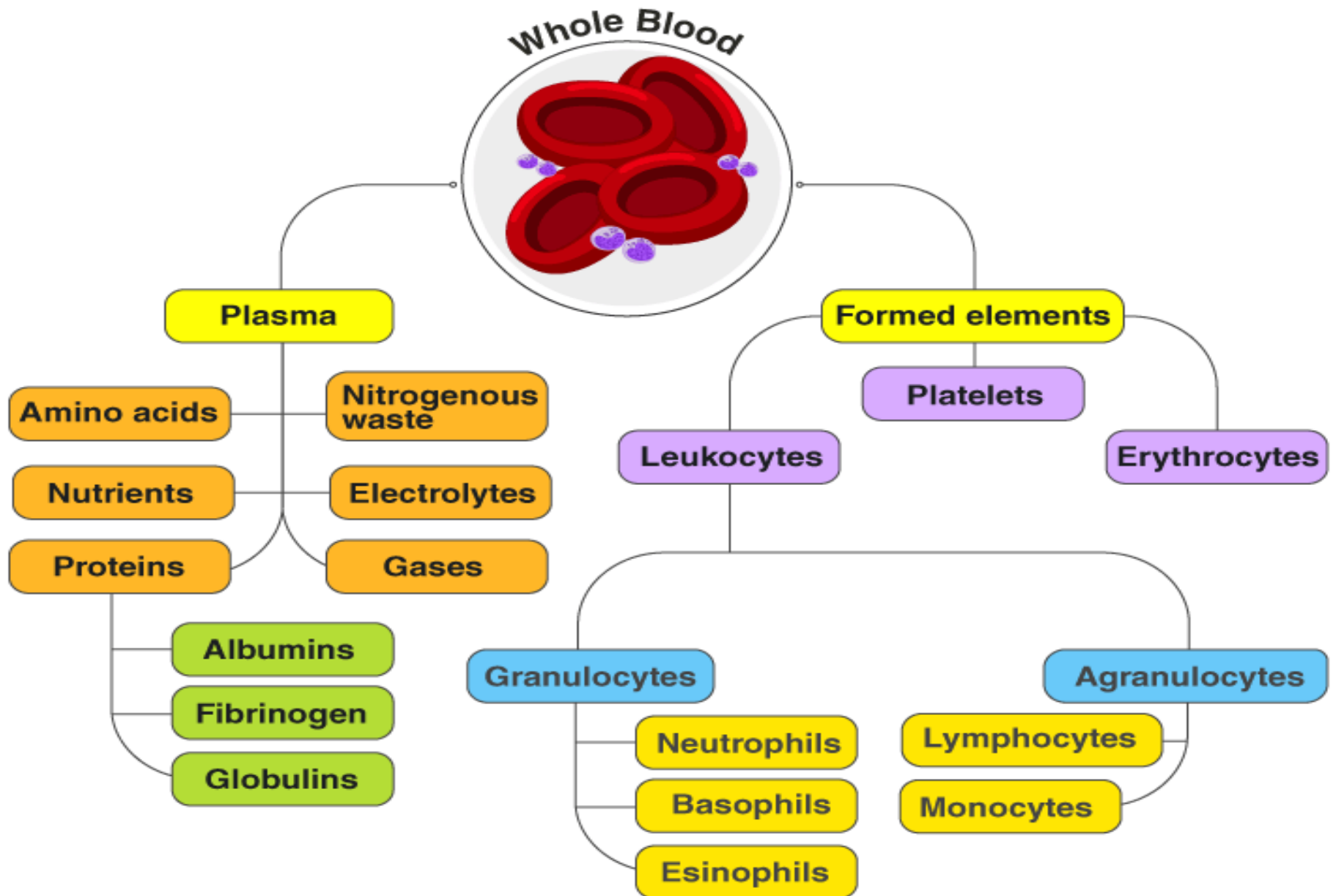


## **UNIT-II Circulatory System**

Blood – constituents of blood and their function – Blood groups and blood transfusion, clotting of blood - Structure of the heart - properties of the heart muscle, circulation of blood, cardiac cycle, blood pressure. Lymph and Lymphatic circulation - Cardiac output.

