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Circulatory system exam

Explanation The statement is true because the movement of blood through the heart and body is indeed called circulation. The heart acts as a pump, pumping oxygenated blood to the body's tissues and organs through a network of blood vessels, and then receiving deoxygenated blood back to be reoxygenated. This continuous flow of blood is essential for delivering oxygen and nutrients to the cells, removing waste products, and maintaining overall bodily functions. Correct Answer Explanation Plasma is a component of blood that makes up about 55% of its total volume. It is a yellowish fluid that carries various substances such as nutrients, hormones, waste products, and antibodies throughout the body. Plasma also plays a crucial role in maintaining blood pressure and regulating body temperature. It is distinct from urine, which is produced by the kidneys to eliminate waste products from the body. It circulates through blood vessels and is found throughout the body. Explanation The human heart is roughly the size of a closed fist. This analogy helps people understand the organ’s dimensions more easily. The heart’s size is proportional to its function, as it needs to be strong and efficient enough to pump blood throughout the body. The fist comparison allows us to visualize its size relative to the rest of the body. Its size also reflects the strength required to pump blood under pressure through the large blood vessels, such as the aorta, which carries oxygenated blood to the body’s tissues and organs. Explanation Red blood cells transport oxygen. This is because red blood cells contain a protein called hemoglobin, which binds to oxygen molecules in the lungs and carries them to the body's tissues. Oxygen is necessary for cellular respiration, where it is used to produce energy. Therefore, red blood cells play a crucial role in delivering oxygen to all parts of the body, ensuring proper functioning and survival. Explanation The human heart has four chambers, which are the left atrium, left ventricle, right atrium, and right ventricle. These chambers work together to pump blood throughout the body. The right atrium receives deoxygenated blood from the body and passes it to the right ventricle, which pumps it to the lungs for oxygenation. The left atrium receives oxygenated blood from the lungs and passes it to the left ventricle, which then pumps it out to the rest of the body. Therefore, the correct answer is 4. Correct Answer Explanation The heart is the correct answer because it is constantly working to pump blood throughout the body, supplying oxygen and nutrients to all the other muscles. It beats around 100,000 times a day, even when we are at rest. This constant activity makes it the most active muscle in our body. Correct Answer Explanation White blood cells, also known as leukocytes, are an essential part of the immune system and play a crucial role in defending the body against infections. They are responsible for fighting parasites and attacking bacteria, but they do not carry oxygen. The transportation of oxygen is primarily carried out by red blood cells, which contain hemoglobin and are specifically designed for this purpose. Therefore, carrying oxygen is not a function of white blood cells. Correct Answer Explanation Red blood cells are the most common type of blood cells in the human body. They are responsible for carrying oxygen from the lungs to all the tissues and organs in the body, and also help remove carbon dioxide and waste products. Red blood cells are produced in the bone marrow and have a lifespan of about 120 days. They make up about 40-45% of the total blood volume and are easily identifiable due to their red color, which is caused by the presence of a protein called hemoglobin. Correct Answer Explanation Veins carry blood back to the heart. After the oxygen-rich blood is delivered to the body's tissues by the arteries, the veins collect the oxygen-depleted blood and transport it back to the heart. From there, the blood is pumped to the lungs to be oxygenated again before returning to the rest of the body. Therefore, the correct answer is "To the heart." Correct Answer Explanation Arteries carry blood away from the heart to various parts of the body. They transport oxygen-rich blood from the heart to the tissues and organs, except for the pulmonary arteries, which carry oxygen-depleted blood from the heart to the lungs for oxygenation. Explanation The heart is the central organ of the circulatory system. It works as a powerful pump that keeps blood moving throughout the body, delivering oxygen and nutrients to cells while removing waste products. Working alongside blood and blood vessels, the heart ensures the circulatory system functions effectively. Without the heart's constant pumping action, the entire system would come to a stop, making it essential to life. Correct Answer Explanation Capillaries are the smallest blood vessels in the body. They are responsible for connecting arteries to veins and allow for the exchange of oxygen, nutrients, and waste products between the blood and surrounding tissues. Capillaries have thin