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A NEW APPROACH FOR ANALYTIC SOLUTION OF IMPULSIVE DELAY DIFFERENTIAL EQUATIONS

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Abstract: Impulsive delay differential equations are extensively used to study the dynamical behavior and mathematical modeling of many problems in engineering, population growth, disease epidemics, drugs administration, automation, traffic flow, earthquake protection etc. But many impulsive delay differential equations cannot be solved analytically or it is very difficult to solve due to the discontinuity at impulse moments. In this paper, an algorithm for the analytic solution of impulsive delay differential equations with impulses at fixed moments is presented. The diagrammatic representation of this method is illustrated with the help of an example. Further the gotten solution is compared with numerical solution and it is also exponentially stable.

Keywords and Phrases: Impulsive Delay Differential equations, Analytic solutions.

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1. Introduction

Many fields such as remote control dynamical systems, drugs administration, population dynamics, automation, traffic flow, earthquake protection etc. used