

ABSTRACT

The research reported in this thesis is concerned with the problem of oscillatory and asymptotic behavior of nonlinear neutral type difference equations. Chapter 1 provides necessary introduction and motivation for the present work. In Chapter 2, we consider a first order nonlinear neutral difference equation and establish some sufficient conditions for the oscillation of all solutions of this equation. In Chapter 3, we consider a second order neutral difference equation and establish some sufficient conditions for the oscillation of all solutions of this equation. In Chapter 4, we consider the second order neutral delay and advanced difference equations and established some sufficient conditions for the oscillation of all solutions of this equation. In Chapter 5, we consider a third order nonlinear neutral difference equation and study the oscillatory and asymptotic behavior of solutions of this equation. Finally Chapter 6 deals with the oscillatory and asymptotic behavior of nonlinear neutral difference equations with distributed delay. Examples are provided to illustrate the main results. The results presented in this thesis improve, generalize and extend some of the known results.