# COMPOSITION OF BLOOD



Blood is divided into two constituents,

1.cellular composition

2.non-cellular composition



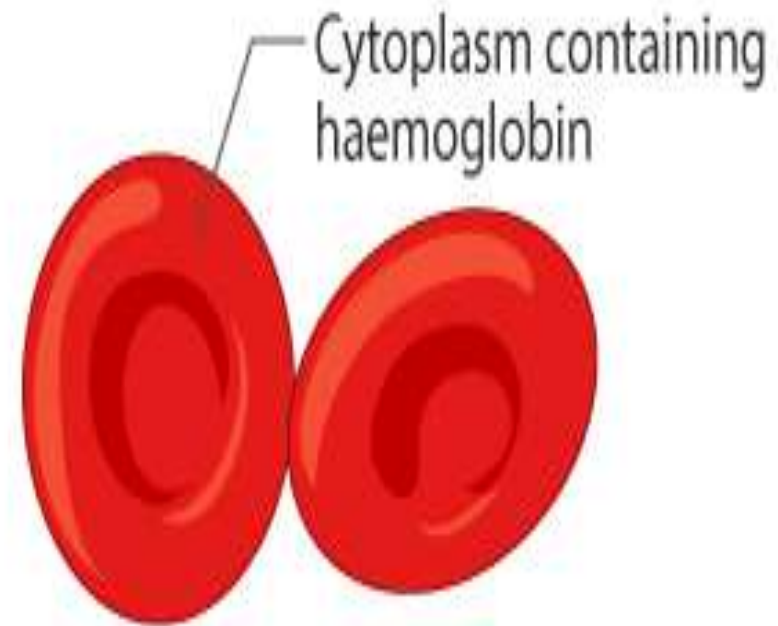
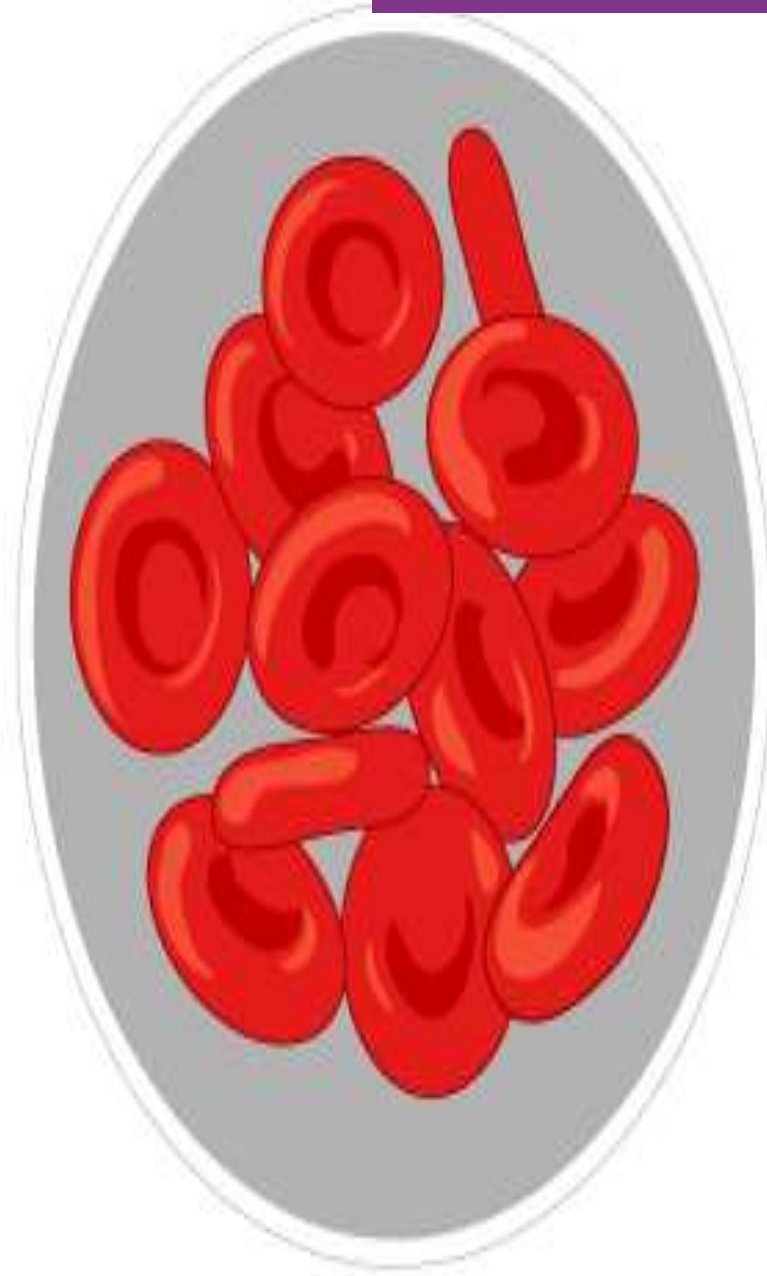
## Cellular composition

