

***Electrocardiography for Healthcare Professionals, 5e (Booth)***  
**Chapter 2 The Cardiovascular System**

- 1) The time from the beginning of atrial depolarization to the beginning of ventricular depolarization is shown on the ECG waveform as the:
- A) QRS complex.
  - B) PR interval.
  - C) QT interval.
  - D) ST segment.

Answer: B

Explanation: The PR interval includes the P wave and the baseline before the QRS complex and represents the time from the beginning of atrial depolarization to the beginning of ventricular depolarization.

Difficulty: 1 Easy

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

- 2) What is recorded on the ECG strip?
- A) The electrical activity of the heart
  - B) The muscle contractions of the heart
  - C) The circulation of blood in the heart
  - D) The size of the heart

Answer: A

Explanation: The electrical activity of the heart is recorded on the ECG.

Difficulty: 1 Easy

Topic: Circulation and the ECG

Learning Objective: 02.01 Explain how circulation occurs in relation to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

3) The average heart is approximately what size?

- A) The size of a baseball
- B) The size of your fist
- C) The size of a cantaloupe
- D) The size of your foot

Answer: B

Explanation: The heart is approximately the size of your fist and weighs about 10.6 ounces.

Difficulty: 1 Easy

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

4) The outermost layer of the heart is the:

- A) endocardium.
- B) myocardium.
- C) epicardium.
- D) pericardium.

Answer: C

Explanation: The epicardium is the outermost layer and is thin and contains the coronary arteries.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

5) The middle layer of the heart is the:

- A) endocardium.
- B) myocardium.
- C) epicardium.
- D) pericardium.

Answer: B

Explanation: The myocardium is the middle, muscular layer that contracts the heart.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

6) The innermost layer of the heart is the:

- A) endocardium.
- B) myocardium.
- C) epicardium.
- D) pericardium.

Answer: A

Explanation: The endocardium is the innermost layer and lines the inner surfaces of the heart chambers and valves.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

7) The sac of tissue that encloses the entire heart is the:

- A) atrium.
- B) ventricle.
- C) myocardium.
- D) pericardium.

Answer: D

Explanation: The pericardium is the sac of tissue that encloses the heart.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

8) The purpose of the pericardium is to:

- A) protect the heart from infection and trauma.
- B) contract the heart.
- C) circulate blood through the coronary arteries.
- D) keep blood flow headed in the right direction.

Answer: A

Explanation: The purpose of the pericardium is to protect the heart from infection and trauma.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

9) The heart is divided into four chambers. The top chambers are the:

- A) right atrium and right ventricle.
- B) left atrium and left ventricle.
- C) right atrium and left atrium.
- D) right ventricle and left ventricle.

Answer: C

Explanation: The top chambers of the heart are the right atrium and the left atrium.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

10) The heart is divided into four chambers. The bottom chambers are the:

- A) right atrium and right ventricle.
- B) left atrium and left ventricle.
- C) right atrium and left atrium.
- D) right ventricle and left ventricle.

Answer: D

Explanation: The bottom chambers are the right ventricle and the left ventricle.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

11) The valve located between the right atrium and right ventricle is the:

- A) mitral (bicuspid) valve.
- B) tricuspid valve.
- C) aortic valve.
- D) pulmonary valve.

Answer: B

Explanation: The tricuspid valve is located between the right atrium and the right ventricle.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

12) The valve located between the left atrium and left ventricle is the:

- A) mitral (bicuspid) valve.
- B) tricuspid valve.
- C) aortic valve.
- D) pulmonary valve.

Answer: A

Explanation: The mitral (bicuspid) valve is located between the left atrium and left ventricle.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

13) The tricuspid and mitral (bicuspid) valves are known as \_\_\_\_\_ because they separate the atria from the ventricles.

