TABLE OF CONTENTS

Topic	Page No.
Declaration	(iii)
Certificate	(iv)
Abstract	(v)-(ix)
Preface	(x)
Acknowledgement	(xi)-(xii)
List of Tables	1-5
List of Figures	7-8
List of Appendices	9
Appendix A: List of Research Publications	10
Appendix B: List of Seminars/Symposiums/Conferences Attended	11
CHAPTER I	13-16
Necessity of the Research Work	
1.1. Objective, Scope and Application of the Research Work	
1.2. Choice of Solvents and Solutes Used	
1.3. Methods of Investigation	
CHAPTER II	17-75
General Introduction	
2.1. Solution Chemistry	
2.2. Interactions in Solution Phase	
2.3. Density	
2.4. Viscosity	
2.5. Ultrasonic Speed	
2.6. Conductance	
2.7. Refractive Index	
CHAPTER III	77-99
Experimental Section	
3.1. Name, Structure, Physical properties, Purification and Applications of the Solutes and Solvents used in the Research work	
3.2. Experimental Methods	

CHAPTER IV 101-124

EXPLORATION OF INTERACTIONS BETWEEN BIOACTIVE SOLUTES AND VITAMIN B9 IN AQUEOUS MEDIUM BY PHYSICOCHEMICAL CONTRIVANCES

4.1. Introduction

4.2. Experimental Section

4.3. Results and Discussion

4.4. Conclusion

Tables & Figures

** Published in Molecular physics,* **2014, 112, 2215-2226**

CHAPTER V 125-148

CONDUCTIVITY IS A CONTRIVANCE TO EXPLORE ION-PAIR AND TRIPLE ION STRUCTURE OF ETHANOATES IN TETRAHYDROFURAN, DIMETHYL SULPHOXIDE AND THEIR BINARIES

5.1. Introduction

5.2. Experimental Section

5.3. Results and Discussion

5.4. Conclusion

Tables & Figures

Published in Fluid Phase Equilibria,* **2012, 322, 159– 166

CHAPTER VI 149-160

EXPLORATION OF MOLECULAR INTERACTIONS OF CARBOHYDRATES IN AQUEOUS VITAMIN-C ENVIRONMENTS WITH MANIFESTATION OF SOLVATION CONSEQUENCES

6.1. Introduction

6.2. Experimental Section

6.3. Results and Discussion

6.4. Conclusion

Tables & Figures

Published in JTRC,* **2013, 20(1), 46-56

CHAPTER-VII 161-181

INVESTIGATION ON MOLECULAR INTERACTIONS OF NICOTINAMIDE IN AQUEOUS CITRIC ACID SOLUTIONS WITH

REFERENCE TO MANIFESTATION OF PARTIAL MOLAR VOLUME AND VISCOSITY *B*-COEFFICIENT MEASUREMENTS

7.1. Introduction

7.2. Experimental Section

7.3. Results and Discussion

7.4. Conclusion

Tables & Figures

***Published in Thermochimica Acta*, 2010, 507, 135-141**

CHAPTER-VIII: 183-196

EXPLORATION OF DIVERSE INTERACTIONS OF SOME VITAMINS IN AQUEOUS MIXTURES OF CYSTEINE

8.1. Introduction

8.2. Experimental Section

8.3. Results and Discussion

8.4. Conclusion

Tables & Figures

***Published in J. Mexican Chemical Society.* 2014, 58(2),106–112**

CHAPTER-IX 197-213

EXPLORATION OF MOLECULAR INTERACTIONS OF SOME STANDARD AMINO ACIDS IN H_2O + VITAMIN-B_3 MIXTURES

9.1. Introduction

9.2. Experimental Section

9.3. Results and Discussion

9.4. Conclusion

Tables & Figures

Communicated

CHAPTER-X 215-217

Concluding Remarks

BIBLIOGRAPHY 219-240

INDEX 241-242