1043-65-119   **Manoj Kumar*** (`manoj@mnnit.ac.in`), Department of Mathematics, Motilal Nehru National Institute of, Technology, (Deemed University), Allahabad, U.P 211004, India. *Numerical Methods for Solving Singular Perturbation Problems.*

Singular perturbation problems are a common occurrence in many branches of applied mathematics such as fluid dynamics, fluid mechanics, quantum mechanics, optimal control, chemical reactor theory, aerodynamics, reaction–diffusion processes, geophysics, etc. A few notable examples are boundary layer problems, WKB problems, the modeling of steady and unsteady viscous flow problems with large Reynolds numbers, convective heat transport problems with large Peclet numbers etc. The area of singular perturbations is a field of increasing interest to Applied Mathematicians. During the last few years much progress has been made in the theory and in the computer implementation of the numerical treatment of singular perturbation problems. It is a well-known fact that these problems possess boundary or interior layers. So the numerical treatment of singularly perturbed differential equations gives rise to computational difficulties. In recent years, a large number of special purpose methods have been developed to provide accurate numerical solutions. (Received August 23, 2008)