

Contents

Preface

v

S. No.	Name of the Topic	Page Number	Signature of Faculty
1.	Chemistry of Carbohydrates	1	
ECE 1.1	Lactose Intolerance	1	
ECE 1.2	Role of Cardiac Glycosides	4	
ECE 1.3	Clinical Significance of Heparin	7	
2.	Chemistry of Lipids	10	
ECE 2.1	Essential Fatty Acid Deficiency	10	
ECE 2.2	Respiratory Distress Syndrome (RDS)	13	
ECE 2.3	Role of COX Inhibitor as Drug	16	
ECE 2.4	Role of Low Dose Aspirin in the Treatment of Ischemic Heart Disease (IHD)	19	
3.	Chemistry of Amino Acids and Proteins	22	
ECE 3.1	Multiple Myeloma	22	
ECE 3.2	Alpha-1 Antitrypsin Deficiency	26	
ECE 3.3	Alzheimer's Disease	29	
4.	Enzymes	32	
ECE 4.1	Gouty Arthritis	32	
ECE 4.2	Acute Myocardial Infarction (AMI)	34	
ECE 4.3	Muscle Injury	37	
ECE 4.4	Competitive Inhibition	40	
ECE 4.5	Methanol Poisoning	43	
ECE 4.6	Acute Pancreatitis	46	

S. No.	Name of the Topic	Page Number	Signature of Faculty
5. Metabolism of Carbohydrates		49	
ECE 5.1	Pyruvate Kinase Deficiency	49	
ECE 5.2	Lactic Acidosis	52	
ECE 5.3	Von Gierke Disease	55	
ECE 5.4	Glucose-6-Phosphate Dehydrogenase Deficiency	58	
ECE 5.5	Hereditary Fructose Intolerance	61	
ECE 5.6	Galactosemia	64	
ECE 5.7	Hypoglycemia	67	
ECE 5.8	Type 1 Diabetes Mellitus	70	
ECE 5.9	Type 2 Diabetes Mellitus	73	
ECE 5.10	Diabetic Ketoacidosis	76	
ECE 5.11	Starvation Ketoacidosis	79	
ECE 5.12	Renal Glycosuria	82	
ECE 5.13	Hurler Syndrome	85	
6. Metabolism of Lipids		88	
ECE 6.1	Steatorrhea	88	
ECE 6.2	Carnitine Deficiency	91	
ECE 6.3	Refsum's Disease	94	
ECE 6.4	Liver Cirrhosis	97	
ECE 6.5	Fatty Liver	100	
ECE 6.6	Methylmalonic Aciduria	103	
ECE 6.7	Familial Hypercholesterolemia	106	
ECE 6.8	Xanthelasma	109	
ECE 6.9	Atherosclerosis	112	
ECE 6.10	Hypobetalipoproteinemia	115	
ECE 6.11	Cholelithiasis	118	

S. No.	Name of the Topic	Page Number	Signature of Faculty
ECE 6.12	Gaucher's Disease	121	
ECE 6.13	Tay-Sach's Disease	124	
ECE 6.14	Niemann-Pick Disease	127	
7. Metabolism of Proteins		130	
ECE 7.1	Hyperammonemia Type II	130	
ECE 7.2	Citrullinemia	133	
ECE 7.3	Phenylketonuria	136	
ECE 7.4	Alkaptonuria	139	
ECE 7.5	Albinism	142	
ECE 7.6	Parkinsonism	145	
ECE 7.7	Pheochromocytoma	148	
ECE 7.8	Hartnup Disease	151	
ECE 7.9	Carcinoid Syndrome	154	
ECE 7.10	Maple Syrup Urine Disease	157	
ECE 7.11	Homocystinuria	160	
ECE 7.12	Cystinuria	163	
ECE 7.13	Cystinosis	166	
ECE 7.14	Role of Nitric Oxide in Angina	169	
8. Metabolism of Nucleotides		172	
ECE 8.1	Gout	172	
ECE 8.2	Lesch-Nyhan Syndrome	175	
ECE 8.3	Orotic Aciduria	178	
9. Biological Oxidation		181	
ECE 9.1	Cyanide poisoning	181	
10. Heme Metabolism and Hemoglobin		184	
ECE 10.1	Sickle cell Anemia	184	
ECE 10.2	Thalassemia	187	

