

UG HSC DSE / 1751(1) **DISCIPLINE SPECIFIC ELECTIVE (DSE)**
NUTRITIONAL BIOCHEMISTRY
(CREDITS: THEORY-4, PRACTICAL-2)

Unit 1 Introduction to Biochemistry

- Definition, scope and inter-relationship between biochemistry and other Biological sciences
- Definitions, classification, structure and general properties of:
 - Monosaccharide's-glucose, fructose, galactose, ribose
 - Disaccharides – maltose, lactose, sucrose
 - Polysaccharides – dextrin, starch, glycogen

Unit 2 Lipids

- Definitions and classification of lipids
- Composition and properties of fats
- Essential and Non-essential fatty acids

Proteins

- Definition, classification, structure of amino acids
- Essential and non-essential amino acids
- Elementary information about primary, secondary and tertiary structure of proteins

Unit 3 Enzymes

- Definition, classification
- Factors affecting enzyme activity
- Introduction to co-enzymes
- Transport of nutrients across the cell membrane
 - Active transport
 - Passive transport
 - Facilitated diffusion

Unit 4 Vitamins

- Classification and biochemical role of
 - Fat soluble vitamins – A, D, E, K
 - Water soluble vitamins – Thiamin, riboflavin, niacin, pyridoxine, folic acid, B₁₂ and C

Minerals

- Biological role and occurrence of inorganic elements – iron, calcium, phosphorous, iodine, selenium and zinc

RECOMMENDED READINGS

- Lehninger A L, Nelson D L and Cox M M (2009). Principles of Biochemistry, 6th Ed. CBS Publishers and Distributors.
- Murray R.K, Grainger D K, Mayes P A and Rodwell V W (2009). Harper's Biochemistry, 28th Ed, Lange Medical Book.

V SEMESTER

UGHSC05E17S1(1) DSE-5 (H): NUTRITIONAL BIOCHEMISTRY

PRACTICAL

1. Titration estimation of Ascorbic Acid
2. Qualitative analysis of
 - Monosaccharides
 - Disaccharides and
 - Polysaccharides
3. Qualitative analysis of proteins
4. Determination of free fatty acids in oil sample

RECOMMENDED READINGS

- Hawk PB, Oser BL and Summerson WH (1954). Practical Physiological Chemistry, McGraw Hill, New York.
- Sundararaj P and Siddhu A (2006). Qualitative Tests and Quantitative Procedures in Biochemistry. Elite Publishing House Pvt. Ltd., New Delhi.
- Lehninger A L, Nelson D L and Cox M M (2009). Principles of Biochemistry, 6th Ed. CBS Publishers and Distributors.
- Murray R.K, Granner D K, Mayes P A and Rodwell V W (2009). Harper's Biochemistry, 28th Ed. Lange Medical Book