



Course Title: Cardiopulmonary Anatomy & Physiology

Chapter 18: The CARDIOVASCULAR SYSTEM: BLOOD

1. Which of the following makes up the cardiovascular system?
(A): blood
(B): heart
(C): vessels
(D): all of the above

2. Blood moves _____ to the lungs for exhalation from the body.
(A): water
(B): nitrogen
(C): oxygen
(D): carbon dioxide

3. In normal blood, about _____ percent of a sample is erythrocytes.
(A): 15
(B): 30
(C): 45
(D): 60

4. Blood constitutes approximately _____ percent of adult body weight.
(A): 8
(B): 15
(C): 20
(D): 28

5. The pH of blood averages about _____.
(A): 7.1
(B): 7.4
(C): 7.6
(D): 7.8

6. The _____ stem cell is the zygote, or fertilized egg.
(A): Totipotent
(B): Pluripotent
(C): Hemopoietic
(D): Lymphoid

7. Thrombopoietin is produced by the liver and kidneys.
(A): True
(B): False

8. The _____ are commonly known as a red blood cells (or RBC).
(A): thrombopoietin
(B): cytokines
(C): erythrocytes
(D): interleukins

9. Immature erythrocyte is known as a _____.
(A): reticulocyte
(B): reticula
(C): red bone marrow
(D): interleukins

10. A molecule of hemoglobin contains _____ globin proteins.
(A): two
(B): four
(C): six
(D): eight
11. Production of erythrocytes in the marrow occurs at the rate of more than _____ cells per second.
(A): 90 thousand
(B): 500 thousand
(C): 2 million
(D): 0.5 million
12. When the number of RBCs or hemoglobin is deficient, the general condition is called _____.
(A): emigration
(B): diapedesis
(C): anemia
(D): positive chemotaxis
13. Anemias caused by faulty or decreased RBC production include which of the following?
(A): sickle cell anemia
(B): iron deficiency anemia
(C): vitamin deficiency anemia
(D): all of the above
14. The [b]most[/b] severe form of _____ is called Cooley's anemia.
(A): sickle cell anemia
(B): thalassemia
(C): vitamin deficiency anemia
(D): iron deficiency anemia
15. Leukocytes are _____ than erythrocytes.
(A): larger
(B): smaller
(C): more numerous
(D): immature
16. There are _____ leukocytes per μL .
(A): 1m to 2m
(B): 5000 to 10,000
(C): 25,000 to 30,000
(D): 100,000 to 150,000
17. _____ are the [b]most[/b] common of all the leukocytes.
(A): Eosinophils
(B): Neutrophils
(C): Basophils
(D): Vitaphils
18. _____ live for many years in a human body.
(A): Natural Killer cells
(B): Neutrophils
(C): Memory cell
(D): T cell
19. Monocytes normally represent _____ percent of the total leukocyte count.
(A): 2-8
(B): 10-15
(C): 25-30
(D): 35-45

20. Which of the following is a disorder of Platelets?

- (A): Thrombocytosis
- (B): Thrombocytopenia
- (C): Leukemia
- (D): Both A & B

21. _____ is the process by which the body seals a ruptured blood vessel and prevents further loss of blood.

- (A): Hemostasis
- (B): Vascular spasm
- (C): Fibrinolysis
- (D): Antithrombin

Chapter 19: THE CARDIOVASCULAR SYSTEM: THE HEART

22. The human heart is located within the _____ cavity, medially between the lungs in the space known as the mediastinum.

- (A): pelvic
- (B): sinus
- (C): thoracic
- (D): abdominal

23. Proper positioning of the hands on the sternum to perform CPR would be between the lines at _____.

- (A): T1 and T5
- (B): T4 and T9
- (C): T6 and T10
- (D): T9 and T12

24. How many compressions per minute are applied in a standard CPR?

- (A): 100
- (B): 60
- (C): 90
- (D): 120

25. The position of the heart in the torso between the vertebrae and sternum allows for individuals to apply an emergency cardiopulmonary resuscitation (CPR) if the heart of a patient should stop.

