

Contents

Preface

v

S. No.	Name of the Topic	Page Number
1. Chemistry of Carbohydrates		1
ECE 1.1	Lactose Intolerance	1
2. Chemistry of Lipids		3
ECE 2.1	Essential Fatty Acid Deficiency	3
ECE 2.2	Respiratory Distress Syndrome	4
3. Chemistry of Amino Acids and Proteins		5
ECE 3.1	Multiple Myeloma	5
4. Enzymes		8
ECE 4.1	Gouty Arthritis	8
ECE 4.2	Acute Myocardial infarction (AMI)	11
ECE 4.3	Muscle Injury	13
ECE 4.4	Competitive Inhibition	15
ECE 4.5	Methanol Poisoning	17
5. Metabolism of Carbohydrates		18
ECE 5.1	Pyruvate Kinase Deficiency	18
ECE 5.2	Lactic Acidosis	20
ECE 5.3	Von Gierke Disease	21
ECE 5.4	Glucose-6-phosphate Dehydrogenase Deficiency	23
ECE 5.5	Hypoglycemia	25
ECE 5.6	Type I Diabetes Mellitus	27
ECE 5.7	Type II Diabetes Mellitus	29
ECE 5.8	Diabetic Ketoacidosis	32
ECE 5.9	Starvation Ketoacidosis	34

S. No.	Name of the Topic	Page Number
6. Metabolism of Lipids		39
ECE 6.1	Steatorrhea	39
ECE 6.2	Liver Cirrhosis	41
ECE 6.3	Fatty Liver	43
ECE 6.4	Familial Hypercholesterolemia	46
ECE 6.5	Atherosclerosis	49
ECE 6.6	Cholelithiasis	52
7. Metabolism of Proteins		54
ECE 7.1	Hyperammonemia Type II	54
ECE 7.2	Phenylketonuria	57
ECE 7.3	Alkaptonuria	60
ECE 7.4	Albinism	61
ECE 7.5	Parkinsonism	62
ECE 7.6	Hartnup Disease	64
ECE 7.7	Maple Syrup Urine Disease	66
ECE 7.8	Homocystinuria	68
ECE 7.9	Role of Nitric Oxide in Angina	71
8. Metabolism of Nucleotides		73
ECE 8.1	Gout	73
ECE 8.2	Lesch-Nyhan Syndrome	76
9. Biological Oxidation		78
ECE 9.1	Cyanide Poisoning	78
10. Heme Metabolism and Hemoglobin		83
ECE 10.1	Sickle Cell Anemia	83
ECE 10.2	Thalassemia	86
ECE 10.3	Porphyria	88
ECE 10.4	Hemolytic Jaundice	91
ECE 10.5	Hepatic Jaundice	92
ECE 10.6	Obstructive Jaundice	95

S. No.	Name of the Topic	Page Number
11. Minerals		97
ECE 11.1	Wilson's Disease	97
ECE 11.2	Hypercalcemia	99
ECE 11.3	Hypocalcemia	101
ECE 11.4	Iron Deficiency Anemia	103
ECE 11.5	Hemachromatosis	106
ECE 11.6	Fluorosis	108
ECE 11.7	Goitre due to Iodine Deficiency	109
12. Vitamins		111
ECE 12.1	BeriBeri	111
ECE 12.2	Wernicke-Korsakoff Syndrome	113
ECE 12.3	Pellagra	115
ECE 12.4	Pernicious Anemia	117
ECE 12.5	Megaloblastic Anemia	119
ECE 12.6	Vitamin B ₆ Deficiency	123
ECE 12.7	Scurvy	125
ECE 12.8	Night Blindness	128
ECE 12.9	Rickets	133
13. Nutrition		137
ECE 13.1	Kwashiorkor	137
ECE 13.2	Marasmus	139
ECE 13.3	Obesity	141
14. Endocrinology		147
ECE 14.1	Hypothyroidism	147
ECE 14.2	Hyperthyroidism	149
15. Acid-Base Balance		153
ECE 15.1	Metabolic Acidosis	153
ECE 15.2	Metabolic Alkalosis	156

S. No.	Name of the Topic	Page Number
ECE 15.3	Respiratory Acidosis	159
ECE 15.4	Respiratory Alkalosis	162
16. Water and Electrolyte Balance and Imbalance		164
ECE 16.1	Dehydration	164
ECE 16.2	Hyponatremia	166
ECE 16.3	Hyperkalemia	168
17. Miscellaneous Topics		171
ECE 17.1	Cholera	171
ECE 17.2	Acute Renal Failure	173
ECE 17.3	Chronic Renal Failure	176
ECE 17.4	Nephrotic Syndrome	179
ECE 17.5	COVID-19 Infection	184