***EKG Plain and Simple, 4e* (Ellis)**
Chapter 1 Cardiac Anatomy and Physiology

1.1 Multiple Choice Questions

1) The normal heart is the size of a
A) foot.
B) cherry.
C) man's fist.
D) watermelon.
Answer: C
LO: 1.1: State the location of the heart and its normal size.

2) The top of the heart where the great vessels emerge is the
A) apex.
B) base.
C) chordae tendonae.
D) tricuspid valve.
Answer: B
LO: 1.1: State the location of the heart and its normal size.

3) The fibrous tissue that divides the heart into right and left sides is the
A) chordae tendonae.
B) papillary muscle.
C) septum.
D) pulmonic valve.
Answer: C
LO: 1.3: Name all the structures of the heart.

4) The apex of the heart is located at the
A) top of the heart, where the great vessels emerge.
B) right side of the heart.
C) bottom of the heart, at the leftmost tip.
D) back wall of the heart.
Answer: C
LO: 1.1: State the location of the heart and its normal size.

5) Pericardial fluid
A) decreases friction of the pericardial layers as they rub against each other.
B) prevents backflow of blood from one chamber to the other.
C) circulates through the heart's chambers.
D) lubricates the electrical system of the heart.
Answer: A
LO: 1.2: Name the walls and layers of the heart.

6) The innermost layer of the heart is the
A) epicardium.
B) pericardium.
C) endocardium.
D) myocardium.
Answer: C
LO: 1.2: Name the walls and layers of the heart.

7) The layer of the heart that is damaged during a heart attack is the
A) epicardium.
B) pericardium.
C) endocardium.
D) myocardium.
Answer: D
LO: 1.2: Name the walls and layers of the heart.

8) Which of these statements about the pericardium is NOT true?
A) It anchors the heart to the diaphragm and great vessels.
B) It is a two-layer sac enclosing the heart.
C) It serves as protection for the heart.
D) It is the wall of the heart that is damaged in a heart attack.
Answer: D
LO: 1.2: Name the walls and layers of the heart.

9) Which of the following statements about the right atrium is TRUE?
A) It is a receiving chamber for oxygenated blood returning from the lungs.
B) It is the major pumping chamber of the heart.
C) It is about 100% saturated with oxygen.
D) It is the receiving chamber for deoxygenated blood coming from the vena cava.
Answer: D
LO: 1.3: Name all the structures of the heart.

10) Which heart chamber delivers oxygenated blood to the entire body?
A) Right atrium
B) Right ventricle
C) Left atrium
D) Left ventricle
Answer: D
LO: 1.5: State the oxygen saturation of the heart's chambers.

11) The heart's valves open and close in response to changes in
A) oxygenation.
B) sodium and potassium concentration.
C) pressure.
D) the heart's pacemaker.
Answer: C
LO: 1.6: Describe the function and location of the heart valves.

12) Heart valves serve what purpose?
A) They prevent blood from flowing forward.
B) They prevent oxygenated blood from flowing through the coronary arteries.
C) They prevent backflow of blood.
D) They control the heart's electrical signals.
Answer: C
LO: 1.6: Describe the function and location of the heart valves.

13) The valve that separates the right atrium and right ventricle is the
A) mitral valve.
B) pulmonic valve.
C) aortic valve.
D) tricuspid valve.
Answer: D
LO: 1.6: Describe the function and location of the heart valves.

14) The heart valve found at the opening of the pulmonary artery is the
A) aortic valve.
B) tricuspid valve.
C) mitral valve.
D) pulmonic valve.
Answer: D
LO: 1.6: Describe the function and location of the heart valves.

15) Which of the following are both AV valves?
A) Tricuspid and mitral valves
B) Aortic and mitral valves
C) Mitral and pulmonic valves
D) Aortic and pulmonic valves
Answer: A
LO: 1.6: Describe the function and location of the heart valves.

16) The first heart sound (S1) is associated with closure of which heart valves?
A) Mitral and aortic
B) Tricuspid and pulmonic
C) Tricuspid and mitral
D) Aortic and pulmonic
Answer: C
LO: 1.7: Describe the relationship of the valves to heart sounds.

17) The second heart sound (S2) is associated with closure of which heart valves?
A) Mitral and aortic
B) Tricuspid and pulmonic
C) Tricuspid and mitral
D) Aortic and pulmonic
Answer: D
LO: 1.7: Describe the relationship of the valves to heart sounds.

18) The structure that prevents backflow of blood is the
A) trabeculae carnae.
B) superior vena cava.
C) papillary muscle.
D) valve.
Answer: D
LO: 1.6: Describe the function and location of the heart valves.

19) What causes heart sounds?
A) Blood traveling through the heart
B) Opening of the heart valves
C) Closing of the heart valves
D) Blood hitting an obstruction in the peripheral circulation
Answer: C
LO: 1.7: Describe the relationship of the valves to heart sounds.

