Detailed Syllabus

PAPER I: CLINICAL BIOCHEMISTRY UNIT:1 Introduction & General aspects

- Introduction to Clinical Biochemistry

- Study of weights, volumes and Units, Inter-conversion of units, Measurements, Preparation of solution, Normal range

- Different anticoagulants used in Clinical Biochemistry, its application and Mechanism of action.

- Hazards in the Laboratory.

UNIT:2 Instrumentation

Automation in Clinical Biochemistry laboratory

Electrophoresis, Chromatography, Colorimeter, Spectrophotometer, ELISA, RIA, Flame photometer

UNIT:3 General Biochemistry of Carbohydrates

Classification, Boimedical importance, properties (chemical & physical)

Carbohydrate Metabolism (In brief) : Glycolysis, TCA, HMP shunt, Regulation of blood sugar, GTT, Diabetes

UNIT:4 General Biochemistry of Proteins

Amino acids, Peptides, Classification & Properties of Plasma proteins, Immunoglobulins,

Protein metabolism : Transamination, Deamination, Urea cycle, Phenyl ketonuria, Alkaptonuria.

UNIT:5 General Biochemistry of Lipids

Lipids: Definition, Classification, Properties, Phospholipids.

Lipid metabolism : Cholesterol, Lipoproteins, VLDL, LDL, HDL, Atherosclerosis, Ketosis, Lipid Profile

UNIT:6 Nucleic acids

Nucleotides : Nucleic acids, Functions (In Brief), Purine catabolism, Uric acid: Formation, Estimation, Interpretation, Gout

UNIT:7 Hemoglobin

Hemoglobin structure, Hbs, Thalassemia

Hemoglobin : Synthesis (In brief) Porphyrias, Heme breakdown, Bilirubin, Jaundice, Lab. diagnosis

UNIT:8 Enzymes

Enzymes : Definition, Classification, Factors affecting enzyme activity, Inhibition, Diagnostic use of Enzyme

UNIT:9 Minerals & Vitamins

Minerals : Calcium, Iron, Phosphorus, Iodine, Sodium & Potasium.

Vitamins (In brief) : A,D,E, K,B12,Folic acid & Vitamin C (In brief)

UNIT:10 Function Test

Liver Function tests: Introduction, function of liver, type of investigations carried out, normal range and interpretation of results

Renal function tests: Functions of kidneys, Various renal function tests including clearance tests and interpretation of results.

Thyroid function tests: Estimation of T-3, T-4, TSH, Interpretation of results. pH, Blood buffers, Acid-base balance, Anionic gap
Quality Control: Internal and External

Nice To Know:

UNIT:11 Nutrition

Principles of nutrition, Balance diet, BMR. Kwashiorkor and marasmus

UNIT:12 Molecular biology

Molecular biology (In brief) : Replication, transcription, DNA recombinant technology, Blot techniques, PCR