1.7 Pharm. Biochemistry

Theory

1. Introduction, Biochemical organization of cell and transport across cell membrane.
2. Bioenergetics- Introduction, concept of free energy, Role of high energy phosphate, Nucleotide phosphates, Production of ATP and its biological significance.
3. Biological oxidation and its biochemical importance.
4. Enzymes- General properties, classification, mechanism of action, enzyme activation and inhibition, reaction kinetics, antienzymes, isoenzymes, coenzymes and their clinical application, factors affecting enzyme action.
5. Carbohydrate metabolism- Introduction, glycolysis, glucogenesis, glycogenolysis, gluconeogenes in oxidation of pyruate to acetyl CoA, Glycogen formation and degradation, hexose monophosphate shunt, uronic acid pathway, citric acid cycle-significance, reactions, energetic and amphibolic metabolism of fructose, galactose, abnormalities of carbohydrate metabolism.
6. Liquid Metabolism: Oxidation of fats (L,B & W): Biosynthesis of saturated and unsaturated fatty acid, phospholipids, sphingolipids, metabolism of cholesterol, Abnormalities of liquid metabolism.
7. Protein Metabolism: Oxidative deamenation, transamenation, Transmethylation Decarboxylation, end products of protein metabolism, protein, biosynthesis, metabolism of Aminoacids- Phenylalanine, Tyrosine, Tryptophan, Cystine, methionine, creatinine, Histidine, Argonine, Sysine, Serine, abnormalities of protein metabolism.
8. Nucleic acid metabolism, purine and pyrimidine metabolism, Biosynthesis of Deoxyribonucleotides, co-enzymes and poly nucleotides, Inhibition of nucleotides biosynthesis. Biosynthesis of nucleic acids-DNA & RNA. Abnormalities of nucleic acid metabolism.
9. Water and Mineral metabolism- Water metabolism, metabolism of calcium, phosphorus, magnesium, sodium, potassium, iron, copper, iodine, zinc, manganese, cobalt, sulphur.
10. Kidney and Liver function, test of biological importance, biological detoxication-oxidation, reduction, hydrolysis.
11. Study of porphyrins, haemoglobin and bile pigments.

PRACTICALS

1. Detection and identification of protein, aminoacids, Carbohydrates and lipids.
2. Analysis of body fluids, gastric fluid.

3. Analysis of normal & abnormal blood and urine, calcium, glucose, urea, creatinine, creatine, cholesterol, bilirubin, SGPT, SGOT, alkaline phosphate, diastase and lipase.

Books Recommended:

1. A.L. Lehninger, Biochemistry, Worth Publishers Inc., New York.
2. Review of Physiological chemistry-Harper
3. Text Book of Biochemistry- Rama Rao.