

transported from the glands to the target organs; Heat is transported from respiring body tissues to all parts of the body to maintain a uniform body temperature; Oxygen is transported from the lungs to all parts of the body for respiration. As blood passes through the lungs, oxygen diffuses from the alveoli into the blood. Haemoglobin has a great affinity for oxygen and haemoglobin binds with oxygen, forming oxyhaemoglobin. The red blood cells then transport oxyhaemoglobin to all tissues in the body. As blood passes through tissues containing very little oxygen, the oxyhaemoglobin releases its oxygen and the oxygen diffuses into the tissue cells.

- **Protective Medium-** Blood protects the body through blood clotting, phagocytosis and antibody production.
 - **Blood Clotting-** Blood exposed to air will soon clot (form a solid lump). The clot seals the wound, preventing excessive loss of blood. The clot also prevents foreign particles from entering the bloodstream. People suffering from haemophilia has their blood-clotting mechanism impaired and slight injuries will cause them to bleed to death. When blood vessels are damaged, damaged tissues and blood platelets release an enzyme called thrombokinase. This converts prothrombin into thrombin. Thrombin is also an enzyme and this catalyses the conversion of the soluble protein fibrinogen to insoluble threads of fibrin. Fibrin threads entangle blood cells and the whole mass forms a clot. The clot seals the wound. In undamaged blood vessels, the blood does not clot. This is due to the presence of an anti-clotting substance called heparin which is produced in the liver. When thrombokinase is released, it neutralises the action of heparin so that clotting can take place. When blood clots, serum is left behind. Serum is plasma without the clotting factor.
 - **Phagocytosis-** Phagocytes can destroy foreign particles entering the blood, e.g. bacteria. A phagocyte engulfs the bacteria by flowing over them and enclosing them. Ingested bacteria will be digested and in the process, the phagocyte might be killed, forming pus.
 - **Production of Antibodies-** When disease-causing organisms such as bacteria and viruses gain entry into the bloodstream, they stimulate lymphocytes to produce antibodies. These protect our bodies against diseases, e.g. destroying bacteria by attaching to it and rupturing its surface membrane; causing the bacteria to agglutinate so they can be easily ingested by the phagocytes and neutralising harmful substances. Antibodies may stay in the blood long after the disease had been overcome, allowing the person to be immune to that infection for a while. Some types of dead bacteria are sometimes injected into the bodies of certain animals to induce the formation of antibodies in the blood. Antibodies are extracted from the animal's serum and injected into human beings to protect them from certain disease. Antibody production can be directly induced by exposing the person to dead or weakened forms of the pathogen.