Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class\_\_\_\_\_\_\_ Date\_\_\_\_\_

**Circulatory System**

**Write true if the statement is true or false if the statement is false.**

|  |  |
| --- | --- |
| \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_ | 1. In adults, the normal mass of the heart is 100-200 grams. 2. The right side of the heart collects oxygenated blood from the body. 3. Valves in the heart maintain the flow of blood. 4. Cardiac muscle is self-exciting. 5. The heartbeat is made up of three parts. 6. Arteries carry blood away from the heart. 7. The aorta is the largest artery in the body. 8. Capillaries are the smallest of the body’s blood vessels. 9. The lymphatic system is often called the primary circulatory system. 10. Atherosclerosis normally begins in adulthood. |

**Read this passage and answer the questions that follow.**

**Homeostatic Imbalances of the Cardiovascular System**

Cardiovascular disease (CVD) (11)refers to any disease that affects the cardiovascular system, but (13) it is usually used to refer to diseases related to atherosclerosis, which is a chronic inflammatory response in the walls of arteries that causes a swelling and buildup of materials called plaque. (12)Plaque is made of cell debris, cholesterol, fatty acids, calcium, and fibrous connective tissue that build up around an area of inflammation. As a plaque grows it stiffens and narrows the artery, which reduces the flow of blood through the artery, shown in Figure 1.1.

**Atherosclerosis**

Atherosclerosis normally begins in later childhood, and is usually found in most major arteries. It does not usually have any early symptoms. (14)Causes of atherosclerosis include a high-fat diet, high cholesterol, smoking, obesity, and diabetes. Atherosclerosis becomes a threat to health when the plaque buildup interferes with the blood circulation in the heart (coronary circulation) or the brain (cerebral circulation). (15)A blockage in the coronary circulation, can lead to a heart attack, and blockage of the cerebral circulation (leading to, or within the brain) can lead to a stroke. According to the American Heart Association, atherosclerosis is a leading cause of CVD.

FIGURE 1.1

Atherosclerosis is sometimes referred to as hardening of the arteries.

**Questions**

1. ****Cardiovascular disease (CVD) is usually referred to diseases related to what?
2. What is plaque made up of?
3. Atherosclerosis is sometimes referred to as what?
4. What are the causes of atherosclerosis?
5. In what two organs can plaque buildup interfere with blood circulation?

**Circle the letter of the correct choice.**

1. What does the cardiovascular system move to and from body cells?
   1. Nutrients
   2. Hormones
   3. gases and wastes
   4. all of the above
2. In adults, the normal mass of the heart is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. 50-100 grams (g)
4. 100-150 g
5. 200-250 g
6. 250-350 g
7. One of the semilunar valves is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
8. Pulmonary
9. Tricuspid
10. Bicuspid
11. Mitral
12. Which of the following is the most critical nutrient carried by the blood?
13. Calcium
14. Oxygen
15. Iron
16. none of the above
17. In the U.S. the healthy systolic pressure is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
18. less than 80 mm Hg
19. less than 100 mm Hg
20. less than 120 mm Hg
21. less than 140 mm Hg
22. An example of a portal venous system is the blood vessel network between the digestive tract and the
23. heart.
24. liver.
25. brain.
26. none of the above

**Match the vocabulary term with the correct definition regarding the human circulatory system.**

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| --- | --- | --- |
|  | Term | Definition |

|  |  |  |
| --- | --- | --- |
| \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_ | 1. vein 2. systole 3. artery 4. ventricles 5. hypertension 6. diastole 7. coronary circulation 8. blood pressure 9. sphygmomanometer 10. atrioventricular valves | a. Large, muscular vessels that carry blood away from the heart  b. Contraction of the heart chambers, which drives blood out of the chambers  c. Supplies the heart tissue with blood  d. Heart chambers which collect blood from the atria and pump it out of the heart  e. Vessel that carries blood toward the heart  f. The force exerted by circulating blood on the walls of blood vessels  g. Ensure blood flows from the atria to the ventricles  h. Measures arterial pressure  i. Period of time when the heart relaxes after contraction  j. Condition in which a person’s blood pressure is chronically high |

