

BSC APPLIED NUTRITION & PUBLIC HEALTH I YEAR**I SEMESTER****BS104 DISCIPLINE SPECIFIC COURSE IA- (DSC IA)****BASICS OF BIOCHEMISTRY****CREDITS 4****60 HOURS****CREDIT I- INTRODUCTION TO NUTRITION & CARBOHYDRATES 16 Hours**

1.1 Introductory Nutrition, Definition of Nutrition, Food, Nutrients, or Proximate Principles, Nutritional needs of the body, specific role of nutrients, classification of foods, food groups.

1.2 **Carbohydrates** — Composition and chemistry, classification, sources, nutritional significance, digestion, absorption and metabolism - Glycolysis, TCA Cycle with bioenergetics.

CREDIT II- PROTEINS & NUCLEIC ACIDS**18 Hours**

2.1 **Proteins:** Composition and chemistry, classification sources, functions, digestion and absorption, denaturation. Nutritional significance of some amino acids. General properties of proteins, metabolism, deamination, transamination, decarboxylation. Outlines the supplementary value of amino acids. Deficiency of Protein — PEM definition, classification, and age groups affected

2.2 **Nucleic acids:** Composition — purine and pyrimidine bases DNA, RNA — structure and biological functions

CREDIT III- LIPIDS**14 Hours**

3.1 Composition Chemistry classification- simple, compound & derived lipids with functions, cholesterol functions & ranges

3.2 Sources, chemical properties.

3.3 Digestion and Absorption,

3.4 Essential fatty acids-omega3 & omega 6: functions and deficiency,

3.5 Elements of fat analysis, Metabolism: Beta- oxidation of fatty acids. Types of Rancidity, Ketosis

CREDIT IV-ENERGY METABOLISM**12 Hours**

4.1 Types of energy, energy-yielding food factors, RDA & factors affecting RDA, Units of energy

4.2 Principle of direct & indirect calorimetry

4.3 Determination of energy value of food using a bomb calorimeter.

4.4 PFV (Physiological Fuel Value) of foods, RQ, SDA of food.

4.5 Determination of BMR and factors affecting BMR.



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REFERENCE BOOKS

1. Nutrition science- B Srilakshmi, New age international publishers, 2nd edition.
2. A textbook of biochemistry, Dr AVSS Rama Rao, 10th edition, UBS publishers Distribution Pvt. Ltd.
3. Biochemistry- U Satyanarayana, U chakrapani, Books and Allied Pvt Ltd
4. Helen A. Guthrie, Introductory Nutrition, Times Mirror Mosby
5. Swaminathan M, Advance Textbook on Food and Nutrition, Volume 1, The Bangalore printing and publishing co.,Ltd.
6. Mudambi SR and Rajagopal M V, Fundamentals of food and Nutrition, Willey Eastern Ltd.
7. Swaminathan M, Handbook of Food and Nutrition, The Bangalore Printing and Publishing Co. Ltd.