Worksheet
Cardiovascular and Lymphatic Systems

True or False

Examine the following statements. Identify if the statement is true or false	True	False
1. Lymph circulates in the cardiovascular system.		
2. Myocardium is composed of skeletal muscle tissue.		
3. The pericardium anchors the heart to the diaphragm.		
4. The left ventricle pumps blood into the systemic circuit.		
5. The tricuspid valve is located between the left atrium and left ventricle.		
6. An infarct is an area of necrosis.		
7. The P wave represents depolarization of the ventricles.		
8. The SA node is the pacemaker of the heart.		
9. The thoracic duct is the left lymphatic duct.		
10. Lymph node inflammation is termed lymphangitis.		

Fill-in-the-Blank

Complete the sentence with the correct term(s).

Answers

11. The thin lining of the heart chambers is the _____.

12. The largest artery is the _____.

13. A lower chamber of the heart is a(n) _____.

14. The pulmonary circuit carries blood to and from the _____.

15. An abnormal heart sound is a(n) _____.

16. The full scientific name for the pacemaker of the heart is _____.

17. The smallest vessels are the _____.

18. The fluid that circulates in the lymphatic system is called _____.

19. A blood clot formed within a vessel is called a(n) _____.

20. The common term for hypertension is _____.

21. The root phleb/o pertains to a(n) _____.

22. The root angi/o means _____.

23. Blood is carried toward the heart by vessels called _____.

24. Inflammation of the lymph nodes is termed _____.

25. The medical term for fainting is _____.

26. The thin outermost layer of the heart wall is the _____.

27. Localized narrowing of the aorta with restriction of blood flow is known as _____.

28. A small mass in the upper part of the right atrium that initiates the impulse for each heartbeat, also known as the pacemaker, is the _____.

29. The contraction phase of the heartbeat cycle is called _____.

30. A change in electrical charge from the resting state in nerves or muscles is known as _____.

31. The development of fatty, fibrous patches (plaques) in the lining of arteries, causing narrowing of the lumen and hardening of the vessel wall, is a condition called _____.

32. A(n) _____is an obstruction of a blood vessel by a blood clot or other matter carried in the circulation.

33. A procedure that reopens a narrowed vessel and restores blood flow is known as _____. It is commonly accomplished by surgically removing plaque or inflating a balloon within the vessel.

34. A localized abnormal dilation of a blood vessel that results from weakness of the vessel wall is a(n) _____.

35. Any abnormality in the rate or rhythm of the heartbeat (literally "without rhythm") is known as _____.

36. Restoration of cardiac output and pulmonary ventilation after cardiac arrest using artificial respiration and chest compression or cardiac massage is called cardiopulmonary _____.

37. The point of origin for the electrical impulses that stimulate the heartbeat is the _____.

Matching

Match the following terms and write the appropriate letter next to each term.

Term	Answers	Definition
38. cardiomyopathy		A. inflammation of the heart muscle
cardiomegaly		B. downward displacement of the aorta
myocarditis		C. any disease of the heart muscle
aortoptosis		D. enlargement of the heart
39. aortostenosis		A. rupture of an artery
phlebotomy		B. dilatation of a vein
phlebectasia		C. incision of a vein
arteriorrhexis		D. narrowing of the aorta
40. angiopathy		A. tumor of lymphatic vessels
lymphangioma		B. any disease of blood vessels
aneurysm		C. cerebrovascular accident
stroke		D. ballooning of a vessel
41. angina pectoris		A. a form of chest pain
heart attack		B. method used to study the heart
PTCA		C. myocardial infarction
ECG		D. coronary angioplasty

Pronounce It

For each phonetic transcription in this section, pronounce the term aloud and write it in the space provided, being careful to spell it correctly.