- (A): True
- (B): False

26. The shape of the heart is similar to a pine-cone.

- (A): True
- (B): False

27. The human heart consists of _____ chambers.

- (A): four
- (B): five
- (C): six
- (D): seven

28. The _____ transports blood to and from the lungs.

- (A): systemic circuit
- (B): cardiac circuit
- (C): pulmonary circuit
- (D): Both A & B

29. The right ventricle pumps deoxygenated blood into the _____.

- (A): superior vena cava
- (B): inferior vena cava
- (C): aorta
- (D): pulmonary trunk

30. The membrane that directly surrounds the heart is called the _____.
(A): sulcus
(B): pericardium
(C): mesothelium
(D): auricle
31. The pericardial membrane that surrounds the heart consists of _____ layers and the pericardial cavity.
(A): three
(B): five
(C): seven
(D): four
32. The deep _____ is located between the atria and ventricles.
(A): auricle
(B): circumflex artery
(C): coronary sulcus
(D): interventricular sulcus
33. The middle and thickest layer of the heart is the _____, made largely of cardiac muscle cells.
(A): endocardium
(B): pericardium
(C): endothelium
(D): myocardium
34. The _____ of cardiac muscle tissue contributes significantly to the heart's ability to pump blood effectively.
(A): circular pattern
(B): swirling pattern
(C): straight pattern
(D): none of the above
35. _____ is the innermost layer of the heart wall.
(A): Myocardium
(B): Endocardium
(C): Pericardium
(D): Endothelium
36. The septum between the atria and ventricles is known as the _____ septum.
(A): atrioventricular
(B): interventricular
(C): interatrial
(D): atrioratrial
37. The valves at the openings that lead to the pulmonary trunk and aorta are generically known as _____ valves.
(A): semilunar
(B): atrioventricular
(C): aoratory
(D): interventricular
38. The _____ allowed blood in the fetal heart to pass directly from the right atrium to the left atrium.
(A): fetal septum
(B): interatrial ovale
(C): fetal ovale
(D): foramen ovale
39. One very common form of interatrial septum pathology is patent foramen ovale, which occurs when the septum primum does not close at birth, and the fossa ovalis is unable to fuse.
(A): True
(B): False

40. As much as _____ percent of the general population may have a patent foramen ovale.
(A): 1-5
(B): 10-15
(C): 20-25
(D): 30-40
41. Which of the following symptom of coarctation of the aorta can be seen in older individuals?
(A): Dizziness
(B): Fainting
(C): Chest pain
(D): All of the above
42. Septal defects are commonly first detected through _____.
(A): blood test
(B): auscultation
(C): MRI
(D): Ultrasound
43. _____ is a large coronary vein that drains the heart myocardium and empty into the right atrium.
(A): Superior vena cava
(B): Coronary sinus
(C): Inferior vena cava
(D): Atrium vena cava
44. The right ventricle receives blood from the right atrium through _____ valve.
(A): bicuspid
(B): mitral
(C): semilunar
(D): tricuspid
45. Chordae tendineae are composed of approximately _____ percent of collagenous fibers.
(A): 80
(B): 60
(C): 40
(D): 35
46. There are _____ papillary muscles in the right ventricle.
(A): three
(B): four
(C): two
(D): six
47. The opening between the left atrium and ventricle is guarded by the _____ valve.
(A): tricuspid
(B): semilunar
(C): mitral
(D): right atrioventricular
48. _____ is used in the diagnosis of valve disorders.
(A): MRI
(B): Echocardiogram
(C): X-ray
(D): CT Scan
49. _____ supply blood to the myocardium and other components of the heart.
(A): Jugular arteries
(B): Femoral arteries
(C): Coronary arteries
(D): Abdominal arteries
50. The circumflex artery arises from the right coronary artery.
(A): True (B): False