RBCs

WBCs

platelets

## RED BLOOD CELLS (RBC)



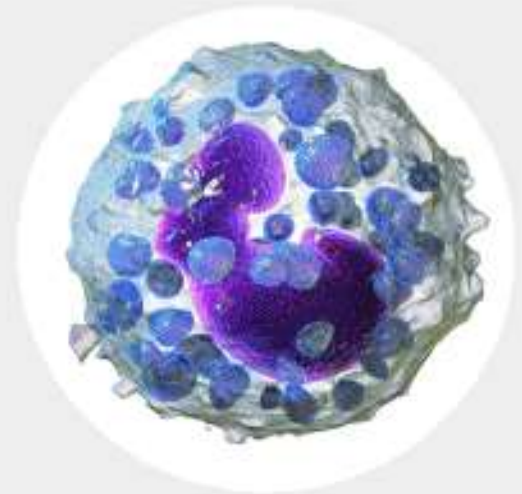
# WHITE BLOOD CELLS



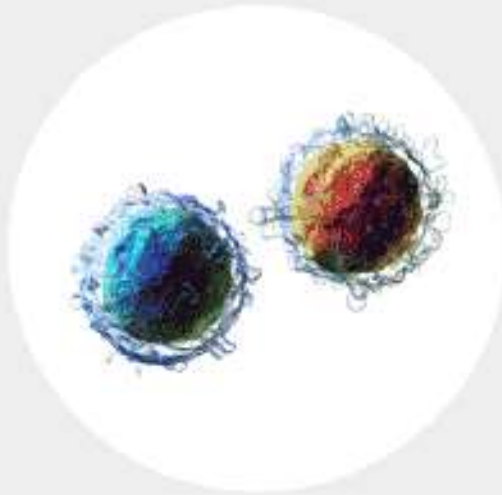
**Monocyte**



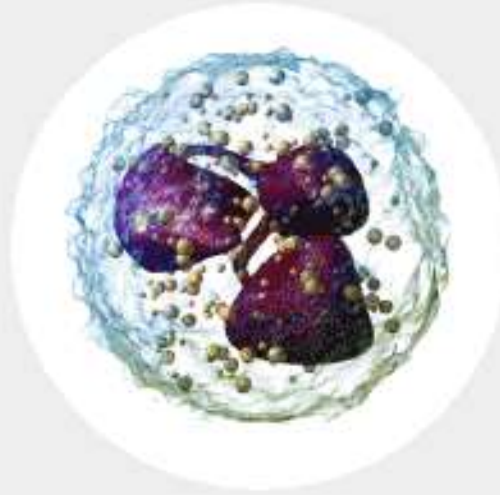
**Eosinophil**



**Basophil**

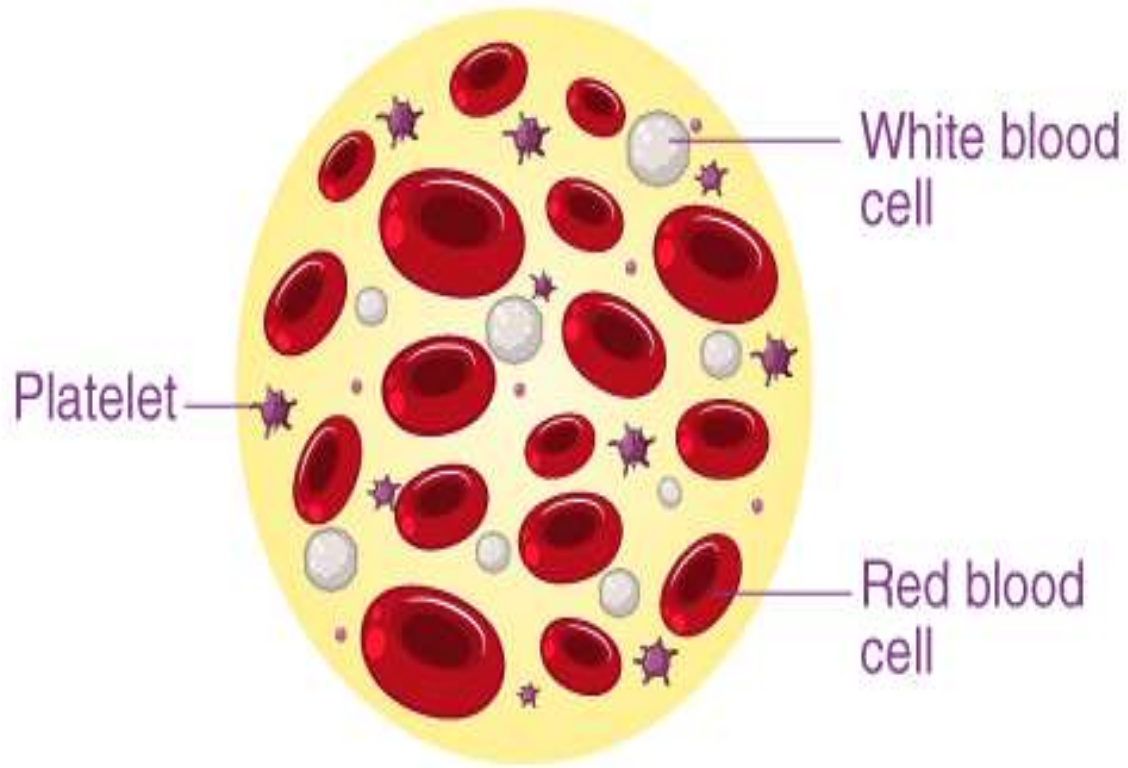


**Lymphocytes**



**Neutrophil**

# PLATELETS



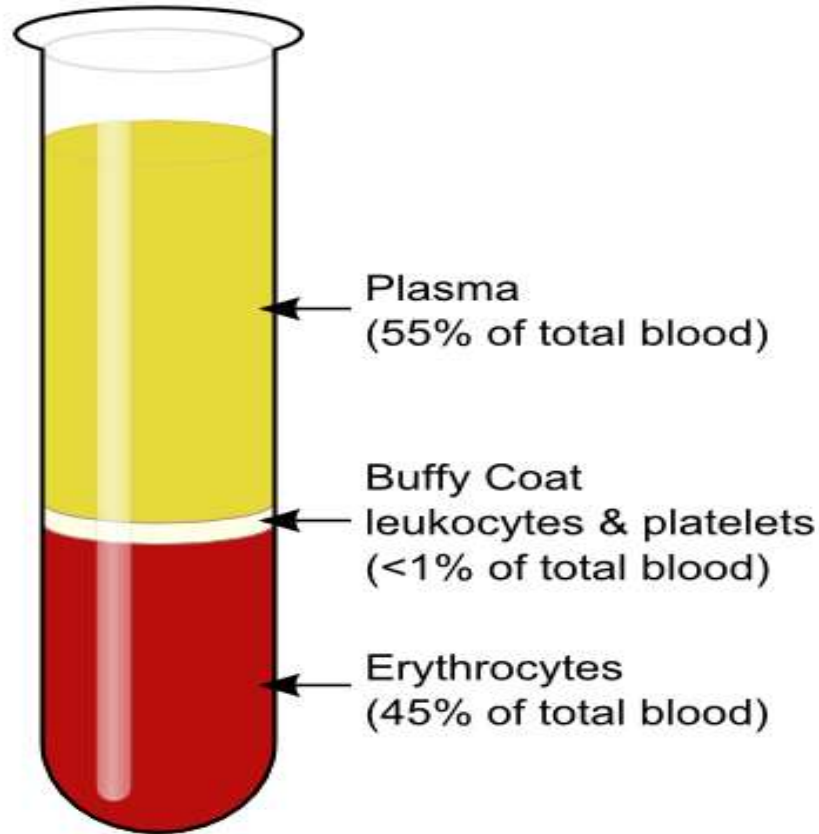


Non – cellular  
composition

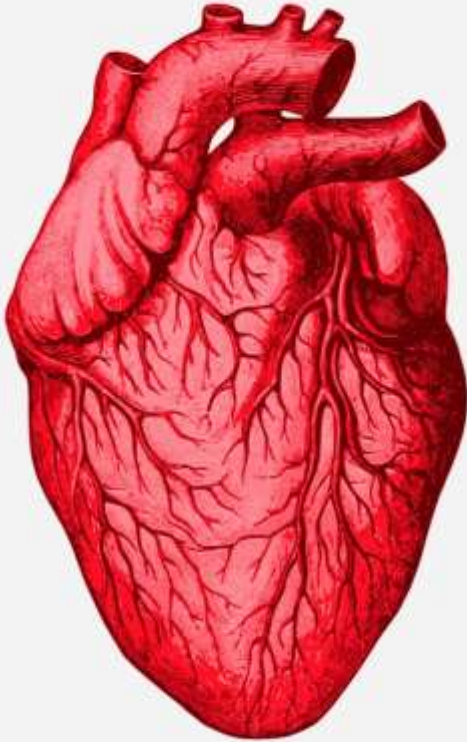
Plasma



