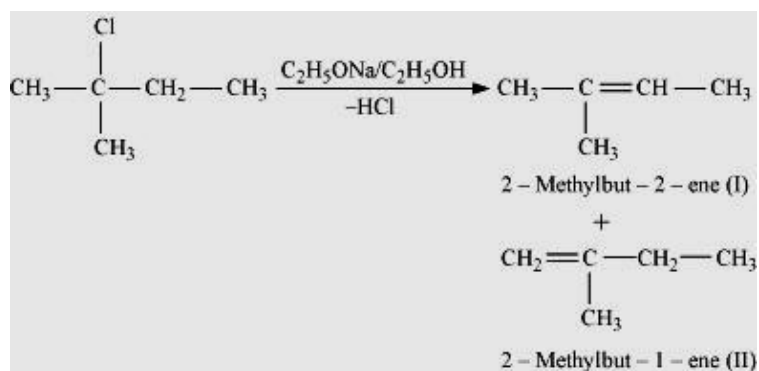


1-bromo-1-methylcyclohexane

In the given compound, all β -hydrogen atoms are equivalent. Thus, dehydrohalogenation of this compound gives only one alkene.



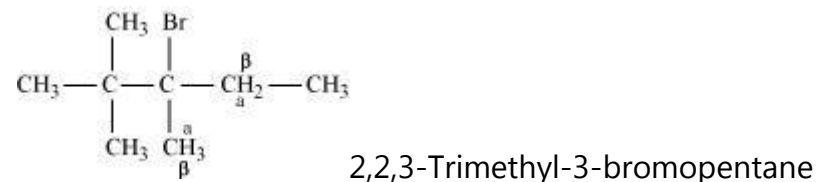
(iii) In the given compound, there are two different sets of equivalent β -hydrogen atoms labelled as *a* and *b*. Thus, dehydrohalogenation of the compound yields two alkenes.



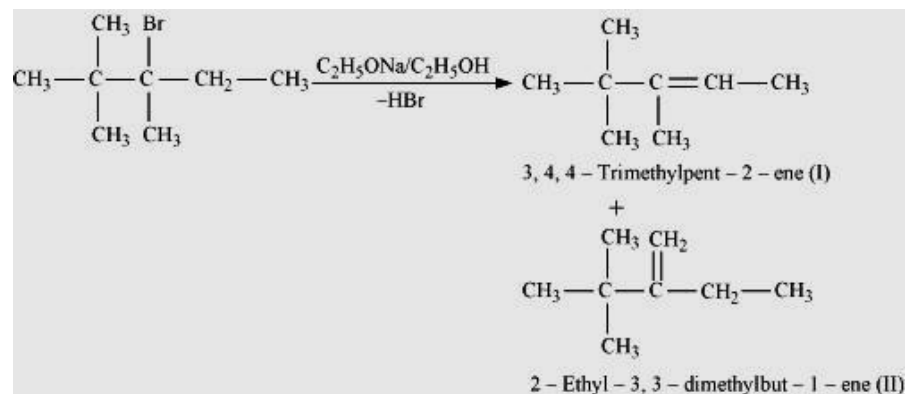
Saytzeff's rule implies that in dehydrohalogenation reactions, the alkene having a greater number of alkyl groups attached to a doubly bonded carbon atoms is preferably produced.

Therefore, alkene (I) i.e., 2-methylbut-2-ene is the major product in this reaction.

(iii)

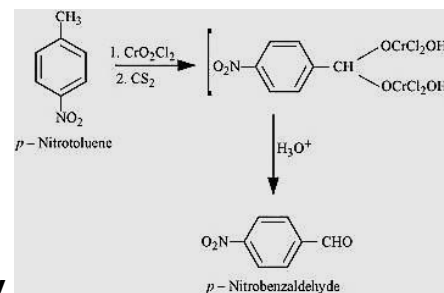
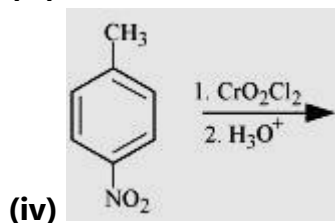
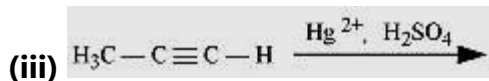
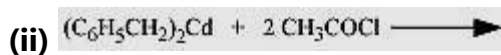
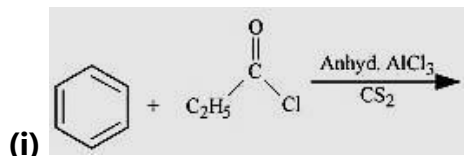


In the given compound, there are two different sets of equivalent β -hydrogen atoms labelled as *a* and *b*. Thus, dehydrohalogenation of the compound yields two alkenes.

