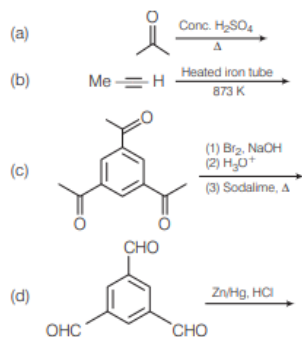
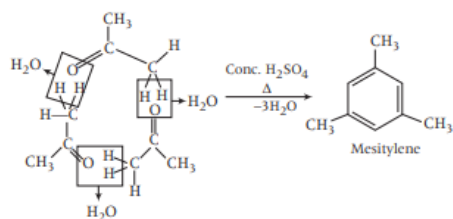


The reaction(s) leading to the formation of 1,3,5-trimethylbenzene is (are) (2018 Adv.)



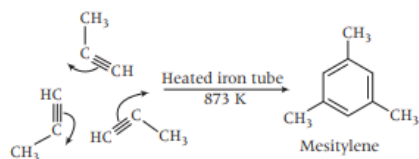
Reaction shown in option (a) is aldol condensation in the presence of conc.  $\text{H}_2\text{SO}_4$  at high temperature.

In summarised way the formation of mesitylene through this can be visualised as



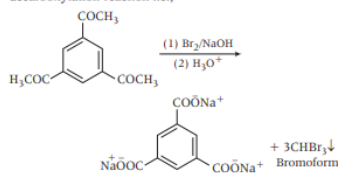
Reaction given in option (b) is simple polymerisation (trimerisation) reaction of alkyne i.e.,

$\text{Me}-\text{C}\equiv\text{C}-\text{H}$  or  $\text{CH}_3-\text{C}\equiv\text{C}-\text{H}$  when passed through heated iron tube at 873K then mesitylene is formed as

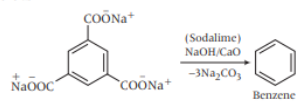


This reaction is also called aromatisation.

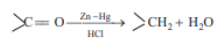
(1) and (2) reactions of option (c) combined to give haloform reaction while (3) reaction given in this option is decarboxylation reaction i.e.,



The above product of haloform reaction on decarboxylation gives benzene as



The reaction given in option (d) is Clemmensen reduction i.e.,



Hence, the final product of this reaction is also mesitylene which can be seen as