# COMPONENTS OF BLOOD



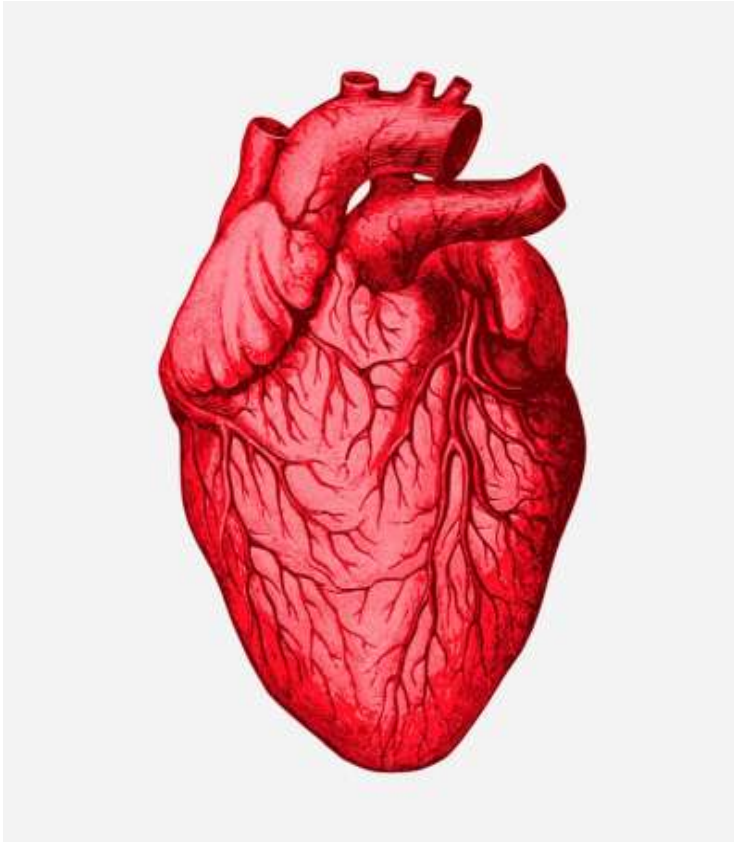
# ANATOMY AND PHYSIOLOGY OF HEART



- The heart is a **hollow muscular** organ that pumps blood through the **blood vessels** to all the **tissues**.
- The scientific study of normal **heart and diseases** associated with it is known as **Cardiology**.

**WHAT IS HEART**

**Cardio- HeartLogos- Study**



## WHAT IS HEART

### **SHAPE:**

Hollow cone with broad base and narrow apex.