51. _____ is the formal term for what is commonly referred to as a heart attack.
(A): Meningitis
(B): Myocardial infarction (MI)
(C): COPD
(D): Appendicitis
52. The ____ cardiac vein initially parallels the anterior interventricular artery and drains the areas supplied by this vessel.
(A): great
(B): small
(C): middle
(D): posterior
53. _____ is a procedure in which the occlusion is mechanically widened with a balloon.
(A): Angioplasty
(B): Open Heart Surgery
(C): Coronary Artery Bypass Surgery
(D): Atrial Fibrillation Ablation
54. _____ has the highest inherent rate of depolarization and is known as the pacemaker of the heart.
(A): Sinoatrial (SA) node
(B): Bachmann's bundle
(C): Interatrial band
(D): Bundle of His
55. The normal cardiac rhythm is established by the _____.
(A): sinoatrial (SA) node
(B): atrioventricular node
(C): bachman's bundle
(D): anterior intermodal
56. The atrioventricular (AV) node is a _____ clump of specialized myocardial conductive cells.
(A): first
(B): second
(C): third
(D): fourth
57. Calcium ions play _____ critical roles in the physiology of cardiac muscle.
(A): seven
(B): five
(C): three
(D): two
58. In a normal, healthy heart, which of the following are the [b]only[/b] two audible heart sounds?
(A): A1 and A2
(B): S1 and S2
(C): H1 and H2
(D): C1 and C2
59. ____ is the condition in which resting heart rate drops below 60 bpm.
(A): Bradycardia
(B): Tachycardia
(C): Cardiac reflexes
(D): Broken Heart Syndrome

Chapter 20: THE CARDIOVASCULAR SYSTEM: BLOOD VESSELS AND CIRCULATION

60. Nutrients and wastes are exchanged in _____.
(A): capillaries
(B): veins
(C): artery
(D): lumen

61. In blood vessels _____ is a hollow passageway through which blood flows.
(A): vasa vasorum
(B): tunica intima
(C): lumen
(D): internal elastic membrane
62. Larger arteries and veins contain small blood vessels within their walls known as the _____.
(A): vasa vasorum
(B): internal elastic membrane
(C): tunica intima
(D): tunica media
63. In larger arteries, there is a thick, distinct layer of elastic fibers known as the _____.
(A): tunica media
(B): tunica intima
(C): tunica externa
(D): internal elastic membrane
64. _____ increases blood flow as the smooth muscle relaxes, allowing the lumen to widen and blood pressure to drop.
(A): Vasoconstriction
(B): Tunica externa
(C): Vasodilation
(D): Internal elastic membrane
65. _____ separates tunica media from the outer tunica externa in larger arteries.
(A): External elastic membrane
(B): Basement membrane
(C): Outer membrane
(D): Tunica membrane
66. The diameter of muscular arteries typically ranges from _____.
(A): 0.1 mm to 10 mm
(B): 0.01 mm to 1 mm
(C): 0.5 mm to 2 mm
(D): 10 mm to 15 mm
67. _____ are referred as resistance vessels.
(A): Capillaries
(B): Fenestrated Capillaries
(C): Arterioles
(D): Arteries
68. A capillary is a microscopic channel that supplies blood to the tissues themselves thru a process called _____.
(A): microcirculation
(B): perfusion
(C): vasoconstriction
(D): none of the above
69. _____ is the [b]most[/b] common type of capillary.
(A): Fenestrated capillary
(B): Sinusoid capillary
(C): Continuous capillary
(D): Metarteriole capillary
70. _____ is the [b]least[/b] common type of capillary.
(A): Fenestrated capillary
(B): Sinusoid capillary
(C): Micro capillary
(D): Metarteriole capillary

71. _____ is a type of vessel that has structural characteristics of both an arteriole and a capillary.

- (A): Precapillary
- (B): Venules
- (C): Arteriole
- (D): Metarteriole

72. A venule is an extremely small vein, generally _____ micrometers in diameter.

- (A): 1-5
- (B): 6-7
- (C): 7-8
- (D): 8-100

73. _____ is a blood vessel that conducts blood toward the heart.

- (A): Vein
- (B): Capillary
- (C): Artery
- (D): Arteriole

74. Many veins have valves to prevent back flow of blood.

- (A): True
- (B): False

75. Systemic veins contain approximately _____ percent of the blood volume at any given time.

- (A): 25
- (B): 40
- (C): 50
- (D): 64

76. _____ is also called capacitance vessel.

- (A): Vein
- (B): Capillary
- (C): Artery
- (D): Arteriole

77. Approximately _____ percent of the venous blood is located in venous networks within the liver, bone marrow, and integument.

- (A): 12
- (B): 18
- (C): 21
- (D): 33

78. Blood flow refers to the movement of blood through a vessel, tissue, or organ, and is usually expressed in terms of volume of blood per unit of time.