20) Through which structure must blood travel in order to leave the right ventricle?
A) Right atrium
B) Tricuspid valve
C) Left ventricle
D) Pulmonic valve
Answer: D
LO: 1.4: Track the flow of blood through the heart.

21) Which valves open to allow the ventricles to fill?
A) Aortic and pulmonic
B) Tricuspid and pulmonic
C) Tricuspid and mitral
D) Aortic and mitral
Answer: C
LO: 1.6: Describe the function and location of the heart valves.

22) The inferior vena cava returns deoxygenated blood to the heart from
A) the head and neck.
B) the coronary circulation.
C) the lower extremities and abdomen.
D) none of these—the vena cava carries oxygenated blood.
Answer: C
LO: 1.8: List the great vessels and the chamber into which they empty or from which they arise.

23) When oxygenated blood enters the heart, it flows
A) from the pulmonary artery into the left ventricle.
B) from the cardiac veins into the right atrium.
C) from the pulmonary veins into the left atrium.
D) from the superior vena cava into the right ventricle.
Answer: D
LO: 1.8: List the great vessels and the chamber into which they empty or from which they arise.

24) Which is TRUE about the *rest-and-digest* response?
A) It is a function of the sympathetic nervous system.
B) It results in increased heart rate and blood pressure.
C) It slows down digestion.
D) It decreases heart rate and blood pressure.
Answer: D
LO: 1.13: Describe the fight-or-flight and rest-and-digest responses.

25) Pulmonary veins deliver blood to the
A) right atrium.
B) left atrium.
C) right ventricle.
D) left ventricle.
Answer: B
LO: 1.8: List the great vessels and the chamber into which they empty or from which they arise.

26) The vessel that delivers oxygenated blood to the anterior wall of the left ventricle is the
A) left main coronary artery.
B) coronary vein.
C) right coronary artery.
D) left anterior descending coronary artery.
Answer: D
LO: 1.10: Name and describe the function of the coronary arteries.

27) The coronary circulation supplies oxygenated blood to the myocardium during
A) ventricular ejection.
B) diastole.
C) the entire cardiac cycle.
D) isovolumetric contraction.
Answer: B
LO: 1.9: State what occurs in each phase of the cardiac cycle.

28) The cardiac cycle's two phases are
A) systole and diastole.
B) isovolumetric relaxation and contraction.
C) preload and afterload.
D) atrial kick and ventricular filling.
Answer: A
LO: 1.9: State what occurs in each phase of the cardiac cycle.

29) The semilunar valves open when the
A) atrial pressure exceeds the ventricular pressure.
B) atrial and ventricular pressures are equal.
C) ventricular pressure exceeds the aortic and pulmonary arterial pressures.
D) impulse arrives at the AV node.
Answer: C
LO: 1.6: Describe the function and location of the heart valves.

30) The parasympathetic nervous system causes
A) slowed digestion.
B) decrease in heart rate.
C) pupillary dilation.
D) increase in blood pressure.
Answer: B
LO: 1.12: Describe the sympathetic and parasympathetic nervous systems.

31) In which two chambers of the heart does blood have an oxygen concentration of nearly 100%?
A) Right atrium and right ventricle
B) Left atrium and left ventricle
C) Right atrium and left ventricle
D) Left atrium and right ventricle
Answer: B
LO: 1.5: State the oxygen saturation of the heart's chambers.

32) Which type of cardiac cells cause the heart muscle to contract?
A) Conduction system cells
B) Coronary system cells
C) Contractile cells
D) Circumflex cells
Answer: C
LO: 1.11: Differentiate between the two kinds of cardiac cells.

33) The electrical signals that tell the heart when to beat are created and transmitted by
A) conduction system cells.
B) coronary system cells.
C) contractile cells.
D) circumflex cells.
Answer: A
LO: 1.11: Differentiate between the two kinds of cardiac cells.

34) Together, the sympathetic nervous system and the parasympathetic nervous system make up the
A) peripheral nervous system.
B) automatic nervous system.
C) central nervous system.
D) autonomic nervous system.
Answer: D
LO: 1.12: Describe the sympathetic and parasympathetic nervous systems.

35) The fight-or-flight response is
A) associated with the sympathetic nervous system and mediated by acetylcholine.
B) associated with the sympathetic nervous system and mediated by norepinephrine.
C) associated with the parasympathetic nervous system and mediated by acetylcholine.
D) associated with the parasympathetic nervous system and mediated by norepinephrine.
Answer: B
LO: 1.13: Describe the fight-or-flight and rest-and-digest responses.

36) Stimulation of the vagus nerve
A) causes the release of norepinephrine and triggers the rest-and-digest response.
B) causes the release of norepinephrine and triggers the fight-or-flight response.
C) causes the release of acetylcholine and triggers the rest-and-digest response.
D) causes the release of acetylcholine and triggers the fight-or-flight response.
Answer: C
LO: 1.13: Describe the fight-or-flight and rest-and-digest responses.