walls that allow for easy diffusion of substances, and their large surface area enables efficient exchange. This makes them crucial for delivering oxygen and nutrients to cells and removing waste products from the body. Arteries and veins are larger blood vessels that transport blood to and from the capillaries. Correct Answer Explanation Capillaries are the tiny blood vessels that connect arteries to veins. They form a network throughout the body, allowing for the exchange of oxygen, nutrients, and waste products between the blood and surrounding tissues. Capillaries have thin walls, which enable them to facilitate the diffusion of substances. This connection between arteries and veins through capillaries is crucial for maintaining proper blood flow and ensuring that oxygen and nutrients are delivered to the tissues while waste products are removed. Correct Answer Explanation The pericardium is a protective, double-layered membrane that encases the heart. Between its two layers is a small amount of lubricating fluid called pericardial fluid. This fluid plays a crucial role by reducing friction as the heart beats, allowing smooth and effortless movement within the chest cavity. The pericardium not only cushions the heart from physical shocks and trauma but also helps prevent the heart from over-expanding when blood volume increases. Additionally, it serves as a defense barrier, reducing the risk of infections spreading to the heart from nearby organs. Together, the pericardium and its fluid ensure the heart remains stable, protected, and functioning efficiently with every beat. Explanation The heart is made up of muscle tissue. The heart is a vital organ responsible for pumping blood throughout the body. It requires strong, contractile muscles to generate the force needed to circulate blood effectively. The heart muscle, known as cardiac muscle, is unique and different from other types of muscle in the body. It has the ability to contract and relax rhythmically, allowing the heart to beat and pump blood continuously. Correct Answer Explanation Blood clotting is made possible by platelets. Platelets are small cell fragments found in the blood that play a crucial role in the clotting process. When there is an injury or damage to a blood vessel, platelets rush to the site and form a plug to stop bleeding. They also release chemicals that activate other clotting factors, leading to the formation of a fibrin clot that seals the wound. Without platelets, the blood would not be able to form clots effectively, leading to excessive bleeding and potentially life-threatening situations. Correct Answer Explanation White blood cells contain a nucleus, while red blood cells do not. The nucleus is a membrane-bound organelle that contains the genetic material of the cell. It plays a crucial role in controlling the cell's activities and is responsible for the cell's growth, reproduction, and response to stimuli. Red blood cells, on the other hand, lack a nucleus to make more space for the protein hemoglobin, which is responsible for carrying oxygen to the body's tissues. Correct Answer Explanation White blood cells could be compared to soldiers because they play a crucial role in defending the body against foreign invaders, just like soldiers protect their country against enemies. White blood cells are part of the immune system and help fight off infections and diseases, similar to how soldiers protect against threats to the nation. They both serve a protective function and are essential for maintaining the overall health and well-being of the body or country. Explanation The heart's essential role in circulation involves pumping blood to deliver oxygen to the body's tissues. As blood circulates, it supplies vital nutrients and carries away waste products, ensuring cellular function. Therefore, the primary function is to provide the body with oxygen for metabolic processes and overall well-being. Correct Answer Explanation When in the lungs, carbon dioxide leaves the blood. This is because during the process of respiration, oxygen is taken in by the lungs and transported to the cells, while carbon dioxide is produced as a waste product by the cells and carried back to the lungs through the bloodstream. In the lungs, carbon dioxide diffuses from the blood into the alveoli, which are tiny air sacs where gas exchange occurs. From the alveoli, carbon dioxide is then exhaled out of the body. Explanation The septum is a thick wall of tissue that divides the right and left sides of the heart. This structure is crucial in preventing the mixing of oxygenated and deoxygenated blood. The left side of the heart pumps oxygen-rich blood to the body, while the right side pumps oxygen-poor blood to the lungs for oxygenation. The septum ensures this separation, maintaining the efficiency of blood circulation and ensuring that oxygenated blood reaches the body’s tissues, while deoxygenated blood is routed for re-oxygenation in the lungs. Correct Answer Explanation The right side of the heart pumps blood from the heart to the lungs. This is because the right side of the heart receives deoxygenated blood from the body through the veins and pumps it to the lungs