2nd YEAR
Semester-III
Paper- 3A (Theory)
HP- 201M
Full marks-75 (Internal assessment-30; End Sem. Exam. -45)

Unit-1: Cardiovascular System-I

1. Anatomy of the heart. Properties of cardiac muscle. Origin and propagation of cardiac impulse-Junctional tissues. Heart Block.
2. Electrocardiography- Principles of Electrocardiography, Normal electrocardiogram, different waves, intervals and segments; different electrocardiographic lead systems.
3. Cardiac cycle -Pressure and volume changes. Heart sounds. Murmurs. Arterial pulse. Arrhythmia.
4. Heart rate- Bradycardia, Tachycardia, Factors controlling heart rate.

Unit 2: Cardiovascular System-II

1. Cardiac output - factors affecting, Starling's law of heart. Measurement by application of Fick's principle.
2. Innervations of the heart and blood vessels,
3. Cardiac and vasomotor reflexes.
4. Blood pressure- Normal value, Physiological variation. Hypertension-types.

Unit-3: Cardiovascular System-III

1. Blood vessels-types, structure. Hemodynamics: velocity of blood flow, nature of blood flow.
2. Coronary Circulation-course and peculiarities. Coronary artery disease (CAD)-Atherosclerosis.
3. Effects of exercise on cardiovascular system.
4. Immediate and delayed effects of hemorrhage on cardiovascular system.

Paper-3B (Practical)

HP-201M

Full marks-25 (Internal assessment-05; End Sem. Exam. -20)

Sl. No.	Practical	Marks
1.		
2.		

3.	Laboratory Note book	
4.	*Viva voce*	
TOTAL		**20**

CONTENTS:

1. Identification of different pulse and diurnal variation.
2. Determination of pulse rate in different posture.
3. Determination of arterial blood pressure by sphygmomanometer.
4. Measurement of PFI by Harvard step test (modified) and graphical presentation of the recovery heart rate.
5. Measurement of hand grip strength by hand grip dynamometer.

Semester-IV
Paper- 4A (Theory)
HP- 202M
Full marks-75(Internal assessment-30; End Sem. Exam. -45)

Unit 1: Respiratory System-I

1. Functional Anatomy and histology of the lung and airways. Alveolar cells and functions.
2. Physical principles of gas exchange, Partial pressure and composition of normal atmospheric gases in inspired, expired, alveolar airs and blood.
3. Transport of blood gases: Oxygen transport-mechanism and carbon- di-oxide transport, mechanism.
4. Obstructive & Restrictive lung disease-Asthma, Emphysema. Asphyxia, Cyanosis. Dyspnoea, -brief idea.

Unit-2: Respiratory System-II

1. Spirometry: Lung volumes and capacities.
2. Mechanism of respiration. Alveolar surface tension and surfactant.
3. Regulation of respiration: Respiratory centers, Chemoreceptors.
4. Neural control and chemical control of respiration.

Unit-3: High Altitude, Deep sea and Exercise Physiology

1. Respiratory abnormalities: High Altitude Sickness- Acclimatization. High altitude pulmonary edema (HAPO). Oxygen therapy.
2. Decompression sickness- caisson's disease -cause, effect. Hypoxia- Types.
3. Effect of exercise on respiratory system.
4. Maximal aerobic power (VO_2 max) definition and significance. O_2 debt-lactic and alactic.