37) Through which vessel does oxygenated blood enter the capillaries?
A) Aorta
B) Veins
C) Venules
D) Arterioles
Answer: D

38) Which of the following is the correct sequence of blood flow through the peripheral circulation?
A) Arteries—veins—vena cava—capillaries
B) Arteries—arterioles—capillaries—venules—veins
C) Veins—venules—capillaries—arterioles—arteries
D) Capillaries—arterioles and venules—arteries and veins
Answer: B

39) The vessel that delivers oxygenated blood to the capillary bed is the
A) artery.
B) vein.
C) arteriole.
D) venule.
Answer: C

1.2 True/False Questions

1) The epicardium is the layer of the heart that is damaged during a heart attack.
Answer: FALSE
LO: 1.2: Name the walls and layers of the heart.

2) The heart chamber that has the greatest workload is the right atrium, as it pumps blood out to the entire body.
Answer: FALSE
LO: 1.4: Track the flow of blood through the heart.

3) The heart is composed primarily of muscle.
Answer: TRUE
LO: 1.2: Name the walls and layers of the heart.

4) The heart has three layers: the endocardium, myocardium, and epicardium.
Answer: TRUE
LO: 1.2: Name the walls and layers of the heart.

5) The layer of the heart that does the work of contracting is the endocardium.
Answer: FALSE
LO: 1.2: Name the walls and layers of the heart.

6) The pericardium is a double-walled sac that encloses the heart and serves as support and protection.
Answer: TRUE
LO: 1.2: Name the walls and layers of the heart.

7) The right atrium is a thin-walled receiving chamber for newly oxygenated blood from the lungs.
Answer: FALSE
LO: 1.4: Track the flow of blood through the heart.

8) The left atrium pumps blood into the right atrium.
Answer: FALSE
LO: 1.4: Track the flow of blood through the heart.

9) The heart's top and bottom chambers are separated by valves that prevent backflow of blood.
Answer: TRUE
LO: 1.6: Describe the function and location of the heart valves.

10) The semilunar valves are the aortic and mitral valves.
Answer: FALSE
LO: 1.6: Describe the function and location of the heart valves.

11) The job of the heart valves is to prevent backflow of blood.
Answer: TRUE
LO: 1.6: Describe the function and location of the heart valves.

12) The vena cava is a large artery that carries blood from the right ventricle to the lungs.
Answer: FALSE
LO: 1.8: List the great vessels and the chamber into which they empty or from which they arise.

13) The three main coronary arteries are the aorta, the left main, and the chordae tendonae.
Answer: FALSE
LO: 1.10: Name and describe the function of the coronary arteries.

14) The first phase of diastole is called the atrial kick, and it is the phase during which the atria fill with blood from the ventricles.
Answer: FALSE
LO: 1.9: State what occurs in each phase of the cardiac cycle.

15) The phase of systole that results in the greatest consumption of myocardial oxygen is isovolumetric contraction.
Answer: TRUE
LO: 1.9: State what occurs in each phase of the cardiac cycle.

1.3 Short Answer Questions

1) The tricuspid valve separates the _____ from the _____.
Answer: Right atrium, right ventricle
LO: 1.3: Name all the structures of the heart.

2) The cardiac cycle refers to the mechanical events that occur to _____.
Answer: Pump blood
LO: 1.9: State what occurs in each phase of the cardiac cycle.

3) The _____ is the layer of the heart that contains the cardiac conduction system.
Answer: Endocardium
LO: 1.2: Name the walls and layers of the heart.

4) The fluid found between the layers of the pericardium is called _____.
Answer: Pericardial fluid
LO: 1.2: Name the walls and layers of the heart.

5) The _____ is the chamber that receives blood from the superior and inferior venae cavae.
Answer: right atrium
LO: 1.8: List the great vessels and the chamber into which they empty or from which they arise.

6) The half-moon-shaped valves are the _____ and the _____.
Answer: pulmonic, aortic
LO: 1.6: Describe the function and location of the heart valves.

7) The superior vena cava returns blood to the right atrium from the _____.
Answer: Head; chest; upper arms
LO: 1.8: List the great vessels and the chamber into which they empty or from which they arise.

8) The coronary artery that feeds blood to the right ventricle and the inferior wall of the left ventricle is the _____.
Answer: Right coronary artery (RCA)
LO: 1.10: Name and describe the function of the coronary arteries.

9) The coronary artery that feeds blood to the lateral wall of the left ventricle is the _____.
Answer: Circumflex
LO: 1.10: Name and describe the function of the coronary arteries.

10) The two phases of the cardiac cycle are systole and _____.
Answer: Diastole
LO: 1.9: State what occurs in each phase of the cardiac cycle.

11) The function of the heart is to _____.
Answer: Pump enough blood to meet the body's metabolic needs

12) The normal amount of blood circulated by the heart every minute is _____ liters.
Answer: 4—8; 4 to 8; four to eight