

## PG Semister I

### ACID HYDROLYSIS

### ASSIGNMENT

1. What is Acid Hydrolysis or Aquation reaction? Give an example.
2. What is Base Hydrolysis reaction?
3. Through which mechanism acid hydrolysis reaction takes place in  $\text{cis}[\text{Co}(\text{en})_2\text{Cl}_2]^+$ .
4. What is relationship between basicity of the leaving group X and rate of aquation reaction?
5. Through which mechanism the aquation reaction of  $[\text{Co}(\text{en})_2(\text{subst. by})\text{Cl}]^{2+}$  takes place and why?
6. Why the aquation of  $[\text{Co}(\text{NH}_3)_5\text{Cl}]^{2+}$  will take place at a great pace than the aquation of  $[\text{Co}(\text{en})(\text{NH}_3)_3\text{Cl}]^{2+}$ ?
7. The rate of aquation of cis-complexes  $[\text{Co}(\text{en})_2(\text{OH})\text{Cl}]^+$  is much greater than  $[\text{Co}(\text{en})_2(\text{NH}_3)\text{Cl}]^{2+}$ . Explain it.
8. Why the aquation of trans complex cannot take place through formation of sp intermediate complex species?
9. How Trigonal bipyramidal structure is stabilized?
10. Why aquation of trans  $[\text{Co}(\text{en})_2(\text{OH})\text{Cl}]^+$  is more stable?
11. Why as a result, the aquation of complex in which the inert pi-acceptor ligand is trans to the leaving group is faster and easier than when the pi-acceptor ligand is cis to the leaving group?
12. Why the formation of Pentagonal Bipyramidal (PBP) intermediate is energetically unfavorable?