

3. Qualitative identification of physiologically important substances –HCL, Lactic acid, Uric acid, Albumin, Peptone, Starch, Dextrin, Glucose, Fructose, Lactose, Maltose, Sucrose, Bile salt, Acetone, Glycerol, urea.
4. **Laboratory Records:** Student must get the laboratory note books duly signed by the respective teacher during practical classes.
5. **Viva voce:** Questions based on theory and practical syllabus of 1st semester.

SEMESTER-II

HP-103C

Paper-3 (Theory)

Total Mark = 100 (IA = 40 + ESE = 60) Credit = 04

Unit-I (Cardiovascular System-I)

1. Anatomy of the heart. Properties of cardiac muscle. Origin and propagation of cardiac impulse. Heart Block.
2. Cardiac cycle-Pressure and volume changes. Heart sounds. Murmurs.
3. Cardiac output-Measurement by application of Fick's principle & factors affecting. Starling's law of heart.
4. Electrocardiography- Principles of Electrocardiography, Normal electrocardiogram, different waves, intervals and segments; different electrocardiographic lead systems. Cardiac Arrhythmias. The pulse- Arterial and venous. Hemodynamic of blood flow.

Unit-II (Cardiovascular System-II)

1. Innervation of the heart and blood vessels, cardiac and vasomotor reflexes.
2. Coronary Circulation. Coronary artery disease- Atherosclerosis.
3. Blood vessels-types, structure. Hemodynamics: velocity of blood flow, nature of blood flow, Flow-Pressure- Resistance relationship.
4. Blood pressure-regulation with special reference to sino-aortic mechanism. Its controlling factors.
5. Immediate and delayed effects of haemorrhage.

Unit-III (Respiratory System-I)

1. Anatomy and histology of the lung and airways.
2. Mechanics of breathing: Role of respiratory muscles, Compliance of lungs and chest wall, pressure-volume relationships, alveolar surface tension and surfactant. Spirometry: Lung volumes and capacities. Dead space.
3. Pulmonary Circulation.
4. Ventilation-perfusion ratio, Transport of gases (O₂ and CO₂) in body: Partial pressure and composition of normal atmospheric gases in inspired, expired, alveolar air and blood.

Unit-IV (Respiratory System-II)

1. Oxygen dissociation curve of haemoglobin – factors affecting. Carbon dioxide dissociation curve.
2. Regulation of respiration -- neural and chemical, respiratory centers, chemoreceptors, baroreceptors, pulmonary receptors.
3. Disorders of Breathing: Hypoxia: Types & effects. Asphyxia, Cyanosis, Periodic breathing, Apnoea, Asthma, Emphysema.
4. High altitude pulmonary oedema (HAPO). Oxygen therapy. Decompression sickness, caisson's disease.

Paper- 4A (Theory)

HP-104C

Total Mark = 50 (IA = 20 + ESE = 30) Credit = 02

Unit-I (Physiology of Blood and body fluids-I)

1. Bone marrow: Formed elements of blood–origin, formation, functions and fate.
2. Plasma proteins: Origin and functions.
3. Erythropoiesis-factors effecting and leucopoiesis.
4. Haemoglobin-Structure, types. Anaemia.

Unit-II (Physiology of Blood and body fluids-II)

1. Blood volume-factors effecting.
2. Haemostasis-Factors, mechanism, anticoagulants, procoagulants. Disorders of haemostasis -Haemophilia.
3. Blood group-ABO, Rh system and other minor blood group systems. Blood transfusion and its hazards.
4. Lymph and tissue fluids-Formation, circulation, functions and fate.
5. Lymphaticorgans-
Histologicalstructuresandfunctionsoflymphglandandspleen.Spleno
megalycauses andeffects.

Paper-4B (Practical)

HP-104C

Total Mark = 50 (IA = 20 + ESE = 30) Credit = 02

Sl. No.	Practical	Marks
1.		
2.		
3		
4.	Laboratory Note book	
5.	Viva voce	
TOTAL		40

CONTENTS:

1. Haematological experiments: Preparation and staining of blood film with Leishman's stain. Identification of blood cells. Total count of W.B.C and R.B.C. Differential count of W.B.C. Haemoglobin estimation by Sahli's hemoglobinometer. Preparation of haemin crystals.
2. Cardiovascular Physiology Experiments: Determination of Blood pressure in different body posture. Determination of pulse rate.
3. Interpretation of Kymographic recording of the movements of perfused heart of toad and the effect of Excess Calcium, acetylcholine and adrenaline on the contraction of heart.
4. Respiratory Human Experiments: Pneumographic recording / demonstration of effects of hyperventilation, breath-holding and talking. Interpretation of lung function tests using Spirometry (Digital) and analysis of the results.
5. Determination of Peak Expiratory Flow Rate
6. **Laboratory Records:** Student must get the laboratory note books duly signed by the respective teacher during practical classes.
7. **Viva voce:** Questions based on theory and practical syllabus of 3rd semester.

2ND YEAR

SEMESTER-III

HP-201C

Paper- 5 (Theory)

Total Mark = 100 (IA = 40 + ESE = 60) Credit = 04

Unit-I (Enzyme classification and kinetics-I)

1. Classification of enzymes
2. Co enzymes and co factors, prosthetic group
3. Models of enzyme action
4. Multi-enzyme system-example, advantages

Unit-II (Enzyme classification and kinetics-II)

1. Enzyme kinetics: Factors affecting enzyme activity.
2. Michaelis-Menten constant (K_m); Lineweaver-Burk plot.
3. Enzyme Inhibition: Type – competitive, non competitive and uncompetitive
4. Feedback and allosteric regulation of enzymes.

Unit-III (Digestion & absorption-I)

1. Anatomy and histology of alimentary tract & digestive glands.
2. Mastication, Deglutition and movements of alimentary canal.
3. Composition, function and regulation of secretion of salivary, gastric, pancreatic and intestinal juice and bile.
4. Formation, secretion and regulation of HCL, concept of hyperacidity, achlorhydria
5. Gastro-intestinal hormones.