

## C O N T E N T S

DECLARATION	...	..	i
CERTIFICATE	...	..	ii
ACKNOWLEDGEMENTS	...	..	iii
PREFACE	...	..	v
CHAPTER 1 : INTRODUCTION		..	1
CHAPTER 2 : COLLOIDAL DISPERSIONS & LIGHT SCATTERING		..	31
2.1 Colloidal Dispersions			32
2.2 Light Scattering		..	50
2.2.(a) Monodisperse Systems			51
2.2.(b) Polydisperse Systems			62
2.2.(b)(i) In terms of direct correlation functions.		..	70
2.2.(b)(ii) In terms of Baxter's Q functions...			73
2.2.(b)(iii) Turbidity for binary mixture.			77

CHAPTER 3 : PERTURBATION THEORIES	..	82
3.1 Theory	... ..	90
3.2 Weeks-Chandler-Anderson(WCA) Theory	... ..	94
3.3 Barker-Henderson (BH) Perturbation Theory	..	97
CHAPTER 4 : STRUCTURAL ASPECTS OF COLLOIDAL DISPERSIONS	..	102
4.1 Theory	... ..	108
4.1.(a) Hard Sphere Potential		113
4.1.(b) <del>Square</del> Well Potential		122
4.1.(c) Triangular Well Potential		123
4.1.(d) Square Plus Triangular well Potential	..	125
4.2 Structure and Partial Structure Factors	..	129
4.2.(a) Partial Structure Factors.	..	130
CHAPTER 5 : RESULTS AND DISCUSSION	..	136
5.1 Light Scattering results		137
5.2 Relation between SW, TW and Van der Waals' potential Parameters for micro- emulsions	..	154

5.3 Diffusion coefficients of microemulsions	..	157
5.4 Structure factors	..	166
5.5 Conclusions	..	176
REFERENCES	...	.. 182
APPENDIX A		
List of Publications	..	207
APPENDIX B		
Reprints	...	.. 210

\*\*\*\*\* @aa \*\*\*\*\*