

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.