5.1. Write any two characteristics of Chemisorption.
Ans: Pt and Pd form inert electrodes, i.e., they are not attacked by the ions of the electrolyte or the products of electrolysis. Hence, they are used as electrodes for carrying out electrolysis.

5.2. Why does physisorption decrease with the increase of temperature?
Ans: Physisorption is an exothermic process :

$$\underset{\text{(Adsorbent)}}{\text{Solid}} + \underset{\text{(Adsorbate)}}{\text{Gas}} \rightleftharpoons \underset{\text{(Gas adsorbed on solid)}}{\text{Gas/Solid}} + \text{Heat}$$

According to Le-Chatelier's principle, if T is increased, equilibrium shifts in the backward direction i.e., gas is released from the surface of solid.

5.3. Why are powdered substances more effective . adsorbents than their crystalline forms?
Ans:Powdered substances have greater surface area as compared to their crystalline forms. Greater the surface area, greater is the adsorption.

5.4. In Haber's process, hydrogen is obtained by reacting methane with steam in presence of NiO as catalyst. The process is known as steam reforming. Why is it necessary to remove CO when ammonia is obtained by Haber's process?
Ans: CO acts as a poison for the catalyst used in the manufacture of NH_3 by Haber's process. Hence, it is necessary to remove it.

5.5. Why is the ester-hydrolysis slow in the beginning and becomes faster after sometime?
Ans: The ester hydrolysis takes place as follows :

$$\underset{\text{(Ester)}}{\text{RCOOR'}} + \underset{\text{(Water)}}{H_2O} \rightleftharpoons \underset{\text{(Acid)}}{\text{RCOOH}} + \underset{\text{(Alcohol)}}{\text{R'OH}}$$

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