via the pulmonary artery. In the lungs, the blood picks up oxygen and releases carbon dioxide, becoming oxygenated. Then, the oxygenated blood returns to the left side of the heart via the pulmonary veins to be pumped out to the rest of the body. Explanation The aorta is the largest blood vessel in the human body. It is the main artery that carries oxygenated blood from the heart to the rest of the body. It originates from the left ventricle of the heart and branches out to supply blood to all organs and tissues. Due to its size and function, the aorta is considered the largest blood vessel. Correct Answer A. You get varicose veins. Explanation When blood pools in the veins, it can cause the veins to become enlarged and twisted, resulting in varicose veins. This happens when the valves in the veins that help regulate blood flow become weak or damaged, causing blood to flow backward and accumulate in the veins. Varicose veins can be painful and unsightly, and they commonly occur in the legs. Explanation Platelet plugs are formed when platelets in the blood clump together to stop bleeding from an injured blood vessel. These clumps of platelets, along with fibrin and other proteins, form a temporary seal over the injured area, preventing further blood loss. This temporary seal is commonly known as a scab. Correct Answer Explanation The heart is divided into two halves, the left and the right, each consisting of an atrium and a ventricle. The right side of the heart receives deoxygenated blood from the body and pumps it to the lungs for oxygenation, while the left side of the heart receives oxygenated blood from the lungs and pumps it to the rest of the body. Both sides of the heart work together in a coordinated manner to ensure that oxygen-rich blood is supplied to the body's tissues and organs while deoxygenated blood is sent to the lungs for reoxygenation. This simultaneous pumping action is what allows the circulatory system to function effectively. Correct Answer Explanation White blood cells are colorless because they lack pigmentation. They are transparent and do not absorb or reflect light, which gives them a colorless appearance. This allows them to move easily through the bloodstream and carry out their functions of fighting infection and disease. Explanation Plasma is the liquid component of blood and is composed mostly of water. It makes up about 90 percent of plasma, with the remaining 10 percent consisting of various solutes such as proteins, electrolytes, hormones, and waste products. This high water content allows plasma to carry nutrients, hormones, and waste products throughout the body, regulate body temperature, and maintain blood pressure. Quiz Review Timeline (Updated): Mar 7, 2025 + Our quizzes are rigorously reviewed, monitored and continuously updated by our expert board to maintain accuracy, relevance, and timeliness. Mar 07, 2025 Quiz Edited byProProfs Editorial Team Expert Reviewed byStephen Reinbold Jan 28, 2010 Quiz Created byKnoelking1993 MenoforceMenopause Formula Perimenopause is the time leading up to menopause. It can last several months or years. We describe why it happens, the symptoms and suggest natural solutions. Excessive sweating at night is often a part of menopausal hot flushes This topic is designed as an interactive quiz.Test yourself in an adaptive quiz or answer open-ended exam questions for free, by signing in to Seneca.Test yourselfPage 2GCSEBiologyAQABiology: AQA GCSE Higher5.3.2Jump to other topicsUnlimited access to 10,000+ open-ended exam questionsMini-mock exams based on your study historyUnlock 800+ premium courses & e-booksGet started with Seneca PremiumPage 3GCSEBiologyAQABiology: AQA GCSE Higher5.3.1Jump to other topicsUnlimited access to 10,000+ open-ended exam questionsMini-mock exams based on your study historyUnlock 800+ premium courses & e-booksGet started with Seneca PremiumEnd of Topic Test - Human Nervous System GCSEAQABiology FoundationBiology HigherCombined Science FoundationCombined Science Higher Double Circulatory System Humans have a double circulatory system which means it is made up of two loops that are joined together. The heart pumps deoxygenated blood to the lungs to be oxygenated and then it returns to the heart. The heart then pumps the oxygenated blood around the rest of the body, to supply respiring cells with everything they need, before returning again when deoxygenated. Blood is transported round the circulatory system by different types of blood vessels that are all adapted for their functions. GCSECombined Science FoundationCombined Science HigherBiology FoundationBiology HigherAQA Arteries Arteries (such as the aorta, pulmonary artery and coronary artery) carry blood away from the heart and branch off into capillaries. The blood is pumped out of the heart at high pressures in order to transport the blood all around the body. Arteries are adapted to be able to withstand this pressure and maintain it when the heart is relaxed. They have thick walls made up of elastic fibres and smooth muscle and a relatively narrow lumen. The elastic fibres relax when the heart pumps blood, allowing the artery to expand and blood to flow through at high