### **SIZE:**

Closed Fist Length= 12cm

Width= 9cm

### **MASS:**

Adult Male= 300g

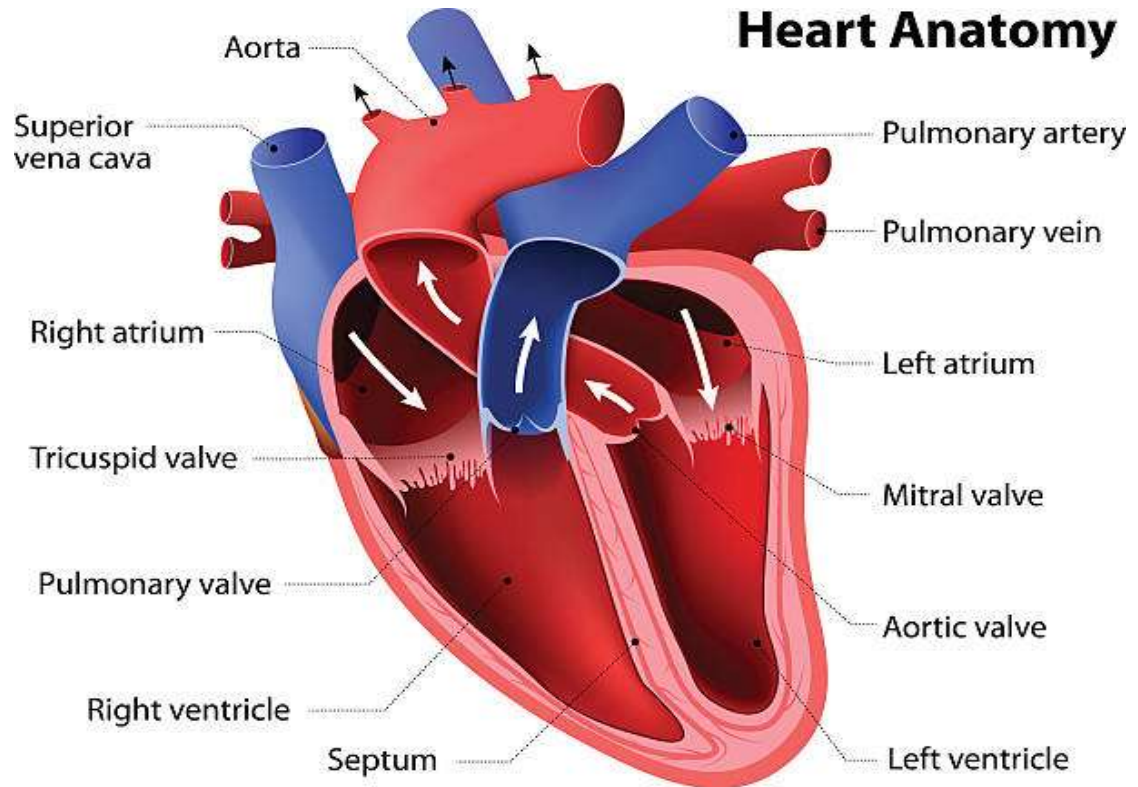
Adult Female= 250g

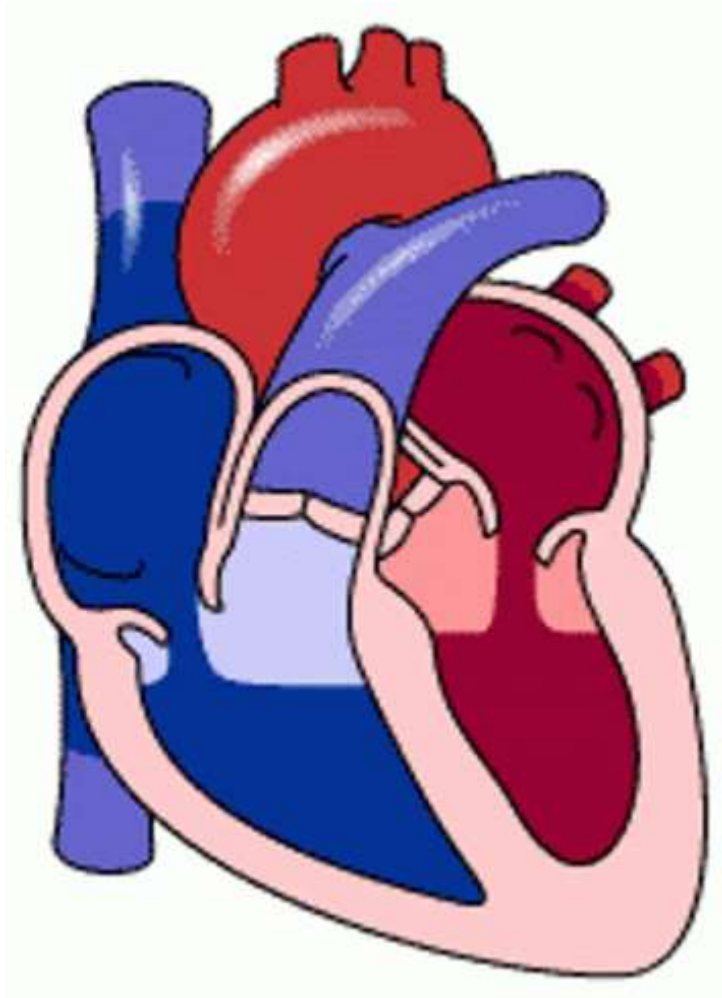
### **ORIGIN:**

Mesoderm

- Heart has Three Layers.
- Heart has Four Chambers.
- Heart has Four Valves.

## Structures of Heart





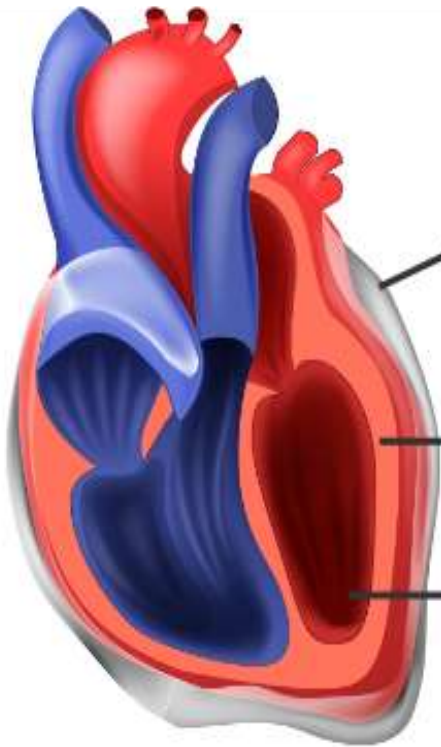
## Function of Heart

- The heart pumps oxygen and nutrients rich blood to the organs, tissues and cells of the body, and eliminates waste products.
- Blood is carried from heart to the organs through arteries, arterioles and capillaries.
- Blood return to the heart through venules and veins.

