

**6<sup>th</sup> SEMESTER**

**DISCIPLINE SPECIFIC ELECTIVE COURSES (DSEs)**

**OPTION - I**

**CLB616DA: CLINICAL BIOCHEMISTRY: BASICS OF HAEMATOLOGY AND HAEMATOLOGICAL TECHNIQUES**

**CREDITS: THEORY: 4, PRACTICAL: 2**

**Unit I**

Introduction to haematology- Definition and Importance; Laboratory organization and safety measures in haematology laboratory, Preparation, preservation and handling of clinical samples, Ethics and quality analysis

**Unit II**

Introduction about blood, its Constituents and normal cellular components, Synthesis of cellular components of blood – Erythropoiesis, leucopoiesis and Thrombopoiesis, collection and preservation of blood samples

**Unit III**

Erythrocytes–morphology of RBC in health and disease, functions of RBC, RBC counting; Leucocytes –Structure, function morphology, leucocyte count, absolute and variation in WBC count; Platelets – Structure, function and counting procedure

**Unit IV**

Demonstration of Equipments used in clinical Haematology - (a) Microscope, (b) Blood Cell counter (DLC), (c) Sahli's apparatus (d) Colorimeter; Hb Estimation - Sahli's method; Total leukocyte count; Preparation of smear and staining with Giemsa and Leishman stain.

**Practical:**

**Credits : 02**

1. Different methods of blood collection
2. RBC count
3. Total Leukocyte Count
4. Platelet count
5. Blood grouping
6. WBC count
7. Haemoglobin Sahli's method

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**6<sup>th</sup> SEMESTER**

**DISCIPLINE SPECIFIC ELECTIVE COURSES (DSEs)**

**OPTION - II**

**CLB616DB: CLINICAL BIOCHEMISTRY: ORGAN FUNCTION AND RELATED DISORDERS –II**

**CREDITS: THEORY: 4, PRACTICAL: 2**

**Unit I**

Nerve impulse transmission, Structure of neuron, mechanism of nerve impulse conduction Action Potential; Neurotransmitters, Structure of nervous system; CNS, peripheral nervous system, Disorders of neurotransmission

**Unit II**

Muscular system- introduction, classification, muscle physiology, Molecular mechanism of contraction, sarcomere, muscle potential, Causes, symptoms and treatment for Rickets, Tetany and osteoporosis

**Unit III**

Anatomy and physiology of heart, cardiac cycle (cardiac output, venous return and their regulation) Examination of cardiovascular system; Blood pressure and its regulation, Introduction to Electrocardiogram

**Unit IV**

Cardiovascular disorders - Clinical features and causes of Myocardial Infarction, Heart failure (congestive heart failure), Atherosclerosis (lipids, lipoproteins and apo-proteins in assessing risk), Shock and Hypertension

**Practical:**

**Credits: 02**

1. Demonstration of various tissues from permanent slides – connective tissue, muscular tissue, nervous tissue
2. Demonstration of human cell from slides/charts
3. Demonstration of electrocardiogram
4. Demonstration of nervous, muscular and cardiovascular system from chart
5. Blood pressure measurement by sphygmomanometer

**Note:** Lab Visits -The students will be taken to different diagnostic labs of various hospitals within the state

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