- A) semilunar valves
- B) pulmonary valves
- C) atrioventricular (AV) valves
- D) aortic valves

Answer: C

Explanation: The tricuspid and mitral (bicuspid) valves are known as atrioventricular (AV) valves because they separate the atria from the ventricles.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

- 14) The \_\_\_\_\_ valves separate the ventricles from the arteries leading to the lungs and body.
- A) tricuspid
  - B) semilunar
  - C) mitral (bicuspid)
  - D) atrioventricular (AV)

Answer: B

Explanation: The semilunar valves separate the ventricles from the arteries leading to the lungs and body.

Difficulty: 3 Hard

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

- 15) The two semilunar valves are the:
- A) pulmonary and mitral valves.
  - B) aortic and tricuspid valves.
  - C) tricuspid and mitral valves.
  - D) aortic and pulmonary valves.

Answer: D

Explanation: The valves leading to the pulmonary artery and the aorta are semilunar valves.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

16) Blood returns to the heart via the veins. The largest vein is the:

- A) vena cava.
- B) cava vena.
- C) jugular vein.
- D) subclavian vein.

Answer: A

Explanation: The largest vein in the body is the vena cava.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

17) Oxygenated blood travels through the heart via the

- A) pulmonary arteries.
- B) peripheral venous system.
- C) coronary arteries.
- D) pulmonary veins.

Answer: C

Explanation: Oxygenated blood travels through the aorta to the coronary arteries.

Difficulty: 2 Medium

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

18) The valves located in the heart are important because they:

- A) regulate the speed of blood flow.
- B) prevent blood from flowing backwards.
- C) form electrical conduction through the heart.
- D) allow for good blood flow to the body.

Answer: B

Explanation: The flaps or cusps in the valves open to allow blood flow, then close to prevent the backflow of blood.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

19) Blood that leaves the right ventricle is considered:

- A) deoxygenated.
- B) systemic.
- C) peripheral venous return.
- D) visceral.

Answer: A

Explanation: When the heart contracts, the right ventricle pumps deoxygenated blood to the lungs via the pulmonary artery.

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

20) What are the first vessels to branch off the aorta?

- A) Coronary arteries
- B) Capillaries
- C) Venae cavae
- D) Pulmonary arteries

Answer: A

Explanation: Oxygenated blood from the left ventricle travels through the aorta to the coronary arteries. These arteries branch to supply oxygenated blood to the entire heart.

Difficulty: 2 Medium

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

21) The volume of blood pumped each minute is referred to as the:

- A) cardiac cycle.
- B) cardiac output.
- C) stroke volume.
- D) systole.

Answer: B

Explanation: The volume of blood pumped each minute is referred to as cardiac output.

Difficulty: 2 Medium

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 3.c Apply medical terminology for each specialty

22) The volume of blood ejected with each contraction is referred to as the:

- A) cardiac cycle.
- B) cardiac output.
- C) stroke volume.
- D) systole.

Answer: C

Explanation: The volume of blood ejected with each contraction is referred to as stroke volume.

Difficulty: 2 Medium

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 3.c Apply medical terminology for each specialty

23) The "lubb" and "dupp" sounds you hear are made by the:

- A) opening and closing of the heart valves.
- B) atria contracting.
- C) ventricles contracting.
- D) blood flow through the heart.

Answer: A

Explanation: These sounds are made by the opening and closing of the heart valves.

Difficulty: 2 Medium

Topic: The Cardiac Cycle

Learning Objective: 02.04 Explain the cardiac cycle including the difference between systole and diastole.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

24) The phase of the cardiac cycle when the heart is expanding and refilling, also known as the relaxation phase, is:

- A) systole.
- B) diastole.
- C) automaticity.
- D) conductivity.

Answer: B

Explanation: As the heart relaxes, it is expanding and refilling. The relaxation phase of the heart is known as diastole.

Difficulty: 2 Medium

Topic: The Cardiac Cycle

Learning Objective: 02.04 Explain the cardiac cycle including the difference between systole and diastole.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

25) The phase of the cardiac cycle when the heart is pumping blood out to the body, also known as the contraction phase, is:

- A) systole.
- B) diastole.
- C) automaticity.
- D) conductivity.

Answer: A

Explanation: When the heart contracts, it is squeezing blood out to the body. The contraction phase is known as systole.

