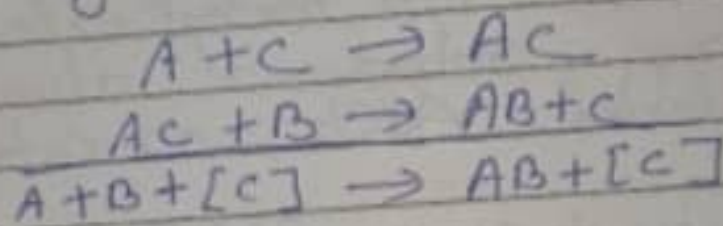


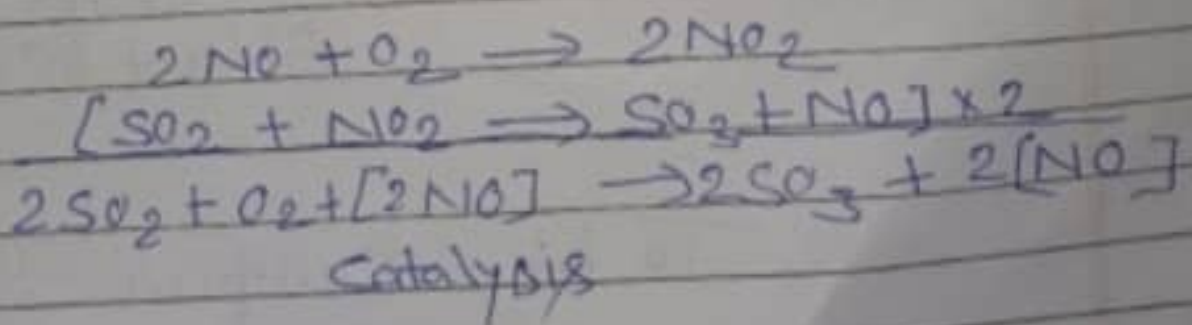
## THEORIES OF CATALYSIS

### Intermediate Compound Formation Theory

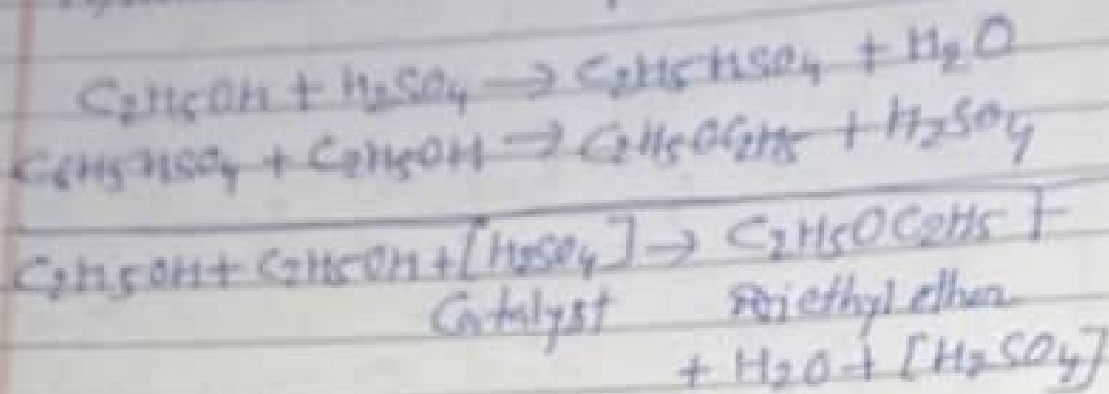
According to this theory, a catalyst first combines with one of the reactants to form an intermediate compound of activity greater than that of the reactants. This intermediate compound reacts with another reactant to form the product and so gives back the catalyst. If A and B are two reactants and C is a catalyst, then according to this theory:



1) In the oxidation of  $SO_2$  by air, NO which acts as a catalyst, first combines with oxygen to form  $NO_2$  (intermediate compound) which oxidises  $SO_2$  and gives back nitric oxide.



2) In the formation of ether from alcohol,  $H_2SO_4$  which is used as catalyst first forms an intermediate compound  $C_2H_5HSO_4$ .



3) Formation of methylbenzene,  $C_6H_5CH_3$  by reacting between benzene ( $C_6H_6$ ) and methyl chloride ( $CH_3Cl$ ) using anhydrous aluminium chloride,  $AlCl_3$ , as catalyst



Intermediate compound



To be continued.