**GrandAssignment**

**Course Title: Human Physiology II**

**Rad 2nd semester section A**

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**Note:**

**INTERNAL ASSESSMENT MARKS WILL BE GIVEN ON BASIS OF GRAND ASSIGNMENT**

**Q1:**What is blood? Explain Composition and Function of Blood.

BLOOD:

Blood is the red fluid that circulates through the body”s vesssels , including arteries and veins .a single drop of blood contain million of red blood cells. one unit of blood is made up of white blood cells, red blood cells, platelets , and plasma. Plasma makes uo about 50% , while the cells make up the reminder. It can be donate from person to person. The overall function of blood is to transport oxygen and other nutrients through out the body.

A single celled organism do not need blood. They obtain directly from excrete waste directly in to their environment. The humen organisms can not do that . our large complex bodies need blood to deliver nutrients and to remove waste from our trilloin of cells

There are also two types of blood which relate to how they move throughout the body, arterial blood and venous blood.

# C0MPOSITION OF BLOOD:

White blood cell

Red blood cells

Platelets

Plasma

WHITE BLOOD CELLS

WBCs travel out of the arteries and veins to tissus, where they fight with infection. White blood cells use phagocytosis to digest possibly harmful particles, including bacteria. There are two types of white blood cells , and each performs different tasks. Neutrophilic cells are the smaller type , these cells attack the infection by ingesting the bacteria, right away. While monocytes, the larger of the two, are at the infection site about three days prior. Monocytes then find and phagocytose bacteria, foreign particles, and other dead cellular particles.

RED BLOOD CELLS

RBCs carry hemoglobin , which gives the cell the ability to carry and deliver oxygen all over the body.a single drop of blood contains million of erythrocytes and just thousands of leukocytes. Specifically, males have about 5.4million erythrocytes per microleter ul of blood, and female have 4.8 million per microleter. In fact erythrocytes are estimated to make up about 25% of total cell in body.

PLASMA

About 55% of the blood is plasma. Plasma is the liquid part of the blood that carries the cells. Plasma is 92% water but also contains albumin. Fibrinogen, and globulins.

PLATELETS

A platelets is not a cell but rather a fragment of the cytoplasm of a cell called megakaryocyte that is surrounded by plasma membrane . platelets are relatively small , 2-4 um in diameter , but numerous , with typically 150,000 – 160,000 per ul of blood. Platelets remain only about 10 days.

# FUNCTION OF BLOOD.:

The primary function of blood is to deliver oxygen and nutrients and to remove wastes from the body cells. The specific function of blood also include defense, distribution of heat , and maintance of homeostasis .

TRANSPORTATION:

* Nutrients from the foods you eat are absorbed in the digestive tract. Most of these travel in the bloodstream directly to the liver, where they are processed and released back into the bloodstream for delivery of blood cells.
* Oxygen from air you breathe diffuses in to the blood, which moves from lungs to heart , which then pumps it out to the rest of the body . Moreover , endocrine gland scattered throughout the body release their products , called hormone . into thebloodstream which carries them to distant target cells.
* Blood also picks up celllular waste and byproduct and transport and transport them to various organ for removal.

DEFENSE:

* Many types of white blood cells protect the body from external threats , such as such as disease causing bacteria that have entered the bloodstream in wound . other WBCs seek out and destory internal threats , such as cell with mutated DNA that could multiply to become cancerous , or body cell infected with virus .
* When damage to the vessels results in bleeding , blood plateletes and certain proteins dissolved in the plasma , the fluid portion of the blood , interact to block the ruptured areas of the blood , interact to block the ruptured areas of the blood vessels involved . this protect the body from further blood loss.

MAINTENANCE OF HOMEOSTASIS:

* If you were exercising on a warm day , your rising core body temperature would trigger several homeostatic mechanisms, including increased transport of blood from your core body periphery , which is typically cooler.
* As blood passes through the vessels of the skin, heat would be dissipated to the enviroment , and the blood returning to your body core would be cooler .
* In contrast, on a cold day , blood is diverted away from the skin to maintain a warmer body core. In extreme case, this mat result in frostbite.
* Blood also help to maintain the chemical balance of the body. Protein and other compounds in the blood act as buffer , which thereby help to regulate the PH of body tissues. Blood also helps to regulate the water content of the body cells.