Difficulty: 2 Medium

Topic: The Cardiac Cycle

Learning Objective: 02.04 Explain the cardiac cycle including the difference between systole and diastole.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

26) Together, the contraction and relaxation of the heart make up:

- A) systole.
- B) diastole.
- C) the cardiac cycle.
- D) coronary circulation.

Answer: C

Explanation: Systole (contraction) and diastole (relaxation) of the heart make up the cardiac cycle.

Difficulty: 2 Medium

Topic: The Cardiac Cycle

Learning Objective: 02.04 Explain the cardiac cycle including the difference between systole and diastole.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

27) The heart's own ability to initiate an electrical impulse without being stimulated by another source is known as:

- A) contractility.
- B) excitability.
- C) conductivity.
- D) automaticity.

Answer: D

Explanation: Automaticity is the ability of the heart to initiate an electrical impulse.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

28) The ability of the heart cells to receive and transmit an electrical impulse is known as:

- A) contractility.
- B) excitability.
- C) conductivity.
- D) automaticity.

Answer: C

Explanation: Conductivity is the ability of the heart cells to receive and transmit an electrical impulse.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

29) The ability of the heart muscle cells to shorten in response to an electrical impulse is known as:

- A) contractility.
- B) excitability.
- C) conductivity.
- D) automaticity.

Answer: A

Explanation: Contractility is the ability of the heart muscle cells to shorten, or contract, in response to an electrical stimulus.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

30) The ability of the heart muscle cells to respond to an impulse or stimulus is known as:

- A) contractility.
- B) excitability.
- C) conductivity.
- D) automaticity.

Answer: B

Explanation: Excitability is the ability of the heart muscle cells to respond to an impulse or stimulus.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

31) When the sympathetic branch of the ANS (automatic nervous system) is stimulated, the heart responds by:

- A) speeding up.
- B) slowing down.
- C) beating more regularly.
- D) contracting with greater force.

Answer: A

Explanation: When the sympathetic branch of the ANS is stimulated, it speeds up the heart.

Difficulty: 3 Hard

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

32) What is the heart's response to stimulation of the vagus nerve?

- A) It beats more regularly.
- B) It contracts with greater force.
- C) It speeds up.
- D) It slows down.

Answer: D

Explanation: Stimulation of the vagus nerve slows the heart.

Difficulty: 3 Hard

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

33) The function of the bundle branches is to:

- A) delay the electrical impulse to allow for the atrial kick to occur.
- B) conduct electrical impulses from the atria to the ventricles.
- C) conduct electrical impulses from the AV node to the left and right ventricles.
- D) distribute the electrical impulse through the myocardium.

Answer: C

Explanation: The bundle branches conduct electrical impulses from the AV node to the left and right ventricles.

Difficulty: 3 Hard

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

34) The SA node sends electrical impulses at a rate of:

- A) 72 to 100 bpm.
- B) 40 to 60 bpm.
- C) 20 to 40 bpm.
- D) 60 to 100 bpm.

Answer: D

Explanation: The SA node fires at about 60 to 100 times per minute.

Difficulty: 3 Hard

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

35) The primary pacemaker of a normal heart, where the electrical impulse for the heartbeat originates, is the:

- A) SA node.
- B) AV node.
- C) bundle of His.
- D) Purkinje network.

Answer: A

Explanation: The sinoatrial (SA) node is the primary pacemaker of the heart and initiates the heartbeat in the normal heart.

Difficulty: 1 Easy

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

36) The AV node has several important functions that help the heart work effectively. Which of the following is *not* a function of the AV node?

- A) It causes the delay of electrical impulses, which limits the number of impulses traveling to the ventricles.
- B) It allows for a delay to provide time for the blood to travel from the atria to the ventricles before they contract.
- C) It causes a loss of atrial kick.
- D) It serves as a backup pacemaker if the SA node fails.

Answer: C

Explanation: The AV node causes a delay in the electrical impulse, which provides time for additional blood to travel from the atria to the ventricles before they contract. This additional blood is known as the atrial kick.

