

**Department of Higher Education, Govt. of M.P.
Semester wise syllabus for Postgraduates**

**As recommended by Central board of Studies and
Approved by HE the Governor of M.P.**

**M. Sc. (Home Science)
Food and Nutrition**

**SEMESTER-I
PAPER-II
Advanced Nutritional Biochemistry**

Objectives:

M.M.: 50

- Augment this Biochemistry knowledge acquired at the undergraduate level.
- Understand the mechanism adopted by the human body for regulation of metabolic pathways.
- Get on insight into interrelationship between various metabolic pathways.
- Become proficient for specialization in nutrition.
- Understand integration of cellular level metabolic events to nutrition disorder and imbalances.

UNIT-I

Plasma protein- nature, properties and functions. Purines, and pyrimidines: synthesis and breakdown.

UNIT-II

Intermediary metabolism an overview and its regulation. Equilibrium and Non-equilibrium reaction, committed steps, allosteric modification, covalent modulation, hormonal induction and repression, cross over theorem, starve feed cycle, calorie homeostasis and futile

UNIT-III

1. **Carbohydrates:** glycolysis, glycogenesis, citric acid cycle, haxose monophosphate pathways and gluconeogenesis.

Lipids: Beta-oxidation, de novo synthesis of fatty acids. Synthesis and breakdown of unsaturated fatty acids. Cholesterol, phospholipids and triacylglycerol significance.

UNIT-IV

Major alterations in protein ,carbohydrates and fat metabolism and chronic nutritional related degenerative diseases e.g. diabetes and hypertension.

Nucleic acids: DNA replication and transcription. DNA repair system, DNA recombination, genetic mutation, regulation of gene expression and protein biosynthesis.

UNIT-V

Hormones: Mechanism of action. Negative feedback, hormone receptor, intracellular messengers.

Conversion of amino acids to specialized.

M.Sc. (Home Science)

Food and Nutrition

SEMESTER -I PAPER-I & II

Human Physiology & Advanced Nutritional Biochemistry

Practical-I
50

M.M.

Practical Section -A

1. Preparation and staining of blood film.
2. Identification of different component at blood in a blood film.
3. Estimation of blood count: WBC count, RBC count
4. Hemoglobin estimation
5. Recording of blood pressure.
6. Vital capacity and different components of vital capacity
7. Urine estimation (Renal function Test)

Section - B (*Any one*)

Protein: (a) Estimation of proteins in foodstuff.
(b) Estimation of albumin, globulin and A: G ratio in serum and urine
Estimation of glucose in blood and urine

Glucose Estimation of glucose in blood and urine.

Lipid Estimation of lipid in food by soxholet extraction method.

Calcium Estimation of calcium in food and serum

Phosphorus Estimation of inorganic- phosphorus in food and serum.

Buffer Preparation of phosphate, carbonate and acetate buffer and determination of their pH values.

Survey Survey of pathological laboratories to obtain information about different methods uses in blood serum anylis.