# Pericardium

# Endocardium

# Myocardium

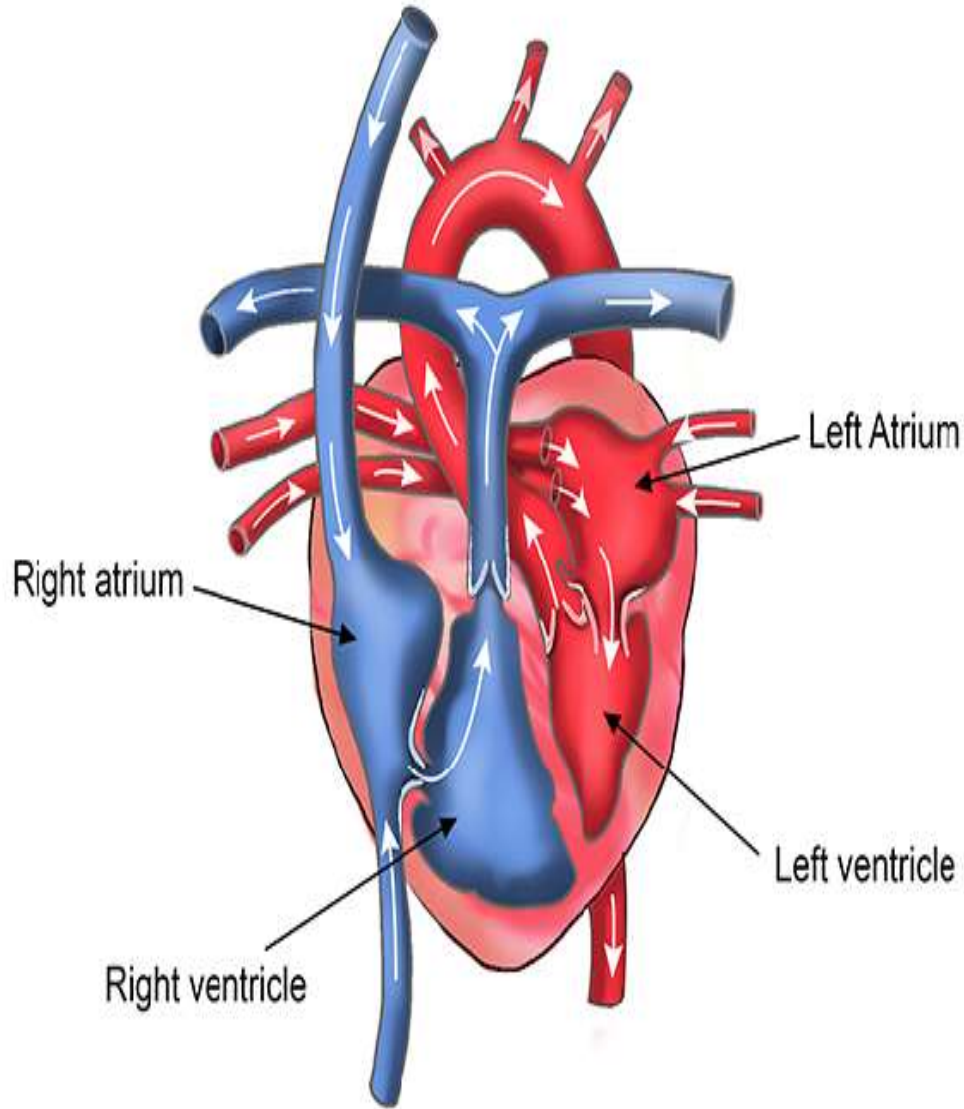


**Pericardium** - is the outermost layer. It consists of 2 thin, fibrous protective layer that contains fluid to protect them from friction