	Answers
42. VEN-trik-l	
43. an-je-o-eh-DE-mah	
44. fleb-I-tis	
45. AN-u-rizm	
46. an-JI-nah	
47. ah-RITH-me-ah	
48. ath-er-o-skler-O-sis	
49. brad-e-KAR-de-ah	
50. HEM-o-royd	
51. is-KE-me-ah	

	Answers
52. plak	
53. tak-ih-KAR-de-ah	
54. VAR-i-kose	
55. lim-FAT-ik	
56. lim-feh-DE-mah	
57. si-no-A-tre-al	
58. pur-KIN-je	
59. MI-tral	
60. SIS-to-le	
61. di-AS-to-le	

Word Building

For each item in this section, select the correct word parts from the bank below to form the term that matches the definition. Word parts may be used more than once.

Part 1	Answers
63. Vasodilation of the veins	
64. Surgical incision of a ventricle	
65. Dropping of the heart	
66. Pertaining to the fibrous sac around the heart	
67. Pertaining to an atrium and ventricle	
68. Pertaining to the heart and blood vessels	
69. Surgical incision of the atrium	
70. Surgical incision of the spleen	
71. Dropping of the aorta	
72. Inflammation of a vein	

Part 1 Word Bank

a	aort	atri
ectasia	itis	peri
ptosis	tomy	ventricul
al	ar	cardi
ic	o	
splen	vascul	

Sorting

For each word part category in this section, list the corresponding word parts from the bank below.

Part 1 Word Bank

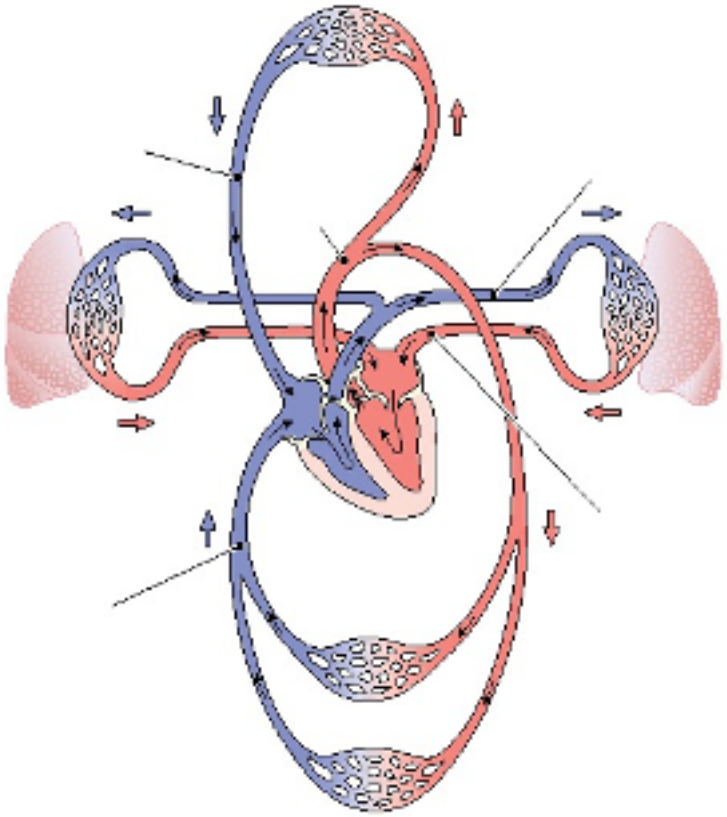
arrhythmia	brachiocephalic	nfarct	septum
arteriosclerosis	carotid	jugular	valve
atrium	fibrillation i	myocardium	vena cava

Part 1	Answers
73. parts of the heart	
74. blood vessel names	
75. cardiovascular disorders	