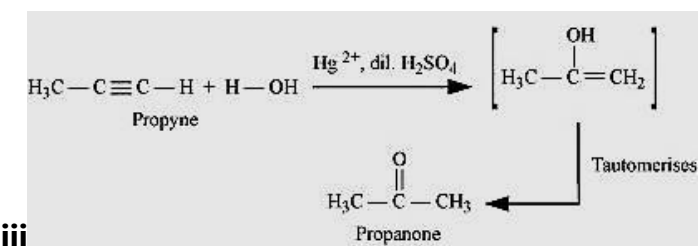
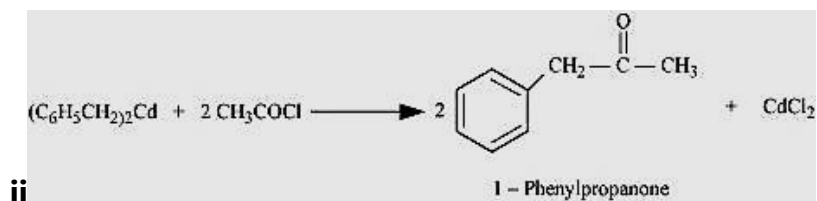
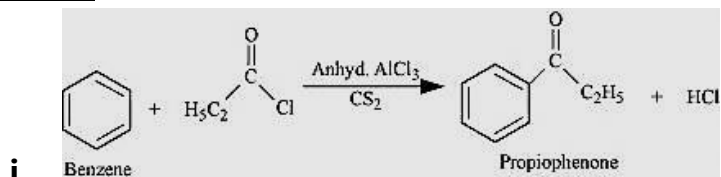


According to Saytzeff's rule, in dehydrohalogenation reactions, the alkene having a greater number of alkyl groups attached to the doubly bonded carbon atom is preferably formed.

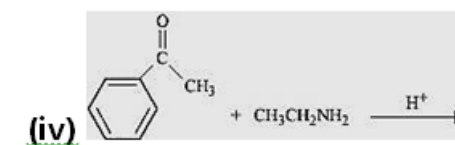
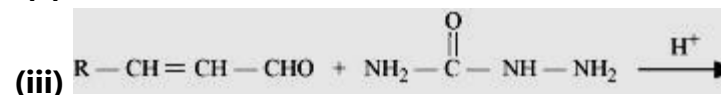
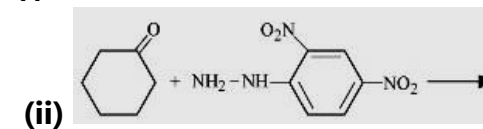
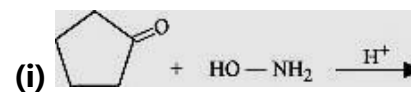
Q19 Write the structures of products of the following reactions;



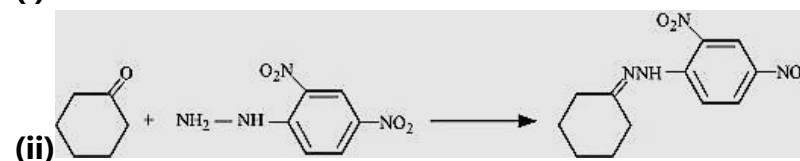
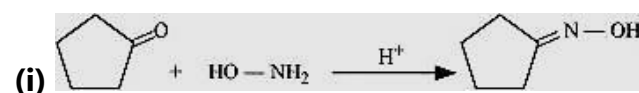
Answer

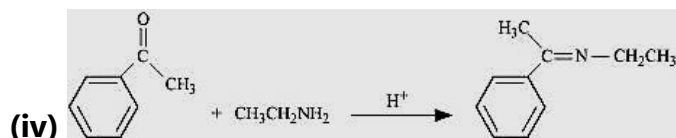
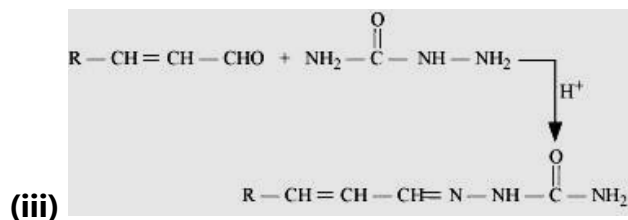


Q20 Predict the products of the following reactions:

