

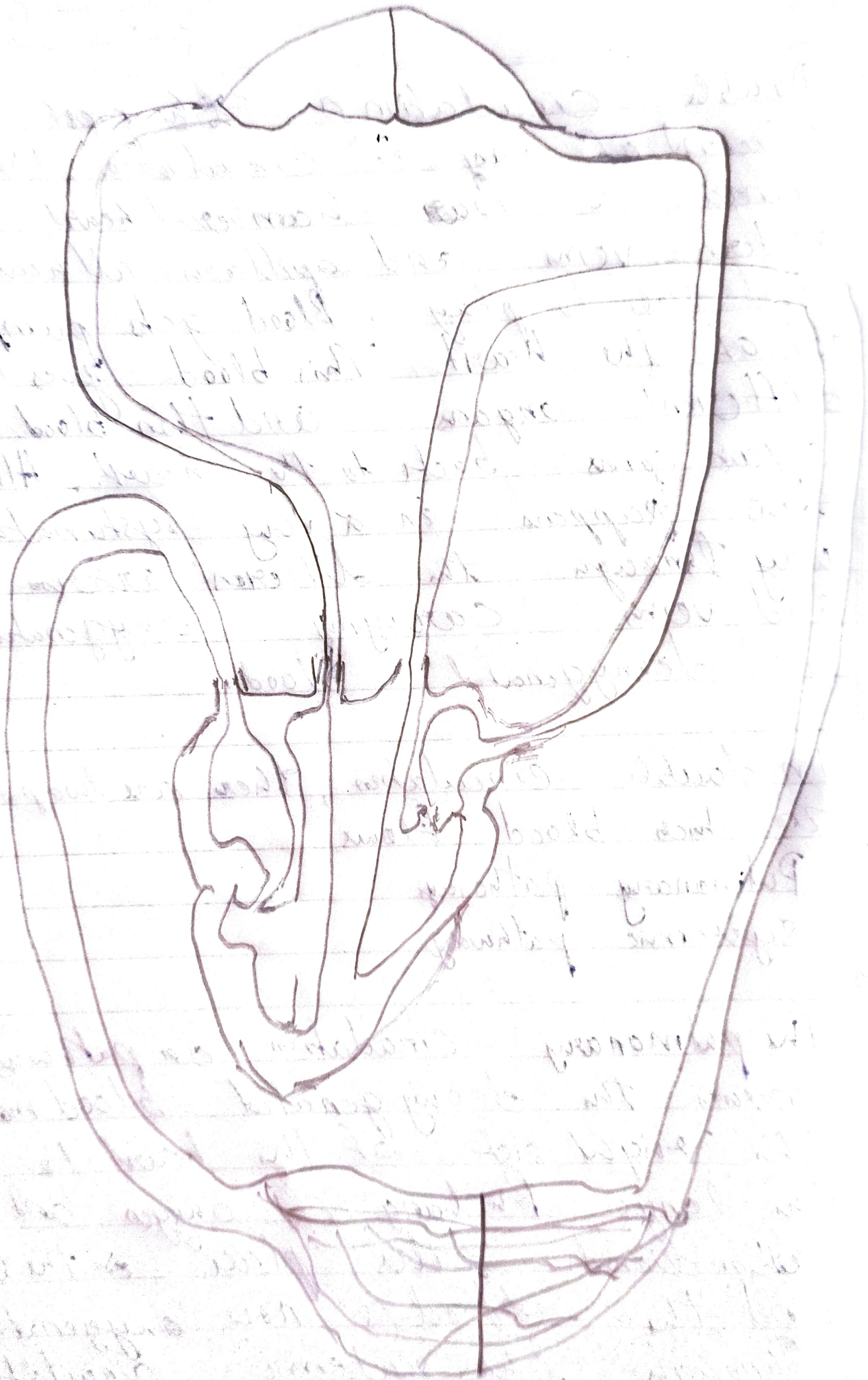
HW

1. Double circulation is the most efficient way of circulation. In humans the four chambered heart, arteries, veins and capillaries all have a vital role to play. Blood gets pumped out of the heart. This blood goes to different organs and then blood again comes back to the heart. All this happens in a very systematic way through the different arteries and veins carrying oxygenated and deoxygenated blood.

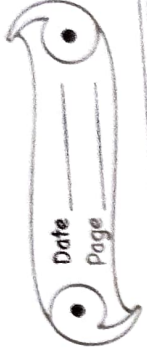
In double circulation, there are two pathways in which blood flows.

- 1) Pulmonary pathways
- 2) Systemic pathways

The pulmonary circulation or pathway carries the deoxygenated blood from the right side of the heart to the lungs. Exchange of oxygen and carbon dioxide takes place in the lungs and the blood is now oxygenated. Through the systemic circulation,



Oxygenated blood travels from the left side of the heart to the other areas of the body. At various organs, it exchanges gases, nutrients and waste through lymph vessels. This deoxygenated blood returns back to the right side of the heart to the lungs. Exchange of oxygen and carbon dioxide takes place in the lungs and the blood is now oxygenated (with oxygen). Through the systematic circulation, oxygenated blood travels from the left side of the heart. The pulmonary circuit and the circuit work together. This ensures that deoxygenated blood goes to the lungs through the pulmonary artery while the oxygenated blood from the ~~coronary~~ reaches the different organs and tissues.



The heart is made up of two chambers.

- The upper two chambers of the heart are called auricles.

- The lower two chambers of the heart are called ventricles.

The heart wall is made up of three layers:

- The outer layer of the heart wall is called epicardium.

- The middle layer of the heart wall is called myocardium.

- The inner layer of the heart wall is called endocardium.

- The heart consists of 4 valves.

- The aortic valve that prevents the back flow of blood when it is pumped from left ventricle to aorta.

- The mitral valve that prevents the backflow of blood when pumped from left atrium to left ventricle
- The pulmonary valve that prevents backflow of blood when it flows from the right ventricle to the pulmonary artery
- The tricuspid valve that prevents backflow of blood when it is pumped
- ~~The~~ The arteries carry the blood rich in oxygen from the heart to different parts of the body. - The pulmonary artery, being an exception, carries deoxygenated blood to the lungs for purification
- The veins carry impure blood from different parts of the body to the heart for oxygenation. However, the pulmonary vein carries oxygenated blood to the heart.