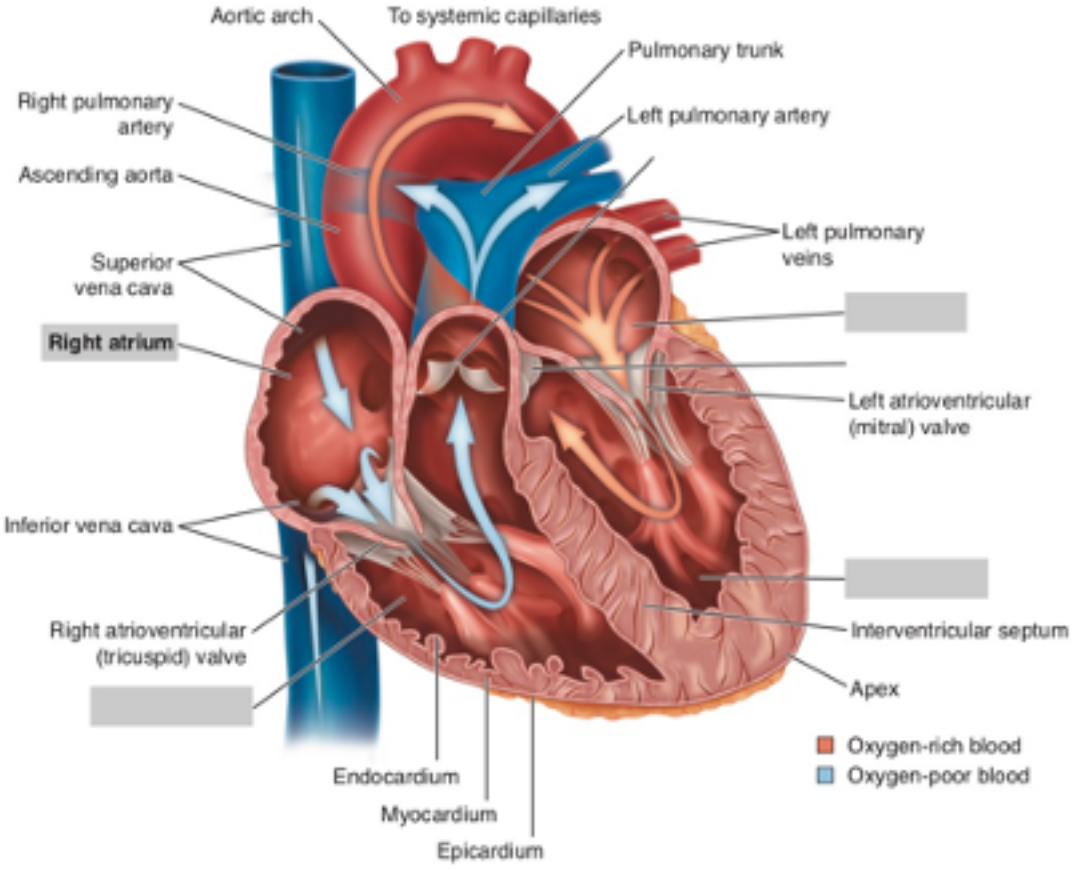
Look and Label

For each image in this section, write each label indicated on the image in the correct location or near the image with a line pointing from the label to the correct location on the image.

76. Labels: aorta, inferior vena cava, left lung, left pulmonary artery, left pulmonary vein, superior vena cava



77. Labels: aortic valve, left atrium, left ventricle, pulmonary valve, right ventricle



Crossword Puzzle

Complete the crossword puzzle using the clues provided.

78.

Across

1. A microscopic vessel
6. Pacemaker of the heart: _ _ node
7. A route for injection: abbreviation
8. The right AV valve
10. Vein: combining form
12. Relaxation phase of the heart cycle
15. Hardening of the arteries: abbreviation
16. Substance used to dissolve blood clots: abbreviation
18. Pulse: combining form, as in the name of blood pressure apparatus
20. Form of lipoprotein: abbreviation
21. Heart disease associated with edema: abbreviation
22. Part of the heart's conduction system; it receives impulses from the AV node

Down

1. Main artery in the neck
2. Hospital unit that cares for the critically ill: abbreviation
3. Category of compounds that includes fats: combining form
4. Heart attack: abbreviation
5. Obstruction circulating in the bloodstream
6. Segment of the ECG tracing after ventricular depolarization
9. Thrombotic condition of the veins: abbreviation
11. Procedure for dilating an obstructed vessel: abbreviation
13. Fluid that circulates in the lymphatic system
14. Lymphoid organ in the chest: root
17. Vein: root
19. Units in which blood pressure is measured: abbreviation
20. Mechanical device to assist the heart: abbreviation _ _ _ D

Case Studies

Read the following case studies carefully. Complete the sentence with the correct term(s).