**Q 2:**Explain Physiology of cardiovascular system.

CARDIOVASCULAR SYSTEM:

Cardio means heart vascular means vessels

## HEART:

* Human heart is muscular pumping organ. It is conical in shape and is generally about the size of your tightened first. It is found on the left side of the thoracic cavity. Heart is covered by tough double membrane called pericardium.
* Hear consists of four chambers: two auricles also called atria
* Two ventricles
* Heart is composed of cardiac muscles which are specialized type of muscles keep working day and night, untiringly.

## ARTERIES:

The vessels which carry blood away from heart are called arteries. All arteries transport oxygenated blood except pulmonary artery.

# CAPILLARIES:

The smallest blood vessels are capillaries. A capillary is so thin that only one RBC passes through it at a time, releasing its oxygen by diffusion to the cells.

# VEINS:

Veins are the vessels which bring the blood back from different organs of the body towards heart. All the veins transport deoxygenated blood except for pulmonary vein which brings oxygenated blood.

The right atrium receives the deoxygenated blood through vena cava from whole body. This happens when the heart relaxes and space is produced inside the artrium. The blood is forced to right ventricle through tricuspid valve. When the heart contracts the deoxygenated blood from right ventricle is pumped to the lungs through pulmonary arteries. During this tricuspid valve is kept closedd preventing the back flow. After oxygenation the blood come back to left artium through pulmonary veins. The semilunar valve in pulmonary vein allows the deoxygenated blood to go to lungs and prevent its back flow. From here via bicuspid value oxygenated blood is sent to the left ventricle. On contraction the oxygenated blood is pushed with full force into arota the largest artery. Which distributes it to whole body through the smaller and smaller arteries.

Like other mammals, in human beings as well the oxygenated and deoxygenated blood is completely seperated. Deoxygenated blood remains on the right side of the heart and oxygenated on the left side of the heart. Valves play a very mportant role in this regard by preventing the back flow of blood.

**Q3:**Explain Physiology of Pulmonary System Circulation

PULMONARY SYSTEM CIRCULATION:

PULMO MEANS LUNGS circulation to the lungs

* When a heart contracrs and forces blood into the blood vessels, there is a certain path that the blood follows through the body the blood moves through pulmonary circulation.
* the pulmonary circulation is the portion of circulatory system which carries deoxygenated blood away from the right ventricle , to the lungs and return oxygenated blood to the left artium and ventricle of the heart.
* Pulmonary circulation transport oxygen poor blood from right ventricle to the lungs. Where blood picks up a new blood supply . then it return the oxygen rich blood to the left artium.
* It begins on the right ventricle and ends on the left atrium.
* Its primary function involves the exchange of gases acress the alveolar membrane.
* The low pressure venous system and an intricate system of lymphatics ensure that there is no buildup of adema fluid in healthy lungs.
* The bronchial circulation provides oxygenated blood to the lung parenchyma.
* Deoxygenated blood leaves the heart, goes to the lungs and then re enter the heart. Deoxygenated blood leaves the right ventricle through the pulmonary artery.
* From the right artium the blood is pumped through the tricuspid valve into the right ventricle.
* Blood is then pumped from the right ventricle through the pulmonary valve and into the main pulmonary artery
* The pulmonary arteries carry deoxygenated blood to the lungs, where carbondioxide is released and oxygen is picked up during respiration
* Arteries are further divided into very fine capillaries which are extermely thin walled. The pulmonary vein return oxygenated blood to the left atrium of the heart.
* The oxygenated blood then leaves the lungs through pulmonary veins. Which return it to left part of the heart , completeing the pulmonary cycle .
* The blood the enter s the left artrium , which pumps it through the mitral valve into the left venrticle. From the left ventricle , the blood passes through the aortic valve to the arota. The blood is then distributed to the body through the systemic circulation before returning again to the pulmonary circulation.
* From the right ventricle , blood is pumped through the semilunar pulmonary valve into the left and right main pulmonary arteries , which branch into smaller pulmonary arteries that sperad throughout the lungs.
* Lymphatics play a crucial role in maintaining a dry alveolar membrane and preventing accumulation of tissue fluid around the pulmonary circulation. They can be found close to the terminal brochioles.

ALL THE STUDENTS ARE REQUESTED TO UPLOAD YOUR ASSINGMENT BEFORE FINAL TERM EXAM.