CONTENTS

CHAPTER                    PAGE NO.

PREFACE                    5

I. INTRODUCTION             22
   (i) Importance of metal ions studied
   (v) Spectrophotometric determination of certain metal ions
       - a brief review
   (vi) Scope of the present investigation

II. MATERIALS AND METHOD   24
   (i) Reagents
   (ii) Solutions of metal ions
   (iii) Buffer solutions
   (iv) Environmental samples
   (v) Alloy solutions
   (vi) Instruments used
   (vii) Standard methods adopted for comparison
   (viii) Study of the effect of diverse ions on the determinations

III. HYDRAZINE HYDRATE AS A SPECTROPHOTOMETRIC REAGENT FOR THE DETERMINATION OF NICKEL(II) 30
   (i) Experimental
   (ii) Results and Discussion
   (iii) Applications
   (iv) Conclusion
   (v) Figures
   (vi) Tables

IV. N,N’-BIS(2-AMINOBENZOYE)ETHYLENEDI AMINE AS A SPECTROPHOTOMETRIC REAGENT FOR FITE DETERMINATION OF COPPER(II), COBALT(II) AND NEODYMFUM(III) 34
   (i) Experimental
   (ii) Results and Discussion
   (iii) Applications
   (iv) Conclusion
   (v) Figures
   (vi) Tables
(a) DETERMINATION OF COPPER(II)
(i) Experimental 45
(ii) Results and Discussion 48
(iii) Applications 49
(iv) Conclusion 50
(v) Figures 51
(vi) Tables 53

(b) DETERMINATION OF COBALT(II)
(i) Experimental 57
(ii) Results and Discussion 58
(iii) Applications 60
(iv) Conclusion 60
(v) Figures 62
(vi) Tables 64

(c) DETERMINATION OF NEODYMIUM(III)
(i) Experimental 68
(ii) Results and Discussion 69
(iii) Applications 70
(iv) Conclusion 71
(v) Figures 72
(vi) Tables 74

V. 2- HYDROXY BENZALDIMINOGLYCINE AS A SPECTROPHOTOMETRIC: REAGENT FOR THE DETERMINATION OF CHROMIUM(III)
(i) Experimental 77
(ii) Results and Discussion 79
(iii) Applications 80
(iv) Conclusion 81
(v) Figures 82
(vi) Tables 84

VI. 2- DITH IOCARBAMATO ACETIC ACID AS A SPECTROPHOTOMETRIC REAGENT FOR THE DETERMINATION OF IRON(III)
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Experimental</td>
<td>88</td>
</tr>
<tr>
<td>(ii) Results and Discussion</td>
<td>89</td>
</tr>
<tr>
<td>(iii) Applications</td>
<td>91</td>
</tr>
<tr>
<td>(iv) Conclusion</td>
<td>91</td>
</tr>
<tr>
<td>(v) Figures</td>
<td>92</td>
</tr>
<tr>
<td>(vi) Tables</td>
<td>94</td>
</tr>
</tbody>
</table>

**VII. 2-NAPHTHOXY ACETIC ACID ASA SPECTROPHOTOMETRIC REAGENT FOR THE DETERMINATION OF PRASEODYMIUM(III)**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Experimental</td>
<td>98</td>
</tr>
<tr>
<td>(ii) Results and Discussion</td>
<td>99</td>
</tr>
<tr>
<td>(iii) Applications</td>
<td>100</td>
</tr>
<tr>
<td>(iv) Conclusion</td>
<td>101</td>
</tr>
<tr>
<td>(v) Figures</td>
<td>102</td>
</tr>
<tr>
<td>(vi) Tables</td>
<td>104</td>
</tr>
</tbody>
</table>

**VIII N, N′ - BIS (2 - AMINOBHNZOYL)TRIETHYLENETETRA MINE AS A SPECTROPHOTOMETRIC REAGENT FOR THE DETERMINATION OF MANGANESE(II)**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Experimental</td>
<td>107</td>
</tr>
<tr>
<td>(ii) Results and Discussion</td>
<td>108</td>
</tr>
<tr>
<td>(iii) Applications</td>
<td>110</td>
</tr>
<tr>
<td>(iv) Conclusion</td>
<td>110</td>
</tr>
<tr>
<td>(v) Figures</td>
<td>112</td>
</tr>
<tr>
<td>(vi) Tables</td>
<td>114</td>
</tr>
</tbody>
</table>

**SUMMARY AND CONCLUSION**

118

**REFERENCES**

121