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Topic - CATALYSIS

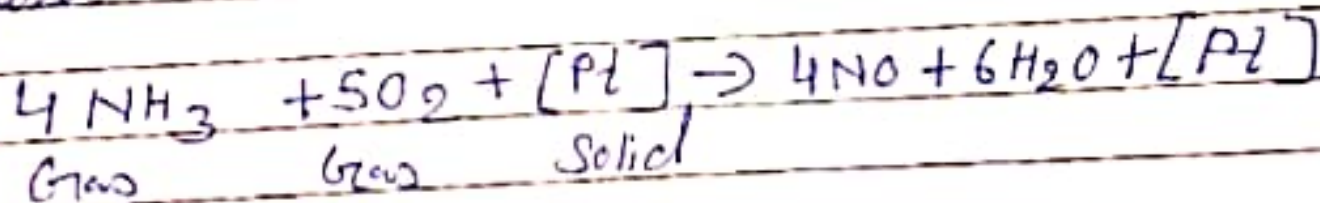
Class - B.Sc. Part II (Hons), Paper III A, Group - A

## Heterogeneous Catalysis →

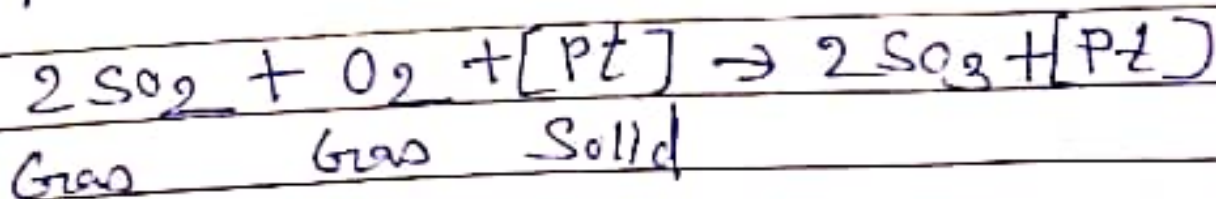
When the catalyst is in a different phase than that of reactants, the phenomenon is known as heterogeneous catalysis.

a) Heterogeneous Catalysis with gaseous reactants.

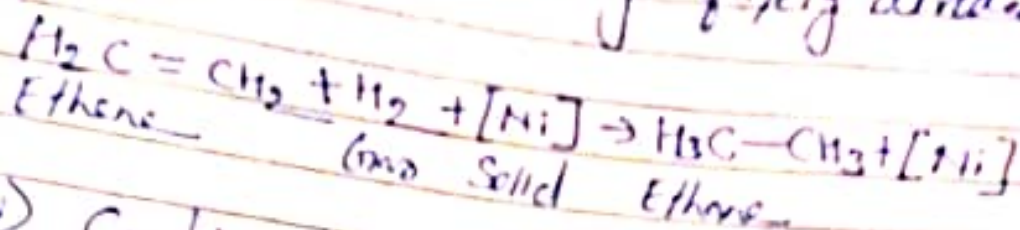
(i) Oxidation of ammonia to nitric oxide (NO) in the presence of a platinum gauze.



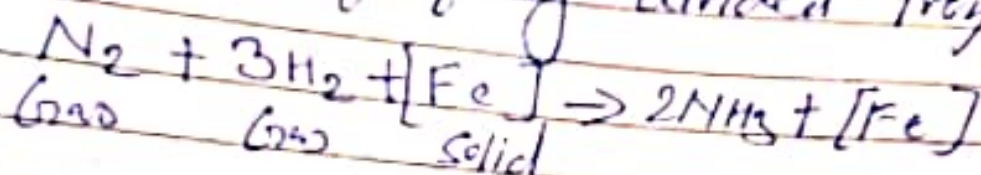
(ii) Combination of sulphur dioxide (SO<sub>2</sub>) and oxygen in the presence of finely divided platinum or vanadium pentoxide. V<sub>2</sub>O<sub>5</sub>.



iii) Hydrogenation reaction of unsaturated organic compounds are catalysed by finely divided nickel.

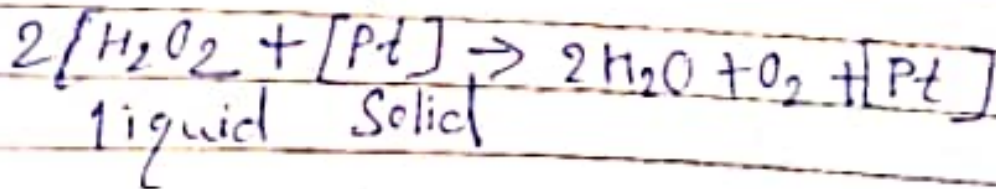


iv) Combination of nitrogen and hydrogen to form ammonia in the presence of finely divided iron.



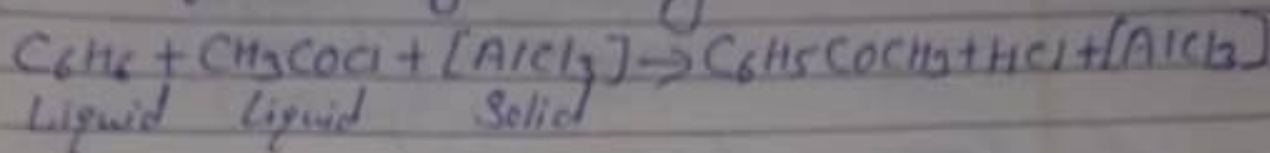
b) Heterogeneous Catalysis with liquid reactants.

i) The decomposition of aqueous solution of hydrogen peroxide ( $\text{H}_2\text{O}_2$ ) is catalysed by manganese dioxide ( $\text{MnO}_2$ ) or platinum in colloidal form.



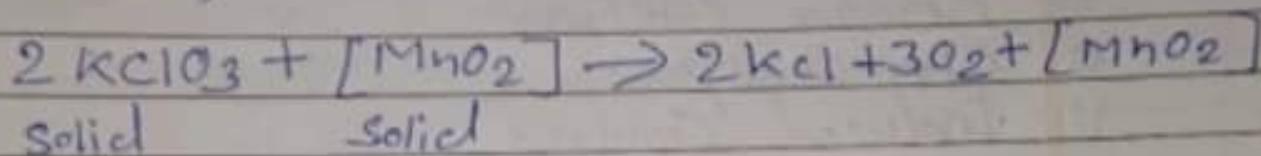
ii) Benzene and ethanoyl Chloride ( $\text{CH}_3\text{COCl}$ ) react in the presence of anhydrous aluminium Chloride.

to form phenyl methyl ketone ( $C_6H_5COCH_3$ ).



c) Heterogeneous Catalysis with solid reactants.

The decomposition of potassium chlorate ( $KClO_3$ ) is catalysed by manganese dioxide ( $MnO_2$ ).



To be continued.