B.Sc. Clinical Nutrition and Dietetics
Syllabus 2018

SEMESTER I
P1: NUTRITIONAL BIOCHEMISTRY (THEORY)
UNIT 1

1. Molecular aspect of transport, passive diffusion, facilitated diffusion, active transport, nutrients and energy needs. Coupled reactions.
2. Biological Oxidation: Electron transport mechanism NADH, dehydrogenase, cytochromes, electron transport chain, oxidative phosphorylation, energy conservation high energy phosphate bond, storage and release of high energy phosphate, myokinase reaction.

UNIT 2

3. Genetic Control of Metabolism: Nucleic acids, Compirents, structure, replication, RNA Compirents, types, structure, replication.
   Genetic repair mechanisms.
   Genetic Code - protein biosynthesis.
   Viruses and recombinant DNA and bioengineering.
4. Major Metabolic pathways:
   a) Carbohydrate metabolism: 8igestion, absorption, glucose transport. Glycolysis, metabolism of lactate and pyruvate, critic acid cycle, gluconeogenesis, pentose phosphate pathway.

UNIT 3

4. b) Lipid metabolism: digestion, absorption, intestinal re-synthesis of triglycerides, transport oxidation of fatty acids, biosynthesis of fatty acids, mobilization of fat, ketogenesis, metabolism of phospholipids, glycolipids and cholesterol (in brief).
   c) Amino acid metabolism: Digestion, absorption, transport, General pathways biochemical transformations and metabolism.

UNIT 4

5. Hormones - pituitary, adrenocortical thyroid, and reproductive hormones - Hormones of adrenal cortex.
   Mode of action
   prostaglandins
   control of homeostasis.

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SEMESTER I
P2: HUMAN PHYSIOLOGY (THEORY)

UNIT 1

1. **Blood and blood circulation**:
   Blood composition, functions, clotting, Blood groups - Blood Vessel - artery, vein, capillary, structure of heart, cardiac cycle.
   2 ECG and its significance, Blood pressure - pulse, systolic, diastolic - Anaemia, Leukemia, Varicose Veins, Atherosclerosis, Angina sections.

3. **Lymphatic systems** - Lymph glands and its functions spleen - structure and function.

Unit 2

4. **Respiratory system:**
   - Organs of respiration - Nose, larynx, Trachea, bronchi, lungs and its capacity - structure and functions. Mechanism of respiration - Chemical respiration - Tissue respiration
5. **Digestive system**:
   Organs, structure, functions - Teeth, tongue salivary glands - 'saliva - composition and function.
   Oesophagus, stomach, small intestine large intestine. Glands - Liver, pancreas, gallbladder.
6. **Excretory system**
   Organs, structure and functions.
   Kidney, Ureter, Urinary bladder-
   Formation of Urine, Comparison of Normal Urine. Abnormal Constituents of Urine and diseases associated with it.
   Significance of Urine examination.

UNIT 3

7. **Skin** - structure, and function. Disorders of skin - Dandruff, dermatitis and burns.
8. Other sense organs:
   a) **Eye** - structure and functions - Physiology of vision. Defects in vision - myopia and hypermetrophia.

   b) **Ear** - structure and functions.
   Mechanism of hearing.

9. **Muscular system** General account of the system Types of muscles - striated, non - striated, cardiac similarities differences. Muscular contraction:
10 **Nervous system**: Structure of a nerve cell, nerve fibre. Classification of nervous system.
   Central Nervous system - Brain and spinal cord.
   Functions of different parts of the brain
   Peripheral nervous system.
   Automatic and sympathetic nervous system their functions. Nerve impulse, synpase, Reflex action, Voluntary action.

   UNIT 4

11. **Reproductive system**: Female reproductive organs - structure and functions- Ovary, fallopian tubes,

uterus, vagina External genitation. Male Reproductive Organs - Structure and functions - Testicles, Vas deferens, Urethra, Penis, prostrate glands. Menstruation, puberty - Menopause. Fertilisation of ovum with sperm. Development of fertilised ovum - placenta its function, parturition.

12. **Endocrine System**: Hormones - Endocrine glands - their structure and functions.
    a) Pituitary b) Thyroid c) Parathyroid
    d) Adrenal e) Hormones of reproduction.
    Endocrine system - disorders of over and under secretion

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SEMESTER I
HUMAN PHYSIOLOGY (PRACTICALS)

To observe the following:

a) Rat for dissection (Male)
   skin, muscle, cartilage (trachea) bone (ribs) spinal nerve, lungs, heart, artery, vein, spleen, teeth Oesophagus, stomach, small intestine, pancreas, liver, large intestine, Calcium bladder, testes, seminal vesicles, thyroid.

b) Abdominal cavity of human (Mankind) observe & draw liver, kidney, appendix, spleen, pancreas, stomach, gall bladder, large and small intestine, ureter, bladder, diaphragm.

2. Types of Cells -
   Microscopic examination of prepared slides.
   a) Epithelium - stratified squamous. ciliated columnar.
   b) Connective tissue - Adipose, Bone, areolar connective tissue.
   c) Muscle - smooth, cardiac, stratified,
   d) Nerve - medullated, nerve cell.
   e) Cell division - Resting stage, prophase, metaphase, anaphase, telophase.
3. Blood:
   a) Microscopic examination of prepared slides –
      i) fresh mount of blood.
      ii) stained blood smear.
   b) Testing of blood groups using typed sera.
   c) Coagulation of blood - Blood collected from slaughter house in-
      i) Clean vessel.
      ii) Vessel with ammonium oxalate.
      iii) Centrifuge vessel no. (ii)
   d) Hemoglobin estimation using Haemometer.
   e) R.B.C. Count.

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4 Arterial Blood pressure:
   Determination using a sphygmomanometer.

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5. Skin:
   a) Histology: Microscopic examination of prepared slides.

b) Location of touch end organ.
Location of pain end organ.
Location of Hot and cold organs.

c) Measurement of body temperature. (Mouth, arm pit and rectum)
Diurnal rhythm.