Difficulty: 3 Hard

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

37) Depolarization of the cells causes the heart muscle to:

- A) relax.
- B) refill the chambers of the heart.
- C) conduct electrical impulses.
- D) contract.

Answer: D

Explanation: Depolarization is the most important electrical event in the heart—it causes the heart to contract and pump blood to the body.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

38) The P wave represents:

- A) atrial contraction.
- B) atrial relaxation.
- C) ventricular contraction.
- D) ventricular relaxation.

Answer: A

Explanation: The P wave represents atrial depolarization with resulting atrial contraction.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

39) The T wave represents:

- A) atrial contraction.
- B) atrial relaxation.
- C) ventricular contraction.
- D) ventricular relaxation.

Answer: D

Explanation: The T wave represents ventricular repolarization or relaxation.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

40) Circulation is the process of;

- A) electricity flowing through the heart.
- B) blood flowing through the ventricles.
- C) transporting blood to and from body tissues.
- D) systole and diastole.

Answer: C

Explanation: Circulation, the process of transporting blood to and from the body tissues, depends on the heart's ability to contract or beat.

Difficulty: 1 Easy

Topic: Circulation and the ECG

Learning Objective: 02.01 Explain how circulation occurs in relation to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 3.c Apply medical terminology for each specialty

41) Which of the following statements best describes the function of the heart?

- A) It transports nutrients and oxygen to the body tissues.
- B) It pumps blood to and from the body tissues.
- C) It oxygenates blood to be sent to the body tissues.
- D) It removes waste gases from the body tissues.

Answer: B

Explanation: The heart pumps blood to and from all of the tissues of the body. The blood carries oxygen and nutrients to the body tissues and removes wastes from the body tissues.

Difficulty: 1 Easy

Topic: Circulation and the ECG

Learning Objective: 02.01 Explain how circulation occurs in relation to the ECG.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

42) Systemic circulation is the movement of blood:

- A) between the heart and lungs.
- B) between the heart and kidneys.
- C) to and from the heart muscle.
- D) throughout the body tissues.

Answer: D

Explanation: Systemic circulation is the movement of oxygenated blood from the heart to the body tissues and the return of the deoxygenated blood to the heart.

Difficulty: 1 Easy

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

43) Which of the following statements *best* describes the right side of the heart?

- A) It is a low-pressure pump that moves blood with a low oxygen concentration.
- B) It is a low-pressure pump that moves blood with a high oxygen concentration.
- C) It is a high-pressure pump that moves blood with a low oxygen concentration.
- D) It is a high-pressure pump that moves blood with a high oxygen concentration.

Answer: A

Explanation: The right side of the heart is a low-pressure pump that receives deoxygenated blood from the body tissues and pumps it to the lungs for oxygenation.

Difficulty: 2 Medium

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

44) Coronary circulation is the movement of blood:

- A) between the heart and lungs.
- B) between the heart and kidneys.
- C) to and from the heart muscle.
- D) throughout the body tissues.

Answer: C

Explanation: Coronary circulation is the movement of blood to and from the heart muscle.

Difficulty: 1 Easy

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

- 45) In pulmonary circulation, blood is transported from the right ventricle to the:
- A) body tissues.
  - B) lungs.
  - C) left atrium.
  - D) coronary arteries.

Answer: B

Explanation: In pulmonary circulation, blood moves from the right ventricle to the lungs, where it is oxygenated. The oxygenated blood then flows back to the left atrium of the heart.

Difficulty: 1 Easy

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

- 46) The average volume of blood pumped each minute in a normal heart is:
- A) 1 liter per minute.
  - B) 3 liters per minute.
  - C) 5 liters per minute.
  - D) 7 liters per minute.

Answer: C

Explanation: The average cardiac output of a normal heart is 5 liters per minute.

