

BACHELOR OF SCIENCE (GENERAL)

4th SEMESTER

DISCIPLINE SPECIFIC COURSE (CORE)

CLB420C: CLINICAL BIOCHEMISTRY _ ORGAN FUNCTION AND RELATED DISORDERS

CREDITS: THEORY – 4, PRACTICAL – 2

MAXIMUM MARKS: 60, MINIMUM MARKS: 24

THEORY (4 CREDITS: 60 HOURS)

Objectives and Expected Learning Outcomes:

To acquaint the students with structure, function and interrelationship of organ systems of the human body. The lab course includes basic biochemical testing for organ systems. The students will learn structural-functional relation between human organ systems and the disorders associated with their malfunctioning.

UNIT-1 (15 Hours)

Hepatobiliary and urinary system: Brief anatomy and functions of liver, Biochemical indices in hepatobiliary disorders: bilirubin, Bile acids, Liver function tests. Diseases of Hepatobiliary system; Structure & function of kidney, physiology of excretion & urine formation, Renal Function Tests and their clinical correlations, diseases of urinary system- a brief overview

UNIT-2 (15 Hours)

Physiology of digestive system: stomach; structure& functions, Mechanism of gastric secretion, peptic ulcer, Acute and chronic pancreatitis; Physiology of the small intestine, Assessment of intestinal function. Hormones- Definition, general characters, classification of hormones; an overview of hormones secreted, functions and pathological conditions of - Pituitary, thyroid, and hypothalamus

UNIT-3 (15 Hours)

Nervous and muscular system: Structure of nervous system; CNS, peripheral nervous system, Structure of neuron, mechanism of nerve impulse conduction, Action Potential, Disorders of neurotransmission: Physiology of muscle, Skeletal muscle; Ultrastructure and Molecular mechanism of contraction; Disorders - Tetany and Rickets

UNIT-4 (15 Hours)

Anatomy and physiology of heart, cardiac cycle (cardiac output, venous return and their regulation) Examination of cardiovascular system; Blood pressure, ECG, Clinical features and role of the laboratory in; Myocardial Infarction; Heart failure (congestive heart failure), Atherosclerosis (lipids, lipoproteins and apo-proteins in assessing risk), Shock and Hypertension

PRACTICAL (2 CREDITS: 60 Hours)

MAXIMUM MARKS: 30, MINIMUM MARKS: 12

1. Demonstration of principle, handling and working of BP apparatus
2. To measure pulse rate and blood pressure
3. Demonstration of principle, handling and working of ECG
4. Estimation of important thyroid hormones
5. Estimation of total cholesterol, HDL cholesterol, LDL cholesterol
6. Determination of albumin/globulin ratio
7. To demonstrate microscopic structure of muscles with permanent slides.

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