

# CONTENTS

PREFACE	I-IV
CHAPTER 1: PRELIMINARIES.	
1. Introduction.	1
2. Einstein-Cartan Theory of Gravitation.	4
3. Differential Forms in General Relativity.	5
4. Cartan's Equations of Structure in Einstein Theory of Gravitation.	9
5. Cartan's Equations of Structure in Einstein-Cartan Theory of Gravitation.	13
6. Newman-Penrose Tetrad Formalism in EC Theory.	14
7. Representation of Riemann Tensor, Ricci Tensor and Weyl Tensor.	19
CHAPTER 2: KERR-NEWMAN SPACE TIME IN EINSTEIN-CARTAN THEORY OF GRAVITATION.	
1. Introduction.	25
2. Kerr-Newman Space-time.	25
3. Tetrad Components of Connection 1-Forms.	32
4. Tetrad Components of Riemannian Curvature Tensor, Ricci Tensor and Ricci Scalar.	38
CHAPTER 3: ELECTRIC AND MAGNETIC PARTS OF THE WEYL TENSOR AND THEIR PROPAGATION EQUATIONS IN EINSTEIN-CARTAN THEORY OF GRAVITATION.	
1. Introduction.	43
2. Tetrad Components of The Weyl Tensor.	44
3. Electric and Magnetic Parts of The Weyl Tensor.	46
4. Propagation Equations of Electric and Magnetic Parts of The Weyl Tensor in EC Theory.	52
REFERENCES	62