M. Sc Clinical Biochemistry - 2017

Note: The syllabus Prescribed for the entrance test has been divided into fifteen units. Each unit carries a weightage of four marks. Paper setters are required to set four multiple choice type questions with only one correct or most appropriate answer separately for each unit, giving uniform representation to the whole syllabus contained therein.

Unit

1. **General science & Computers:** Basic concepts of physics, Chemistry and Computers.

2. **Biometrics and Biostatistics:** Statistical data (primary and secondary data), Grouped data (Frequency distribution), Measures of central tendency, mean, median and mode, Measures of dispersion, standard deviation, mean deviation, variance, coefficient of variation, Chi-square distribution.

3. **Biochemistry:** Structure and Function of; - Carbohydrates, Lipids, Vitamins, Nucleic acids, Amino acids and Proteins.

4. **Enzymology:** History, general characteristics, nomenclature and classification of enzymes, enzymes activity and factors affecting enzyme activity, competitive and uncompetitive inhibition, allosteric enzymes.

5. **Cell Biology**: Morphology of Prokaryotic and Eukaryotic cells. Structure and function of cell organelles. Cell Cycle (Mitosis and Meiosis).

6. **Metabolism & Nutrition**: Synthesis (anabolism) and degradation (catabolism) of basic biomolecules;- Carbohydrates, Lipids, Aminoacids and Nucleic acids. Units of energy, BMR and its measurement, Protein energy malnutrition.

7. **Molecular Biology**: Basic concepts of genetic information, central dogma of molecular biology, Structural organization of DNA and RNA. Replication, Transcription and Translation in prokaryotes and eukaryotes.

8. **Microbiology**: Structure, Classification and Reproduction of viruses and bacteria. Host parasite relationship. Economic importance of virus and bacteria. Antimicrobial agents.

9. **Immunology**: History, scope and significance of immunology, Basic concepts of specific and Non-specific immune responses. Structure and function of Immunolglobulins.

10. **Genetics:** Mendelian Genetics; laws and principles of segregation, independent assortment. Linkage and Crossing over. Chromosome organization; Structure and Numerical changes in Chromosomes.

11. **Biotechnology:** Concept and basic principles of recombinant DNA technology (RDT). Applications of genetic engineering in medical and agricultural sciences.

12. **Clinical Biochemistry:** Basic concepts and principles of Clinical Biochemistry. Standard values for important constituents in blood and urine. Kidney, Liver and thyroid function tests (KFT, LFT, and TFT). Lipid profile. Glucose tolerance tests. Urine and stool examination.

13. **Clinical Pathology: -** Cell Injury – types and Morphology, Inflammation, Mediator's of Inflammation, Acute and Chronic Inflammation, Circulatory disturbances – Thrombosis, Infarction. Edema, Shock- definition and pathogenesis.

14. **Human Physiology:** - components and functions of blood and lymph. General organization and physiological functions of Respiratory, Excretory, Digestive, Endrocrine and Nervous system.

15. **Chemistry Concepts:** Basic organic reaction mechanisms; Oxidation-reduction. Redox potential, coupled reactions, Elimination, Isomerization and rearrangements. Dipole-dipole interactions, Hydrogen bonds, vanderwaals forces concepts of acids and bases. Electrophiles and nucleophiles. Chemical kinetics and catalysis; orders of reactions, concepts of activation energy and reaction rates, laws of photochemistry, photochemical reactions. Laws of thermodynamics.