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Numerical Techniques

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Abstract:-Solving of the numerical estimates to the fuzzy equations is done by use of the numerical techniques in fuzzy equations. The latter have a high level of equivocalness, calling for the use of numerical techniques to solve them. There are two types of fuzzy equations: differential and linear. There is a number of numerical techniques applied in solving the fuzzy differential equations. The numerical techniques vary in application, depending on whether they are being used to solve a homogenous or a non-homogenous fuzzy equation. Different formulas are applied in these situations. Examples of the formulas include ï(t) = Aï(t) and ï(t) = Aï(t) + Bx(t) + f(t).

Keywords:- *Numerical Estimates, Fuzzy Equations, Numerical Techniques, Formulas, Homogenous Fuzzy Equations, Non-Homogenous Fuzzy Equation.*

I. INTRODUCTION

Fuzzy differential equation provide richer theory then the classical differential equation,and gives realistic ways to model real world observation with hazy information. The trope behind the present study is to investigate the existence of the solution for differential equation by numerical technique.

II. HYPOTHESIS

Numerical techniques in fuzzy equations are methods that are used to solve numerical estimates to the fuzzy equations.The level of ambiguity in such equations is high,and hence the application of numerical techniques to solve them. One of the common techniques is the Hukuhara differentiability for fuzzy number valued functions (Boubendir).

A formula ï(t) = Aï(t) is applied in solving fuzzy equations. In this equation, A represents the n × n matrix. The initial state of the fuzzy differential equation states that x(0) is a vector of the n fuzzy digits. Another equation represents the other system of the linear and homogenous fuzzy differential equations,which is ï(t) = Aï(t) + Bx(t). the initial state in this condition is $x(0) = x_0$.A and B represent anactual n × n matrix. The initial form in this equation is x_0; it represents a vector of the fuzzy numbers.

A different numerical technique is applied in the solving of the non-homogenous fuzzy differential equations. ï(t) = A ï(t) + Bx(t) + f(t) equation is applied in solving of the non-homogenous fuzzy differential equations. In this equation, $x(0) = x_0$ and it applies the variational interaction method (Arqub et al. 3293). Numerical techniques are used with special matrix functions to solve fuzzy differential equations.

III. CONCLUSION

Fuzzy differential equations have a system of equations that are to be solved. The system operates by the use of the μ symbol. μ = μ in instances where ŭ(r) = ŭ(r). In this situation, μ(r) = ŭ(r) will be equal to σ. r is equal to or greater than 0 but less than or equal to 1.

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