S. No.	Name of the Topic	Page Number	Signature of Faculty
ECE 10.3	Methemoglobinemia	190	
ECE 10.4	Carbon Monoxide Poisoning	193	
ECE 10.5	Lead Toxicity	196	
ECE 10.6	Porphyria	199	
ECE 10.7	Kernicterus	202	
ECE 10.8	Hemolytic Jaundice	205	
ECE 10.9	Hepatic Jaundice	208	
ECE 10.10	Obstructive Jaundice	211	
11. Minerals		214	
ECE 11.1	Wilson's Disease	214	
ECE 11.2	Menkes Disease	217	
ECE 11.3	Indian Childhood Cirrhosis	220	
ECE 11.4	Hypercalcemia	223	
ECE 11.5	Hypocalcemia	226	
ECE 11.6	Iron Deficiency Anemia	229	
ECE 11.7	Hemochromatosis	232	
ECE 11.8	Acrodermatitis Enteropathica	235	
ECE 11.9	Keshan Disease	238	
ECE 11.10	Fluorosis	241	
ECE 11.11	Goiter	244	
12. Vitamins		247	
ECE 12.1	Beriberi	247	
ECE 12.2	Wernicke-Korsakoff Syndrome	250	
ECE 12.3	Ariboflavinosis	253	
ECE 12.4	Pellagra	256	
ECE 12.5	Pernicious Anemia	259	

S. No.	Name of the Topic	Page Number	Signature of Faculty
ECE 12.6	Megaloblastic Anemia	262	
ECE 12.7	Vitamin B ₆ Deficiency	265	
ECE 12.8	Scurvy	268	
ECE 12.9	Night Blindness	271	
ECE 12.10	Rickets	274	
ECE 12.11	Osteomalacia	277	
ECE 12.12	Vitamin K Deficiency	280	
13. Nutrition		283	
ECE 13.1	Kwashiorkor	283	
ECE 13.2	Marasmus	286	
ECE 13.3	Obesity	289	
14. Extracellular Matrix		292	
ECE 14.1	Ehlers-Danlos Syndrome	292	
ECE 14.2	Duchenne Muscular Dystrophy (DMD)	295	
ECE 14.3	Osteogenesis Imperfecta	298	
15. Endocrinology		301	
ECE 15.1	Hypothyroidism	301	
ECE 15.2	Hashimoto's Thyroiditis	304	
ECE 15.3	Graves' Disease	307	
ECE 15.4	Addison's Disease	310	
ECE 15.5	Cushing's Disease	313	
ECE 15.6	Diabetes Insipidus	316	
16. Acid-Base Balance		319	
ECE 16.1	Metabolic Acidosis	319	
ECE 16.2	Metabolic Alkalosis	322	
ECE 16.3	Respiratory Acidosis	325	
ECE 16.4	Respiratory Alkalosis	328	

S. No.	Name of the Topic	Page Number	Signature of Faculty
17. Water and Electrolyte Balance and Imbalance		331	
ECE 17.1	Dehydration	331	
ECE 17.2	Hyponatremia	334	
ECE 17.3	Hyperkalemia	337	
18. Miscellaneous Topics		340	
ECE 18.1	Cholera	340	
ECE 18.2	Severe Combined Immunodeficiency Disorder (SCID)	343	
ECE 18.3	Myasthenia Gravis	346	
ECE 18.4	Acute Renal Failure	349	
ECE 18.5	Chronic Renal Failure	352	
ECE 18.6	Nephrotic Syndrome	355	
ECE 18.7	Cystic Fibrosis (CF)	358	
ECE 18.8	COVID-19 Infection	361	