pressures. The elastic fibres contract when the heart is not pumping blood to narrow the lumen of the artery and maintain the high blood pressure. GCSECombined Science FoundationCombined Science HigherBiology FoundationBiology HigherAQA Capillaries Capillaries are tiny vessels that surround cells and enable them to exchange different substances with the blood. They supply the cells with oxygen and glucose for respiration and remove waste products such as carbon dioxide and urea. Their permeable walls are only one cell thick which provides a short distance for diffusion between the blood and the cells and therefore increases the rate of diffusion. GCSECombined Science FoundationCombined Science HigherBiology FoundationBiology HigherAQA Veins Veins, such as the vena cava and pulmonary vein, take blood from capillaries back to the heart. This blood is under low pressure so the walls of veins are not as thick as the walls of arteries. They have a large lumen to allow the blood to flow despite the low pressure and valves which help to keep the blood flowing in the right direction (prevent backflow). GCSECombined Science FoundationCombined Science HigherBiology FoundationBiology HigherAQA Rate of Blood Flow You may be asked to calculate the rate of blood flow through a vessel. Remember rate is just how much something has changed in a given time. To calculate the rate of blood flow you should divide the volume of blood by the time taken for it to pass. Example: In 6 \text{ minutes}, 672\text{ ml} of blood flows through a vein. Calculate the rate of blood flow through the vein. \text{Rate of blood flow}= \dfrac{\text{Volume of blood}}{\text{Time taken}} \text{Rate of blood flow}= \dfrac{672}{6}= 112 \text{ ml/min} GCSECombined Science FoundationCombined Science HigherBiology FoundationBiology HigherAQA Circulatory System Example Questions The circulatory system is made up of 2 loops/circuits joined together. In the first loop the heart pumps blood to the lungs to be oxygenated and then it returns to the heart. In the second loop the heart pumps blood all around the body to supply the cells so they are able to exchange substances with blood before returning to the heart. Save your answers with Gold Standard Education Arteries have very thick walls made of elastic fibres and smooth muscle to withstand and maintain the high blood pressure generated from the heart. The blood pressure is much lower in veins so they have much thinner walls. Save your answers with Gold Standard Education Valves are found in veins. They make sure the blood only flows in one direction/ prevent backflow. Save your answers with Gold Standard Education Circulatory System Worksheet and Example Questions Share — copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution — You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. > Physiology > Cardiovascular System The body's circulatory system includes the cardiovascular and lymphatic systems; the quizzes below focus on the cardiovascular system. Each of the quizzes includes 15 multiple-choice style questions. If you get a question right the next one will appear automatically, but if you get it wrong we'll tell you the correct answer. An overall score is given at the end of each quiz. Choose from the following : Anatomy - Identify the main arteries and veins : Quiz 1 --- Quiz 2 --- Quiz 3 --- Quiz 4 Physiology --- How does the cardiovascular system work? Quiz 1 --- Quiz 2 Anatomy of the heart : Quiz 1 --- Quiz 2 --- Quiz 3 Pathology (disorders and diseases) of the cardiovascular system : Quiz 1 --- Quiz 2 Circulatory first aid - what do you do when someone has circulatory problems? Quiz 1 --- Quiz 2 Or if you fancy something different, try a French Quiz instead! Or how about an Astronomy Quiz? In this section we've added a few alternative study aids to help you along. Articles - Here you'll find a range of short articles on basic anatomy and physiology topics, complete with a few 'test yourself' questions for each one. Images and pdf's - Just in case you get tired of looking at the screen we've provided images and pdf files that you can print out and use for 'off-line' practice. Word Roots - When you learn the word roots, prefixes and suffixes contained within anatomical and medical terms, you can often work out what they mean. This can be a useful skill as you progress in your studies, so we've provided a dictionary to help you! Games - Finally in the resources section, we've added some simple games to make anatomy and physiology practice a little bit more fun. 1 - the skeleton : test your knowledge of the bones of the full skeleton 2 - the brain : can you name the main anatomical areas of the brain?3 - the cell : learn the anatomy of a typical human cell 4 - the skull : Do you know the bones of the skull? 5 - the axial skeleton : How about the bones of the axial skeleton? 6 - the heart : name the parts of the human heart 7 - the muscles : Can you identify the muscles of the body? 8 - anatomical planes and directions : Do you know the language of anatomy? 9 - the spine : Test your knowledge of the bones of the spine 10 - the skin : understand the functions of the integumentary system Free Anatomy Quiz © 2011-