C O N T E N T S

		Page No.
1.	Introduction	1
	1.1 Scope and object	2
	1.2 Ion exchange materials	2
	References	13
2.	Ion exchange equilibria	14
	2.1 Introduction	15
	2.2 Ion exchange equilibrium studies with different types of salts	27
	2.2.1 Ion exchange equilibrium studies with strong acid-strong base type salts	28
	(a) Introduction	28
	(b) Experimental	29
	(c) Results	32
	(d) Discussion	48
	2.2.2 Ion exchange equilibrium studies with weak acid-strong base type salts	53
	(a) Introduction	53
	(b) Experimental	53
	(c) Nomenclature	54
	(d) Results	54
	(e) Discussion	59

2.2.3 Ion exchange equilibrium studies with strong acid-weak base type salts 60
(a) Introduction 60
(b) Experimental 60
(c) Nomenclature 61
(d) Results 61
(e) Discussion 66
References 70

3. Sorption of strong electrolytes 72
3.1 Introduction 73
3.2 Ultraviolet absorption spectrum of naphthalene-2-sulfonic acid 77
(a) Introduction 77
(b) Experimental 79
(c) Results 80
(d) Discussion 85
3.3 Separation of naphthalene-2-sulfonic acid from sulfuric acid and hydrochloric acid 88
3.3.1 Introduction 89
3.3.2 Separation of naphthalene-2-sulfonic acid from sulfuric acid based on solubility 96
3.3.3 Sorption of strong acids on ion exchange resins 98
3.3.3.1 The sorption of strong acids on a strongly basic anion exchange resin 99

(a) Introduction 99
(b) Experimental 99
(c) Results 101
(d) Discussion 105
3.3.3.2. The sorption of strong acids on a weakly basic anion exchange resin 106
(a) Introduction 106
(b) Experimental 106
(c) Results 107
(d) Discussion 111
3.3.3.3 The sorption of strong acids on strongly acidic cation exchange resins 113
(a) Introduction 113
(b) Experimental 113
(c) Results 114
(d) Discussion 120
3.3.3.4 The sorption of strong acids on weakly acidic cation exchange resins 122
(a) Introduction 122
(b) Experimental 122
(c) Results 124
(d) Discussion 134
References 135

4. Sorption of weak and nonelectrolytes 137
4.1 Introduction 138
4.2 Ultraviolet absorption spectrum of phenylacetic acid 144

(a) Introduction 144
(b) Experimental 144
(c) Results 145
(d) Discussion 147
4.3 Sorption of monocarboxylic acids of $R-CH_2COOH$ type in aqueous medium 150
4.3.1 Sorption equilibrium studies 151
(a) Introduction 151
(b) Experimental 151
(c) Nomenclature 153
(d) Results 153
(e) Discussion 162
4.3.2 Separation studies 166
(a) Introduction 166
(b) Experimental 166
(c) Nomenclature 167
(d) Results 167
(e) Discussion 174
4.4 Sorption equilibrium studies in organic solvents 175
(a) Introduction 175
(b) Experimental 175
(c) Nomencalture 176
(d) Results 176
(e) Discussion 184
4.5 Distribution equilibria of some monocarboxylic acids 188
(a) Introduction 188

(b) Experimental 192
(c) Nomenclature 193
(d) Results 193
(e) Discussion 206
4.6 Sorption of coumarins 210
4.6.1 Introduction 211
4.6.2 Ultraviolet absorption spectra of coumarins 213
(a) Introduction 213
(b) Experimental 218
(c) Results 218
(d) Discussion 228
4.6.3 Sorption equilibrium studies 230
(a) Introduction 230
(b) Experimental 230
(c) Nomenclature 231
(d) Results 231
(e) Discussion 245
4.6.4 Separation studies 251
(a) Introduction 251
(b) Experimental 251
(c) Results 252
(d) Discussion 263
References 265
5. Summary 268