CHAPTER 5

SUMMARY
This dissertation deals with the studies of oxidation kinetics of cyclohexanone oxime and resacetophenone oxime with aqueous vanadate solution in presence of mineral acids (sulphuric or perchloric acid). As the oximes are not soluble in water 10 ml of acetic acid was added in preparing 50 ml of 0.1 M cyclohexanone oxime solution and glacial acetic acid was used in preparing 50 ml of 0.1 M resacetophenone oxime solution. The kinetic runs were carried out under the pseudo-first order conditions and the first order rate constant was calculated from the slope of the linear plot of log\[V(V)\] against time. Plot of log\[V(V)\] versus time gave 2 linear portions in the case of cyclohexanone oxime and an exponential curve in case of resacetophenone oxime. Pseudo first order rate constants, by varying the concentration of V(V) keeping the concentrations of oxime and acid constant, calculated from the slopes of the first linear portions of the concentration-time plots in the case of cyclohexanone oxime and initial straight line portions of the concentration-time plots in case of resacetophenone oxime were found to be almost constant showing first order kinetics with respect to V(V) at the initial stage of the reaction in both the oxime oxidations. The order was found to be negative.
and fractional with respect to cyclohexanone oxime and zero with respect to resacetophenone oxime in both the acid media. The oxidations were found to be acid catalysed. A plausible explanation and possible reaction mechanisms were proposed during the discussion of these observations.

The kinetics of oxidation of organic substrates by vanadium(V) and the kinetics of oxidation of oximes by metal ions have been critically reviewed in the introduction.