**Myocardium** - is the middle layer that contains the heart muscle

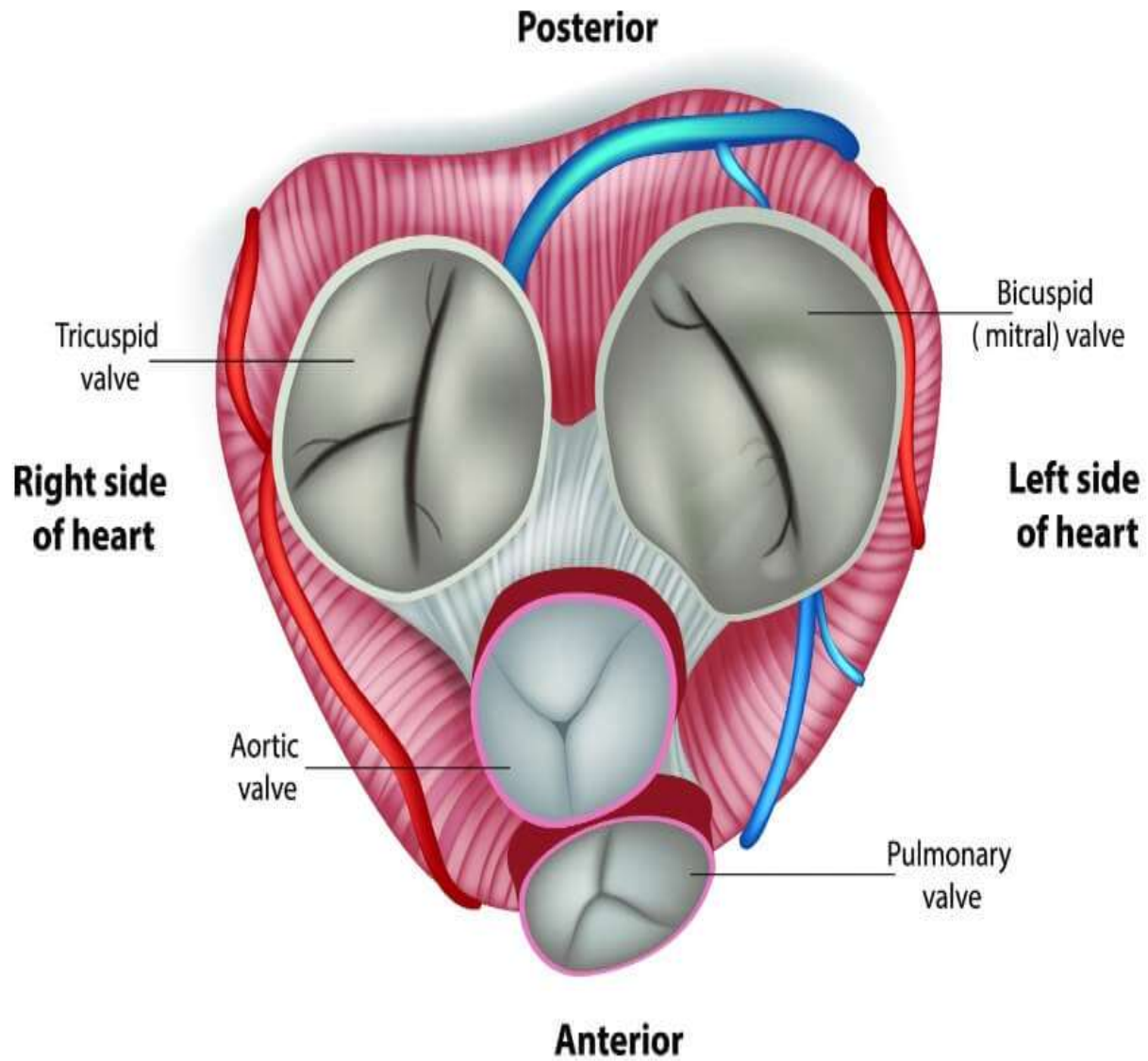
**Endocardium** - is the innermost layer that lines the heart

