

MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH & STUDIES
(Deemed to be University under section 3 of the UGC Act 1956)

Ph.D ADMISSION TEST (MR-PAT)

Ph.D. in Biochemistry

Module 1: GENERAL BIOCHEMISTRY

- 1.1 Biochemistry of Carbohydrates
- 1.2. Biochemistry of Protein
- 1.3 Biochemistry of Lipids
- 1.4. Biochemistry of Micronutrients
- 1.5. Biochemistry of Minerals
- 1.6. Biochemistry of Nucleic Acid

Module 2: BIOENERGETICS AND METABOLISM

- 2.1 Metabolism of Carbohydrates
- 2.2 Metabolism of Proteins.
- 2.3 Metabolism of Lipids
- 2.4 Metabolism of Nucleic Acid

Module 3. ENZYMOLOGY, TOXICOLOGY AND IMMUNOLOGY

- 3.1 Basic aspects: Properties. Kinetics, Mechanism, Regulations & Diagnostic Enzymes
- 3.2 Principles. Biotransformation of toxicants, Applications of toxicology
- 3.3 antibody production, Measurement of antigen-antibody interaction, ELISA

Module 4: Physiological biochemistry:

- 4.1 Liver: function tests physiological functions, Liver disorders, diagnostic tests
- 4.2 Kidney: function tests physiological functions, diseases/disorder,
- 4.3 Regulation of acid-base balance, Water & Electrolyte Balance
- 4.4 Digestion and Absorption of Food
- 4.5 Endocrinology- General characteristics of hormones, Thyroid function tests, function tests
- 4.6: Molecular Biochemistry & Genetic Engineering: Molecules of Heredity, Genetic disorders, DNA Replication, and DNA Repair

Suggested Readings:

Books

- 1) "Biochemistry for Medical Students", *DM Vasudevan, Sreekumari S, Kannan Vaidyanathan*, 10/e Revised Reprint Edition, Jaypee Brothers Medical Publishers Pvt. Ltd
- 2) " Biochemistry ", U. Satyanarayana and U. Chakrapani, Sixth Edition, Books And Allied (p) Ltd.Publisher
- 3) "Textbook of Medical Biochemistry", by Sk Gupta, 3rd edition, Avichal Publishing Company