LAPLACE TRANSFORMATION METHOD OF SOLVING SYSTEM OF VOLTERRA INTEGRAL EQUATION

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17/30GQ029

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CERTIFICATION

This is to certify that this project was carried out by **ISHOLA, Abdulmuiz Adeshina** with Matriculation Number 17/30GQ029 in the Department of Mathematics, Faculty of Physical Sciences, University of Ilorin, Ilorin, Nigeria, for the award of Bachelor of Science (B.Sc.) degree in Mathematics.

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DEDICATION

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ABSTRACT

This project discusses the numerical solution of the system of Volterra integral equations by using Laplace transform method. The Volterra integral equations is a method that can be used to solve initial value problems and integral equations as well, it transforms linear differential equations into algebraic equations and convolution into multiplication. Laplace is also an integral transform that converts a function of a real variable (x) to a function of a complex variable (S).

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GENERAL INTRODUCTION

1.1   HISTORICAL BACKGROUND

There is hardly a culture, however primitive, which does not

Chapter 2

METHOD OF SOLVING PROBLEM

2.1 INTRODUCTION

Many if not all phenomena in biological systems and engineering are broad areas of applied mathematics involve

Chapter 3

APPLICATIONS OF DIFFERENTIAL EQUATIONS IN BIOLOGICAL SCIENCE

3.1   INTRODUCTION

This chapter contains some application of first order differential equation in Biological sciences. Different biological systems can be described and modelled mathematically using ordinary differential equation.

Chapter 4

APPLICATION OF DIFFERENTIAL EQUATIONS TO ELECTRICAL AND MECHANICAL ENGINEERING

4.1 INTRODUCTION

After a period of intense internal development which lead to an unpreceded depending of mathematics, the last few decades

Chapter 5

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

In this project, chapter one provided a general introduction to differential equations with related motivations and concepts.

Chapter two was used to elaborate on types, methods, and examples of first order differential equation and

A brief account of some first application of differential equation to biological, mechanical and electrical engineering were presented and solved in chapter three and four.

5.2 CONCLUSION

The most important branch of mathematics used for mathematical formulation is the differential equation. Any physical situation involved motion or measure rates of change can be described by a mathematical model, the model is just a differential equation.This equation effectively related the quality or function upon which the attention is focused with the independent variable such as time, position upon which it may depend. Thus, the study of ordinary differential equation cannot be ignored and in this project, we were able to solved some biological and engineering problems using ordinary differential equation.

5.3 RECOMMENDATION

The application of differential equation in biological, mechanical and electrical engineering is recommended for organizations such as ministry of health, work and non-governmental organization. The area is fertile in terms of research and we therefore recommend students and researchers to venture into this area. Consequently, the government of Nigeria should also look into this area and motivate people in it.

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