## Layers of the Heart



- Right Atrium
- Left Atrium
- Right Ventricle
- Left Ventricle

## Chambers of the Heart





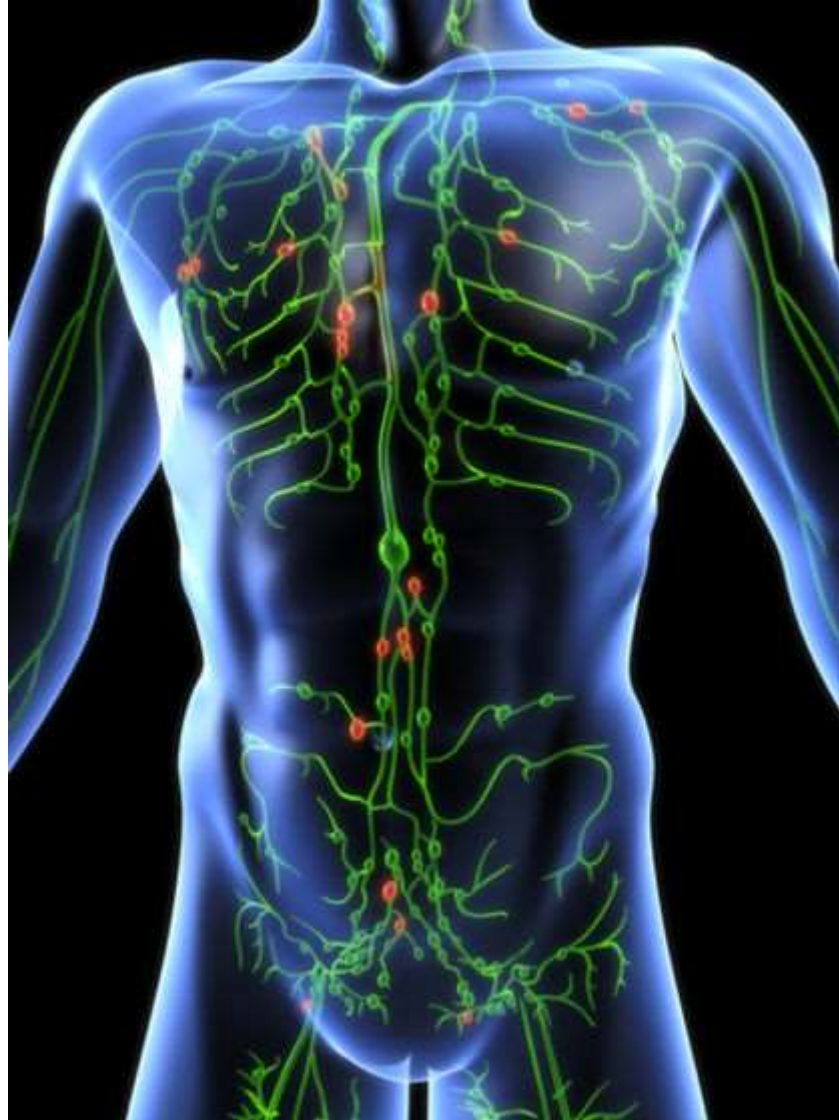
# CARDIAC CYCLE

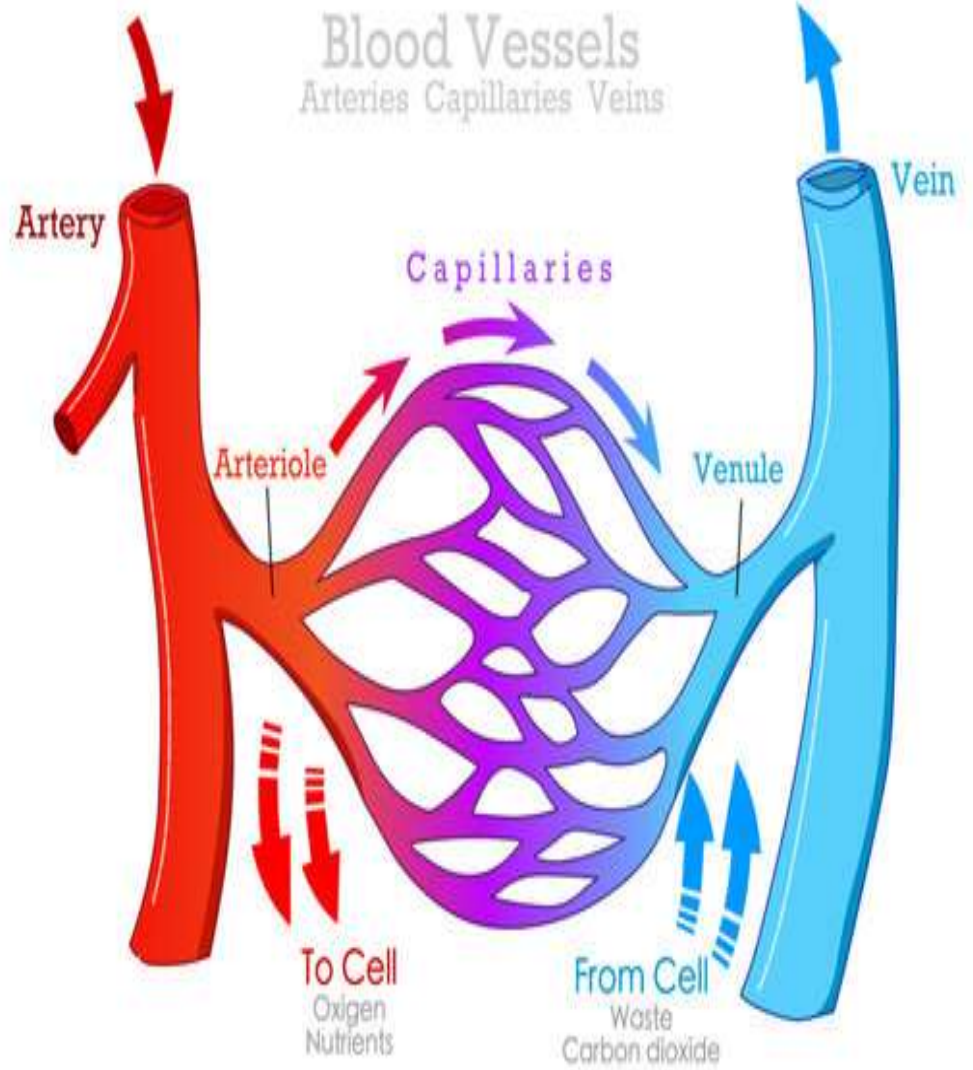
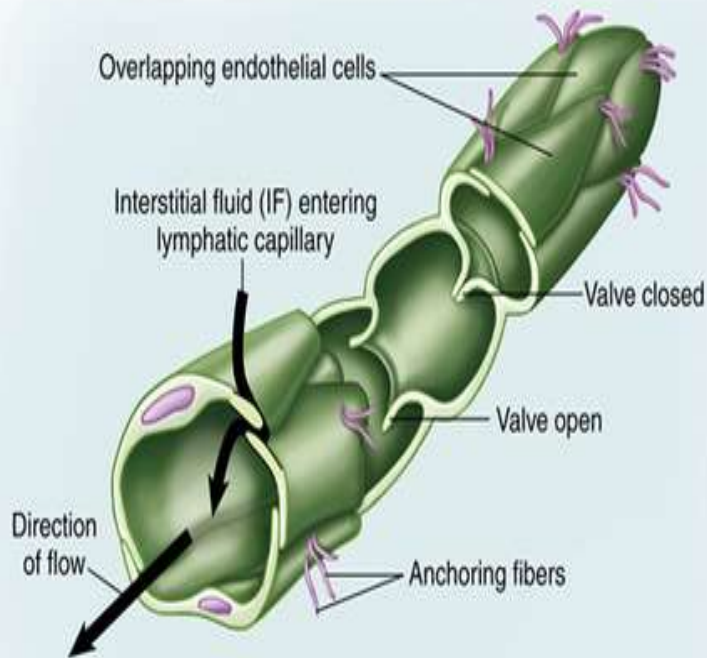
- The **cardiac cycle** refers to the sequence of mechanical and electrical events that occur during a single heartbeat. It involves the contraction (systole) and relaxation (diastole) of the heart chambers, ensuring efficient blood flow through the heart and the rest of the body. The cycle can be divided into several phases, which repeat continuously as the heart beats.

# BLOOD PRESSURE

- **Blood pressure** is the force exerted by circulating blood on the walls of blood vessels, primarily the arteries. It is one of the most important vital signs used to assess the cardiovascular health of an individual. Blood pressure is determined by two factors:
  - The **amount of blood** the heart pumps.
  - The **resistance** to blood flow in the arteries.

# LYMPHATIC SYSTEM





# Lymph flowchart

