

BACHELORS WITH BIOCHEMISTRY AS MAJOR
6th SEMESTER

BCH622J1: BIOCHEMISTRY _ LIPID AND NUCLEIC ACID METABOLISM

CREDITS: THEORY-3; PRACTICAL-1

THEORY (4 CREDITS: 60 HOURS)

OBJECTIVES/EXPECTED LEARNING OUTCOMES:

Metabolism is central to biochemistry and thus this course aims to introduce the students to Biochemistry with an expectation to learn how biochemistry is central to disease diagnosis, prognosis, therapeutic intervention, biochemical industry and/or medicinal industry.

UNIT-1: METABOLISM OF LIPIDS (15 HOURS)

Triacylglycerols and hydrolysis of Triacylglycerols, Mobilisation of fat, transport of fatty acids in to mitochondria, β -oxidation of saturated and unsaturated fatty acids, Energetics and ATP yield from fatty acid oxidation, Biosynthesis of saturated and unsaturated fatty acids, Ketone bodies and Ketogenesis, Concept of cholesterol metabolism.

UNIT-2: METABOLISM OF NUCLEIC ACIDS (15 HOURS)

Biosynthesis of purines, salvage pathway for purines, Inhibitors of purine synthesis, Degradation of purine nucleotides, Biosynthesis of pyrimidines, Inhibition of pyrimidine synthesis, degradation of pyrimidines, salvage pathway for pyrimidine synthesis.

UNIT-3: REGULATION AND METABOLIC DISORDERS (15 HOURS)

Regulation of fatty acid oxidation and fatty acid synthesis, **Sudden Infant Death Syndrome (SIDS)**, Regulation of ketogenesis, Ketonemia, Ketonuria, Metabolic disorders of lipids, Atherosclerosis and Coronary heart diseases, Metabolic disorders of nucleic acids, Gout, Lesch-Nyhan syndrome, Oroticaciduria.

PRACTICALS (1 CREDITS: 30 HOURS)

1. Estimation of cholesterol.
2. Estimation of Triglycerides.
3. Estimation of Uric acid.

BOOKS RECOMMENDED:

1. Text book of Biochemistry by Lubert Stryer
2. Text book of Biochemistry by Voet and Voet
3. Text book of Biochemistry Lehninger by Nelson & Cox.