Difficulty: 2 Medium

Topic: Anatomy of the Heart; Principles of Circulation

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.; 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

47) Your employer requires you to check patient vital signs before performing an ECG. Today, you find that a patient's blood pressure is 90/40. The patient looks pale and complains of dizziness. Based on these signs and symptoms, you might suspect that the patient:

- A) has hypertension.
- B) has a low cardiac output.
- C) has cardiac ischemia.
- D) is having a myocardial infarction.

Answer: B

Explanation: Typical symptoms of a low cardiac output include pallor, confusion, low blood pressure, nausea, and dizziness.

Difficulty: 3 Hard

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Apply

Accessibility: Keyboard Navigation

ABHES: 8.b Obtain vital signs, obtain patient history, and formulate chief complaint

48) To estimate a person's cardiac output, you can:

- A) count the patient's heart rate for 15 seconds and multiply by 4.
- B) multiply the respiratory rate by the heart rate.
- C) multiply the stroke volume by the respiratory rate.
- D) multiply the heart rate by the stroke volume.

Answer: D

Explanation: To estimate a person's cardiac output, multiply the heart rate by the stroke volume.

Difficulty: 2 Medium

Topic: Principles of Circulation

Learning Objective: 02.03 Differentiate among pulmonary, systemic, and coronary circulation.

Bloom's: Understand

Accessibility: Keyboard Navigation

49) Which of the following actions occurs during diastole?

- A) Blood from the vena cava fills the right atrium.
- B) Blood from the left ventricle is pushed through the aorta.
- C) Blood from the right ventricle is pushed to the lungs.
- D) Blood from the right atrium moves to the left ventricle.

Answer: A

Explanation: During diastole, blood from the vena cava fills the right atrium, pushing the tricuspid valve open to allow the blood already in the right atrium to flow into the right ventricle. Blood from the pulmonary veins flows into the left atrium, forcing the mitral valve open to allow the blood already in the left atrium to flow into the left ventricle.

Difficulty: 3 Hard

Topic: The Cardiac Cycle

Learning Objective: 02.04 Explain the cardiac cycle including the difference between systole and diastole.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

50) Which of the following statements is true about heart rates?

- A) In adults, the average heart beats approximately 40 to 60 times per minute.
- B) Children's heart rates are usually slower than an adult's heart rate.
- C) Children's heart rates depend on the age and size of the child.
- D) Women generally have a slower heart rate than men.

Answer: C

Explanation: The average adult heart rate is 60 to 100 times per minute. Women generally have a faster heart rate than men, and children generally have a faster heart rate than adults, although a child's heart rate depends partly on the child's age and size.

Difficulty: 2 Medium

Topic: The Cardiac Cycle

Learning Objective: 02.04 Explain the cardiac cycle including the difference between systole and diastole.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

51) Which of the following actions occurs during systole?

- A) Blood from the vena cava fills the right atrium.
- B) The heart muscle relaxes.
- C) The tricuspid and mitral valves open.
- D) The pulmonary and aortic valves open.

Answer: D

Explanation: During systole, the heart muscle contracts. This creates pressure that forces the pulmonary and aortic valves open.

Difficulty: 3 Hard

Topic: The Cardiac Cycle

Learning Objective: 02.04 Explain the cardiac cycle including the difference between systole and diastole.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

52) The part of the autonomic nervous system that helps slow the heart rate is the:

- A) sympathetic branch.
- B) parasympathetic branch.
- C) somatic nervous system.
- D) peripheral nervous system.

Answer: B

Explanation: The major nerve in the parasympathetic branch of the ANS is the vagus nerve. Stimulation of this nerve slows the heart rate.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

53) Which of the following electrolytes plays a large role in the control of the heart rate?

- A) Iron
- B) Copper
- C) Potassium
- D) Manganese

Answer: C

Explanation: Calcium and potassium help control the heart rate. When the blood concentration of potassium is low, the heart rate decreases, but when the concentration is high, it results in an abnormal rate or rhythm.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

54) The structure that relays an electrical impulse from the SA node to the left atrium in a normal heart is the:

- A) AV node.
- B) bundle of His.
- C) Purkinje network.
- D) Bachmann's bundle.