**Circle the letter of the correct choice.**

1. Blood accounts for what percent of the human body weight?
2. 2%
3. 5%
4. 10%
5. 25%
6. Within blood plasma are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. Erythrocytes
8. Leukocytes
9. Thrombocytes
10. all of the above
11. Which of the following produce antibodies?
12. B-cells
13. T-cells
14. Macrophages
15. Lymphocytes
16. How long do platelets survive before being removed by the liver and spleen?
17. 2 days
18. 5 days
19. 10 days
20. 15 days
21. Blood plasma contains
22. serum albumin.
23. antibodies.
24. hormones.
25. all of the above
26. Which of the following is a blood group system?
27. MNS
28. Kell
29. Duffy
30. all of the above
31. Leukemia is characterized by an abnormal production of
32. red blood cells.
33. white blood cells.
34. platelets.
35. none of the above

**Match the vocabulary term with the correct definition regarding blood.**

|  |  |  |
| --- | --- | --- |
|  | Term | Definition |
| \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_  \_\_\_\_\_ | 1. thrombocytes 2. hemoglobin 3. erythrocytes 4. lymphoma 5. serum albumin 6. universal recipients 7. hormones 8. hematopoiesis 9. blood type 10. coagulation | a. protein in red blood cells that carries oxygen  b. a cancer of the lymphatic system, which helps to filter blood  c. individuals with type AB positive blood  d. red blood cells  e. chemical messengers that are produced by one cell and carried to another  f. platelets  g. determined by the presence or absence of certain molecules, called antigens, on the surface of red blood cells  h. the production of blood cells in the red and yellow bone marrow  i. blood clotting  j. a plasma protein that acts as a transporter of hormones and other molecules |

**Respiratory System**

**Write true if the statement is true or false if the statement is false.**

|  |  |
| --- | --- |
| \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_ | 1. The exchange of gases between the blood and the cells of the body is called respiration. 2. The trachea pulls air in and pushes it out. 3. Respiration is the transport of oxygen from the outside air to the cells of the body. 4. One of the products of cellular respiration is carbon dioxide. 5. The pharynx closes over the trachea when food is swallowed. 6. The alveoli are part of the upper respiratory tract. 7. In air-breathing vertebrates such as humans, respiration of oxygen includes three stages. 8. The process of gas exchange occurs in the alveoli. 9. Exhaled air has a relative humidity of 100 percent. 10. Exhalation is generally an active process. |

FIGURE 1.3

The inside of a lung showing the characteristics of emphysema due to smoking. Instead of alveoli, the cut surface shows multiple cavities lined by heavy black carbon deposits.

**Read this passage from the lesson and answer the questions that follow.**

**Homeostatic Imbalances of the Respiratory System: Diseases and Disorders**

Respiratory disease is the term for diseases of the lung, bronchial tubes, trachea and throat. These diseases range from mild, such as a cold, to being possibly life-threatening, such as bacterial pneumonia. Respiratory diseases can be grouped as either (59)obstructive (conditions which lower the rate of the airflow into and out of the lungs, such as in asthma) or restrictive (conditions that cause a reduction in the functional volume of the lungs, such as emphysema.) Emphysema is a chronic lung disease caused by (60)loss of elasticity of the lung tissue. The destruction of elastic structures that support the alveoli and the capillaries that feed the alveoli cause them to become hard and stiff. Eventually the walls of the alveoli break down and the alveoli become larger. The amount of oxygen that can enter the blood with each breath is reduced (61)because the large alveoli cannot function efficiently; much of the oxygen that gets into the large alveoli cannot be absorbed into the blood so the oxygen is unused. Symptoms include shortness of breath on exertion (usually when climbing stairs or a hill, and later at rest), and an expanded chest. Damage to the alveoli, which can be seen in Figure 1.3, is irreversible. Smoking is a leading cause of emphysema. Bronchitis is an inflammation of the bronchi. Acute bronchitis is usually caused by viruses or bacteria and may last several days or weeks. Acute bronchitis is characterized by cough and phlegm (mucus) production. Symptoms are related to the inflammation of the airways and phlegm production, and include shortness of breath and wheezing. Chronic bronchitis is not necessarily caused by infection and is (62)generally part of a syndrome called chronic obstructive pulmonary disease (COPD). Chronic bronchitis is defined clinically as a persistent cough that produces phlegm and mucus, for at least three months in two consecutive years.