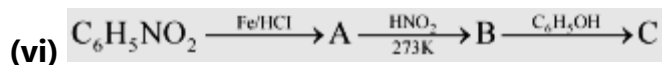
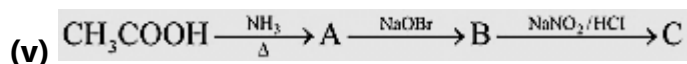
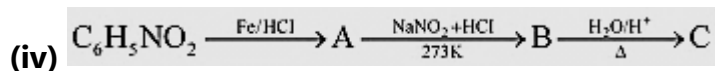
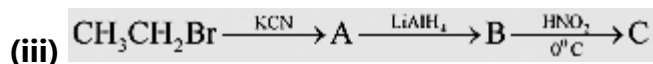
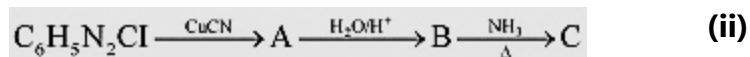


Answer

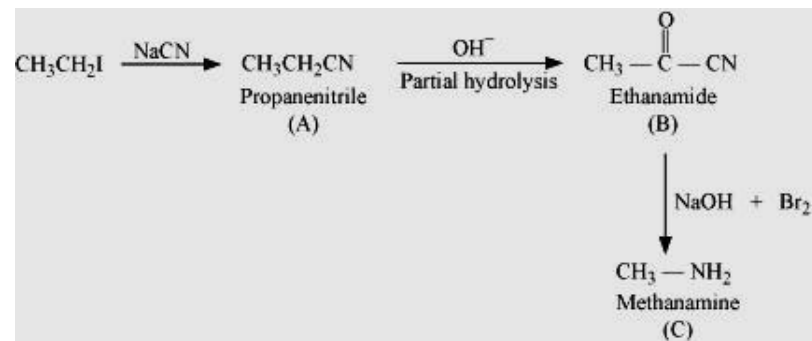




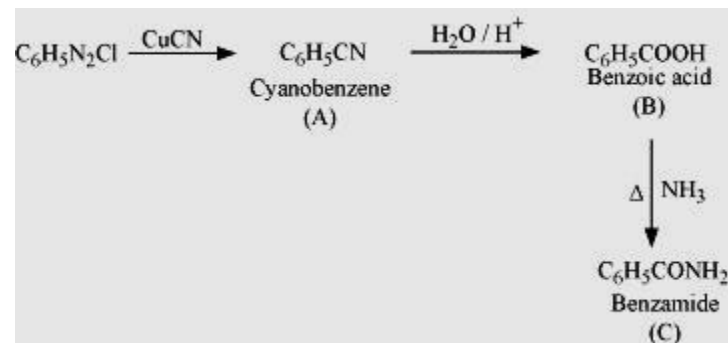
Q 21 Give the structures of A, B and C in the following reactions:



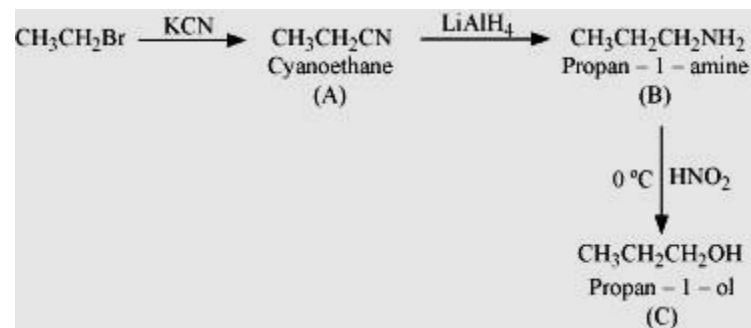
(i)



(ii)

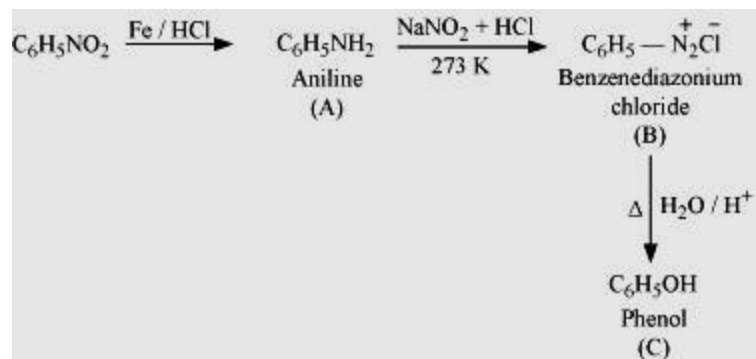


(iii)

