

# CONTENTS

<u>Chapter</u>	<u>Page No.</u>
<b>#1. ER Diagrams</b>	<b>1 - 21</b>
• Levels of Abstraction	1 - 3
• Entities	3 - 4
• Relationship	4
• Attribute	4 - 12
• Specialization	12
• Utility of E-R Model	12 - 13
• Assignment 1	14 - 16
• Assignment 2	16 - 18
• Answer Keys	19
• Explanations	19 - 21
<b>#2. Functional Dependencies &amp; Normalization</b>	<b>22 - 51</b>
• Database Application Life cycle	22 - 24
• Types of Anomalies	24 - 25
• The Concept of Functional Dependency	25 - 28
• Minimal Covers	28 - 29
• Testing Lossless Joins	29 - 32
• Functional Dependency & The Process of Normalization	32 - 42
• Assignment 1	43 - 45
• Assignment 2	45 - 47
• Answer Keys	48
• Explanations	48 - 51
<b>#3. Relational Algebra &amp; Relational Calculus</b>	<b>52 - 69</b>
• Relational Algebra	52 - 53
• The Projection Operator	53 - 54
• Relational Algebra Operaton from Set Theory	54 - 55
• Natural Joins	55 - 56
• The Equijoin Operator	56 - 57
• Outer Joins	57 - 58
• Tuple Relational Calculus	58 - 60
• The Domain Relation Calculus	60 - 61
• Assignment 1	62 - 64
• Assignment 2	65 - 66
• Answer Keys	67
• Explanations	67 - 69

<b>#4. SQL</b>	<b>70 - 99</b>
• What is SQL	70
• DDL Statements	70 - 71
• DML Statements	71 - 77
• COLUMN Alias	77 - 79
• View	79 - 82
• Solved Examples	83 - 89
• Assignment 1	89 - 95
• Assignment 2	95 - 96
• Answer Keys	97
• Explanations	97 - 99
<b>#5. Transactions and Concurrency Control</b>	<b>100 - 123</b>
• Transactions	100 - 102
• Serializability	102 - 104
• Concurrency Control Protocol	104 - 106
• Time Stamps	106 - 107
• Thomas's Write Rule	107 - 108
• Multiple Granularity	108 - 111
• Solved Examples	112
• Assignment 1	113 - 117
• Assignment 2	118 - 120
• Answer Keys	121
• Explanations	121 - 123
<b>#6. File Structures</b>	<b>124 - 148</b>
• Single Level Index	124 - 125
• Types of Single - Level Indexes	125 - 127
• Search Trees & B - Trees	127 - 131
• B <sup>+</sup> - Trees	131 - 140
• Assignment 1	141 - 144
• Assignment 2	144 - 145
• Answer Keys	146
• Explanations	146 - 148
<b>Module Test</b>	<b>149 - 161</b>
• Test Questions	149 - 156
• Answer Keys	157
• Explanations	157 - 161
<b>Reference Books</b>	<b>162</b>