Case Study 1:Mitral Valve Replacement

Repair of left ventricular rupture, secondary to myocardial infarction.

PROCEDURE IN DETAIL: The neck, chest, abdomen, and legs were prepped with Betadine solution. Combination sterile dressings were placed in the usual sterile fashion. A #10 scalpel blade was used to make an incision from the sternal notch to the xiphoid. The presternal fascia and subcutaneous tissue were transected with electrocautery. The sternum was divided with a sternal saw. The chest was then exposed using the sternal retractor. Approximately 500 cc of gross blood was aspirated from the pericardium.

The patient was heparinized. After adequate activated coagulation time was achieved, the patient was placed on cardiopulmonary bypass and cooled to 38 degrees centigrade. The aorta was

cross-clamped, and a cardioplegia solution was given. To achieve electromechanical arrest, 500 cc was given antegrade, and 500 cc was given retrograde into cannulas that had been placed into the aorta. The heart was also cooled with topical hypothermia using iced slush solution throughout the procedure. Snares were placed around the superior and inferior vena cava to complete full unloading of the right heart. The intraatrial septum was dissected, the left atrium was elevated, and atriotomy was performed through the left atrium. An atrial retractor was used to expose the entire left atrium. The mitral valve was difficult to expose due to the acuteness of the mitral regurgitation and the small size of the left atrium.

Eventually, the anterior and posterior leaflets were identified. Part of the posterior leaflet was completely ruptured from the papillary muscle with a large amount of papillary muscle still intact with the chordae. The leaflet was then debrided and the entire anterior and posterior leaflets were sewn. The valve was then sewn to the anulus and lowered into the position carefully. There appeared to be good coaptation of the leaflets. The atriotomy was closed and the left ventricle was allowed to fill with blood. Using gentle massage technique, the left ventricle was de-aired. The atriotomy was completely closed, and the patient was rewarmed. The snares around the vena cava were loosened. The cross-clamp was removed after the aorta was de-aired as well. A transesophageal echocardiogram was used to assess the valve. The valve appeared to be functioning adequately; a small amount of air was noticed in the left atrium and was removed. There appeared to be good contractility of the heart.

The patient was weaned from cardiopulmonary bypass slowly. After approximately 30 minutes of the cross-clamp being off, the patient was weaned from cardiopulmonary bypass with some inotropic support, including dopamine at 5 mcg/kg per minute and 0.05 epinephrine. The intraaortic balloon pump was placed on 1:1 augmentation, and the patient had adequate hemodynamics. Protamine was started. After the protamine was given, the cannulas were removed. The protamine was well-tolerated. There appeared to be no bleeding along the aortotomy site or the atriotomy site; however, there appeared to be some bright red bleeding along the base of the heart and along the apex of the heart, apparently an area where the left ventricle had ruptured and probably secondary to the myocardial infarction. Sutures were used to close this rupture.

Mediastinal and bilateral chest tubes were placed through separate stab wounds, and the sternum was reapproximated with six stainless steel wires. The subcutaneous tissue and the skin were closed with 2-0 Vicryl and skin staples. The patient tolerated the procedure well with no intraoperative complications.

	Answers
79. The patient underwent mitral valve replacement surgery. The mitral valve is located between _____ and _____.	
80. The patient's myocardial infarction was likely caused by _____.	
81. After opening the chest, the surgeons performed a cardiopulmonary bypass. This procedure prevents blood from reaching the _____and _____.	
82. During the surgery, ice was used to cool down the heart, making it _____.	
83. During surgery, snares were placed around the superior and inferior vena cava. This prevented blood from entering the _____.	
84. The word atriotomy means _____.	
85. The mitral valve _____many cusps.	
86. During the operation, the surgeons used an intraaortic balloon pump. This device was located _____.	
87. Protamine was given to counteract the action of the heparin. Protamine's action is _____.	
88. The prosthetic mitral valve was visualized with a transesophageal echocardiogram. This imaging technique uses _____.	