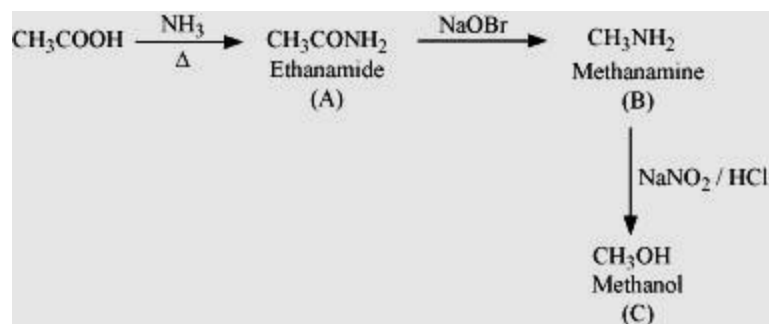


(iv)

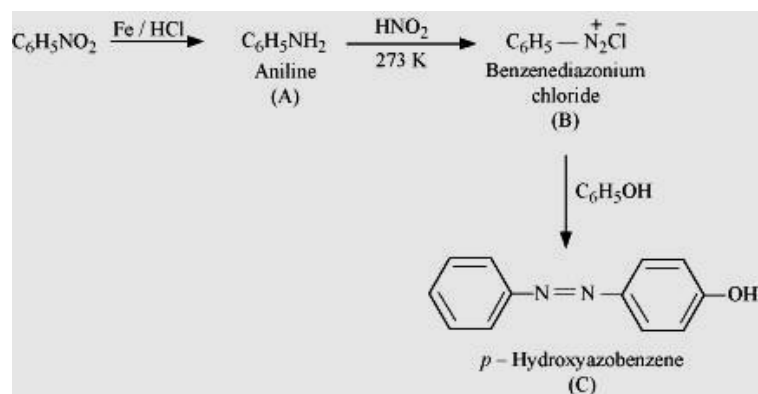
Answer



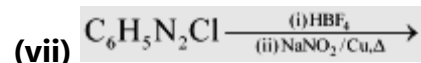
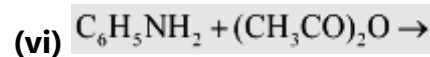
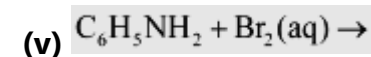
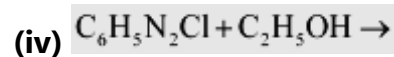
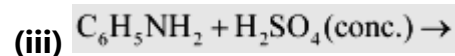
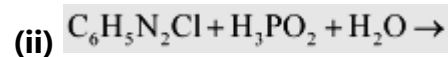
(v)



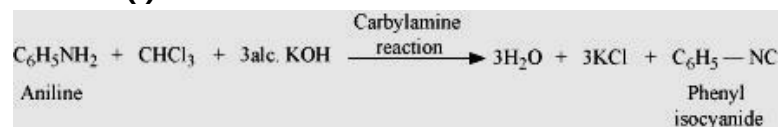
(vi)



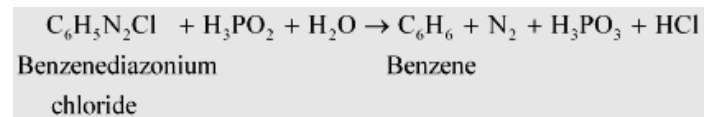
Q22 Complete the following reactions:



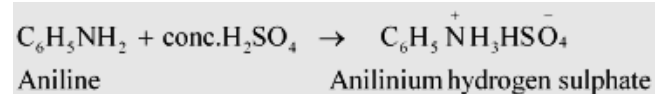
Answer (i)



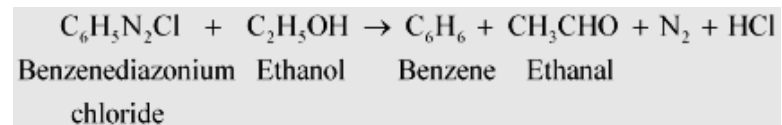
(ii)



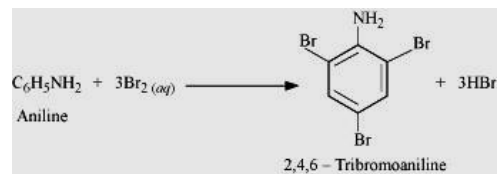
(iii)



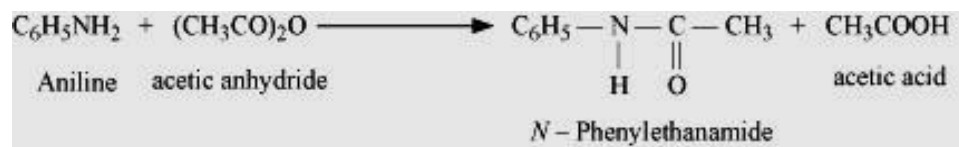
(iv)



(v)



(vi)



(vii)