FIGURE 1.4

Asthma narrows the airways by causing allergy-induced spasms of surrounding muscles, narrowing of the airway, and excessive production of phlegm (mucus), which clogs the airways. The airway constriction responds to medicines called bronchodilators which relax the muscles. The feeling of breathlessness is somewhat like being able to breath only through a straw while walking.

(63)Asthma is a chronic illness in which the airways narrow and becomes inflamed, as shown in Figure 1.4. Excessive amounts of mucus are also made by the lungs. Asthma often happens in response to one or more triggers. It may be triggered by exposure to an allergen such as mold, dust, or pet hair. It can also be caused by cold air, warm air, moist air, exercise, or emotional stress. In children, the most common triggers are viral illnesses such as those that cause the common cold. This airway narrowing causes symptoms such as wheezing, shortness of breath, chest tightness, and coughing. Some people with asthma, especially children, can become very frightened by the symptoms, which may cause even more breathing distress. Between asthma attacks, most patients feel well but can have mild symptoms and may remain short of breath after exercise for longer periods of time than a person who does not have asthma. The symptoms of asthma, which can range from mild to life threatening, can usually be controlled with a combination of medicines and environmental changes. Public attention in the developed world has recently focused on asthma because of the increasing numbers of cases, affecting up to one in four children who live in cities.

**Questions**

1. What are the two major ways in which respiratory diseases can be grouped?
2. What happens to lung tissue in emphysema?
3. In emphysema, why is the amount of oxygen that can enter the blood with each breath reduced?
4. How is chronic bronchitis defined clinically?
5. How is asthma an example of an obstructive respiratory disease?
6. The respiratory system consists of the \_\_\_\_\_\_\_\_\_\_\_\_.
7. Pharynx
8. Trachea
9. Diaphragm
10. all of the above
11. In cellular respiration, which of the following is not produced?
12. Oxygen
13. carbon dioxide
14. ATP
15. Water
16. Which of the following is part of the lower respiratory tract?
17. nasal cavity
18. pharynx
19. trachea
20. none of the above
21. Exhaled air has a relative humidity of what percent?
22. 25
23. 50
24. 75
25. **100**
26. Which of the following is one of the stages of the respiration of oxygen?
27. ventilation from the atmosphere into the alveoli of the lungs
28. pulmonary gas exchange from the alveoli into the pulmonary capillaries
29. gas transport from the pulmonary capillaries through the circulation to the peripheral capillaries in the organs
30. all of the above
31. Immediately after the aorta, oxygenated blood travels to the
32. peripheral capillaries.
33. smaller arteries.
34. arterioles.
35. none of the above
36. Which of the following is a respiratory disease?
37. Bronchitis
38. Pneumonia
39. Tuberculosis
40. all of the above

**Match the vocabulary term with the correct definition regarding the respiratory system.**

|  |  |  |
| --- | --- | --- |
|  | Term | Definition |
| \_\_\_\_\_\_  \_\_\_\_\_\_  \_\_\_\_\_\_  \_\_\_\_\_\_  \_\_\_\_\_\_  \_\_\_\_\_\_  \_\_\_\_\_\_  \_\_\_\_\_\_  \_\_\_\_\_\_  \_\_\_\_\_\_ | 1. obstructive 2. lung volume 3. emphysema 4. respiratory disease 5. internal respiration 6. restrictive 7. bronchitis 8. alveoli 9. diaphragm 10. asthma | a. the exchange of gases between the blood and the cells of the body  b. a muscle that is found below the lungs  c. conditions which lower the airflow rate into and out of the lungs  d. a chronic illness in which the airways narrow and become inflamed  e. multi-lobed sacs in which most of the gas exchange occurs  f. the average breath capacity of a person  g. conditions that cause a reduction in the functional volume of the lungs  h. a chronic lung disease caused by loss of elasticity of the lung tissue  i. an inflammation of the bronchi  j. the term for diseases of the lung, bronchial tubes, trachea and throat |