Answer: D

Explanation: Bachmann's bundle relays the electrical impulse from the SA node to the right atrium in a normal heart.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

55) The structure that transfers an electrical impulse from the atria to the ventricles is the:

- A) AV node.
- B) bundle of His.
- C) Purkinje network.
- D) Bachmann's bundle.

Answer: B

Explanation: The bundle of His, located next to the AV node, transfers electrical impulses from the atria to the ventricles.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

56) Electrical impulses are spread throughout the ventricles by the:

- A) AV node.
- B) bundle of His.
- C) Purkinje network.
- D) Bachmann's bundle.

Answer: C

Explanation: The Purkinje network is made up of Purkinje fibers that provide an electrical pathway through each cardiac cell.

Difficulty: 2 Medium

Topic: Conduction System of the Heart

Learning Objective: 02.05 Describe the structure and function of the heart and conduction system and how they relate to the ECG.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

57) The state in which the inside of each heart cell is negatively charged and the outside is positively charged is:

- A) polarization.
- B) depolarization.
- C) excitability.
- D) action potential.

Answer: A

Explanation: Polarization is a state in which the inside is negatively charged and the outside is positively charged. This is the resting state of the cells, when they are at their peak resting energy.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

58) The rapid change in polarization that occurs when the electrical charge is reversed across the cell membrane so that the inside of each cell is positively charged is referred to as:

- A) repolarization.
- B) polarization.
- C) action potential.
- D) excitability.

Answer: C

Explanation: Action potential is the change in the electrical potential of the heart muscle when it is stimulated.

Difficulty: 3 Hard

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

59) The state of cellular stimulation that precedes cardiac contraction is:

- A) repolarization.
- B) polarization.
- C) action potential.
- D) depolarization.

Answer: D

Explanation: Depolarization is the electrical activation of the heart cells that initiates the contraction of the heart muscle.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

60) The straight, horizontal line on an electrocardiogram that occurs when the tracing is at zero and no deflections are occurring is called the:

- A) interval.
- B) isoelectric line.
- C) complex.
- D) action potential.

Answer: B

Explanation: The depolarization and repolarization of the heart cause up-and-down deflections off the isoelectric line in an electrocardiogram.

Difficulty: 1 Easy

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions; 3.c Apply medical terminology for each specialty

- 61) An interval on an ECG tracing is:
- A) the period of time between two activities within the heart.
  - B) any portion of the electrical tracing that is produced by the heart.
  - C) a complete ECG waveform.
  - D) the result of atrial depolarization.

Answer: A

Explanation: An interval is the period of time between any two activities within the heart.

Difficulty: 1 Easy

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

- 62) A complete ECG waveform is called a(n):
- A) interval.
  - B) segment.
  - C) action potential.
  - D) complex.

Answer: D

Explanation: A complete ECG waveform is called a complex.

Difficulty: 1 Easy

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 3.c Apply medical terminology for each specialty

- 63) The QRS complex on an ECG tracing represents:
- A) atrial depolarization and contraction.
  - B) ventricular depolarization and contraction.
  - C) repolarization of the bundle of His.
  - D) ventricular repolarization.

Answer: B

Explanation: The QRS complex represents ventricular depolarization and the resulting ventricular contraction.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

64) On an ECG tracing, the period of time from the start of ventricular depolarization to the end of ventricular repolarization is the:

- A) U wave.
- B) QT interval.
- C) ST segment.
- D) PR interval.

Answer: B

Explanation: The QT interval is the period of time from the start of ventricular depolarization to the end of ventricular repolarization.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

65) The ST segment represents

- A) the time between atrial depolarization and atrial repolarization.
- B) the time it takes the Purkinje fibers to repolarize.
- C) the time from the beginning of atrial depolarization to the beginning of ventricular depolarization.
- D) the time between ventricular depolarization and the beginning of ventricular repolarization.

Answer: D

Explanation: The ST segment represents the time from the end of ventricular depolarization to the beginning of ventricular repolarization.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

66) The conduction of the electrical impulse through both ventricles appears on an ECG tracing as the:

- A) P wave.
- B) S wave.
- C) Q wave.
- D) U wave.