- (A): True
- (B): False

79. the term blood pressure without any specific descriptors typically refers to _____ blood pressure.

- (A): systemic arterial
- (B): systemic vein
- (C): systemic capillary
- (D): systemic arteriole

80. _____ is a normal adult blood pressure.

- (A): 120/80
- (B): 155/95
- (C): 170/99
- (D): 188/100

81. The difference between the systolic pressure and the diastolic pressure is the _____.

- (A): mean arterial pressure
- (B): pulse pressure
- (C): differential pressure

(D): clinical pressure

82. Generally, a pulse pressure should be at least _____ percent of the systolic pressure.

- (A): 25
- (B): 35
- (C): 45
- (D): 55

83. A condition called _____ is commonly accompanied by ischemia.

- (A): hypoglycemia
- (B): hypothermia
- (C): hypoxia
- (D): hyperoxia

84. Which of the following variables influence blood flow and blood pressure?

- (A): Cardiac output and compliance
- (B): Volume and viscosity of the blood
- (C): Blood vessel length and diameter
- (D): all of the above

85. Cardiac output is usually measured in _____.

- (A): gallons per hour
- (B): mill-liters per second
- (C): liters per minute
- (D): quart per minute

86. _____ is the ability of any compartment to expand to accommodate increased content.

- (A): Compliance
- (B): Elasticity
- (C): Flexibility
- (D): Expandability

87. Which of the following factor affects blood flow?

- (A): radius
- (B): vessel length
- (C): viscosity
- (D): all of the above

88. Small changes in _____ will greatly affect blood flow.

- (A): radius
- (B): vessel length
- (C): viscosity
- (D): all of the above

89. Which of the following cells are the vast [b]majority[/b] of formed elements in blood?

- (A): leukocytes
- (B): thrombocytes
- (C): erythrocytes
- (D): plasma

90. Liver abnormalities can result in decreased levels of _____.

- (A): leukocytes
- (B): thrombocytes
- (C): erythrocytes
- (D): plasma

91. One pound of adipose tissue contains approximately _____ miles of vessels.

- (A): 100
- (B): 200
- (C): 300
- (D): 400

92. The _____ aids blood flow through the veins of the thorax and abdomen.
(A): respiratory pump
(B): skeletal muscle pump
(C): semilunar valve
(D): one-way valve
93. Volumes of fluid move from an area of higher pressure in a capillary bed to an area of lower pressure in the tissues via _____.
(A): reabsorption
(B): absorption
(C): pressure pumping
(D): filtration
94. Endocrine control over the cardiovascular system involves the catecholamines, epinephrine and norepinephrine, as well as several hormones that interact with the kidneys in the regulation of blood volume.
(A): True
(B): False
95. Epinephrine and Norepinephrine redirect blood flow to the _____.
(A): brain
(B): kidney
(C): stomach
(D): none of the above
96. _____ signals its target cells in the kidneys to reabsorb more water, thus preventing the loss of additional fluid in the urine.
(A): Atrial natriuretic hormone
(B): Antidiuretic hormone
(C): Luteinizing hormone
(D): Adrenocorticotrophic hormone
97. _____ is secreted when blood volume is high enough to cause extreme stretching of the cardiac cells.
(A): Atrial natriuretic hormone
(B): Insulin
(C): Luteinizing hormone
(D): Carbon dioxide
98. Chronically elevated blood pressure is known clinically as _____.
(A): vasoconstriction
(B): hypotension
(C): hypertension
(D): hemorrhage
99. Blood pressures between 120/80 and 140/90 mm Hg are defined as _____.
(A): prehypertension
(B): hypertension
(C): hypotension
(D): low blood pressure
100. Hypertension is often described as _____.
(A): fatal
(B): deadly
(C): silent killer
(D): benign
101. _____ in adults is typically caused by hemorrhage.
(A): Cardiogenic shock
(B): Hypovolemic shock
(C): Vascular shock
(D): Obstructive shock

102. Widespread bacterial infection can produce _____.

- (A): septic shock
- (B): cardiogenic shock
- (C): vascular shock
- (D): obstructive shock

103. Neurogenic shock is a form of _____.

- (A): anaphylactic shock
- (B): cardiogenic shock
- (C): vascular shock
- (D): obstructive shock

104. The single vessel exiting the right ventricle is the _____.

- (A): pulmonary artery
- (B): pulmonary vein
- (C): aorta
- (D): pulmonary trunk

105. Pulmonary veins are left and right vessels that form from the pulmonary trunk and lead to smaller arterioles and eventually to the pulmonary capillaries.

- (A): True
- (B): False

106. The _____ is the largest artery in the body.

- (A): pulmonary artery
- (B): aorta
- (C): femoral artery
- (D): vena cava

107. Loss of blood flow for _____ will likely produce cerebrovascular accident (CVA).

- (A): 1 to 3 seconds
- (B): 20 to 40 seconds
- (C): 1 to 2 minutes
- (D): 3 to 4 minutes

108. _____ supplies blood to the head, neck, upper limb, and wall of the thoracic region.

- (A): Subclavian artery
- (B): Brachiocephalic artery
- (C): Internal thoracic artery
- (D): Vertebral artery

109. _____ supplies blood to numerous structures within the face, lower jaw, neck, esophagus, and larynx.

- (A): Subclavian artery
- (B): Vertebral artery
- (C): Internal thoracic artery
- (D): External carotid artery

110. _____ drain the foot and flow into the plantar venous arch.

- (A): Plantar veins
- (B): Fibular veins
- (C): Dorsal venous arch
- (D): Popliteal veins

111. The foramen ovale is a short, muscular vessel that connects the pulmonary trunk to the aorta.

- (A): True
- (B): False

Chapter: 22 THE RESPIRATORY SYSTEM

112. _____ of the respiratory system includes the organs and structures [b]not [/b] directly involved in gas exchange.

- (A): Conducting zone
- (B): Digestive zone

- (C): Sensory zone
- (D): none of the above

113. The _____ is one of a pair of bones that lies under the root and bridge of the nose.

- (A): frontal bone
- (B): nasal bone
- (C): maxillary bone
- (D): vomer bone

114. The _____ produce mucus and lighten the weight of the skull.

- (A): esophagus
- (B): paranasal sinuses
- (C): trachea
- (D): epiglottis

115. The pharynx is divided into which of the following region?

- (A): nasopharynx
- (B): oropharynx
- (C): laryngopharynx
- (D): all of the above

116. The trachea is also called that _____ extends from the larynx toward the lungs.

- (A): food pipe
- (B): pacemaker
- (C): windpipe
- (D): floating rib

117. _____ is one of the many small grape-like sacs that are attached to the alveolar ducts.

- (A): Respiratory membrane
- (B): Pulmonary surfactant
- (C): Alveolus
- (D): none of the above

118. _____ is a chronic disease characterized by inflammation and edema of the airway and bronchospasms which can prevent air from entering the lungs.

- (A): Asthma
- (B): Gastritis
- (C): Migraine
- (D): Tuberculosis

119. The cardiac notch is an indentation on the surface of the left lung, and it allows space for the _____.

- (A): pancreas
- (B): heart
- (C): trachea
- (D): diaphragm

120. Inhalation and exhalation are dependent on the differences in pressure between the atmosphere and the lungs.

- (A): True
- (B): False

121. Which of the following are major types of respiratory volumes?

- (A): tidal
- (B): residual
- (C): inspiratory and expiratory reserve
- (D): all of the above

122. _____ is the amount of air a person can move into or out of his or her lungs and is the sum of all of the volumes except residual volume.

- (A): Inspiratory capacity (IC)
- (B): Functional residual capacity (FRC)
- (C): Vital capacity (VC)

(D): Alveolar dead space

123. _____ is characterized by the cessation of breathing during sleep.

- (A): Asthma
- (B): Gastritis
- (C): Sleep apnea
- (D): Tuberculosis

124. _____ is the movement of air into and out of the lungs, and perfusion is the flow of blood in the pulmonary capillaries.

- (A): External respiration
- (B): Ventilation
- (C): Internal respiration
- (D): none of the above

125. Hemoglobin consists of four sub-units, each of which contains one molecule of _____.

- (A): iron
- (B): calcium
- (C): bile
- (D): nitrogen

126. _____ is an increased depth and rate of ventilation to meet an increase in oxygen demand in the body.

- (A): Hyperpnea
- (B): Asthma
- (C): Bronchitis
- (D): Hypoxia