Answer: B

Explanation: The S wave on the ECG tracing represents the conduction of the electrical impulse through the ventricles.

Difficulty: 3 Hard

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

67) A sudden loss of blood supply and oxygen to a region of heart tissue is known as:

- A) ischemia.
- B) pericarditis.
- C) myocardial infarction.
- D) atherosclerosis.

Answer: A

Explanation: Ischemia occurs when there is a sudden loss or reduction in blood supply and oxygen to a region of the heart tissue. It may be caused by atherosclerotic plaque, blood clot, emboli, or vascular spasm.

Difficulty: 1 Easy

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 3.c Apply medical terminology for each specialty

68) The first positive wave in a normal QRS complex is the R wave, which represents conduction of the electrical impulse:

- A) through the right ventricle.
- B) through the left atrium.
- C) to the left ventricle.
- D) to the right atrium.

Answer: C

Explanation: Conduction of the electrical impulse to the left ventricle results in a positive deflection known as the R wave.

Difficulty: 3 Hard

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

69) Ventricular repolarization is represented on the ECG tracing by the:

- A) R wave.
- B) Q wave.
- C) S wave.
- D) T wave.

Answer: D

Explanation: The T wave represents ventricular repolarization. In a normal heart, the T wave deflects in the same direction as the P wave.

Difficulty: 3 Hard

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

70) You are preparing to perform an ECG on a young woman when she tells you that she just had her blood tested and her blood potassium level is very low. What might you expect to see on the ECG tracing as a result of this?

- A) The heart rate will be slow.
- B) The rhythm will be irregular.
- C) The heart rate will be fast.
- D) The heart contractions will be longer than normal.

Answer: A

Explanation: When there is a low concentration of potassium ions in the blood, the heart rate decreases.

Difficulty: 3 Hard

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Apply

Accessibility: Keyboard Navigation

71) You are working in an outpatient facility that performs ECGs by appointment. You go to the lobby to call your next patient. The patient gets up and comes with you, but you notice that he is out of breath. When you ask, he tells you that he works only two blocks away, but he was held up at the office and had to run in order to make his appointment time. Which of the following is your best course of action?

- A) Compliment the patient on making his appointment time and perform the ECG.
- B) Ask the patient to make another appointment and come back when he is not out of breath.
- C) Explain that you need to wait for his vital signs to return to normal before running the ECG.
- D) Perform the ECG and place a note in the patient's file that his vital signs were abnormal.

Answer: C

Explanation: You should wait until the patient's respirations and heart rate return to normal in order to get an accurate ECG tracing. You might ask the patient to step back into the lobby and "catch his breath," assuring him that you will come back to get him shortly.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Apply

Accessibility: Keyboard Navigation

- 72) The J point is the
- A) junction of the QRS interval and the ST interval.
  - B) highest peak of the R wave.
  - C) point at which the bundle of His divides into branches.
  - D) attachment point for the papillary muscles.

Answer: A

Explanation: The J point is the junction of the QRS interval and the ST interval on an ECG tracing. It represents the end of the QRS complex and ventricular depolarization.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 3.c Apply medical terminology for each specialty

- 73) Which of the following is *not* included in the QT interval?
- A) R wave
  - B) P wave
  - C) T wave
  - D) ST segment

Answer: B

Explanation: The QT interval is the time required for ventricular depolarization and repolarization to take place. It includes the QRS complex, the ST segment, and the T wave.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

- 74) The U wave, which follows the T wave in an ECG tracing, represents:
- A) repolarization of the ventricles.
  - B) the time required for ventricular depolarization and repolarization.
  - C) the end of ventricular depolarization and the beginning of ventricular repolarization.
  - D) repolarization of the Purkinje fibers and the bundle of His.

Answer: D

Explanation: The U wave represents the repolarization of the Purkinje fibers and the bundle of His. It does not always show up on the ECG tracing, but when it does, it may indicate an electrolyte imbalance.

Difficulty: 3 Hard

Topic: Electrical Stimulation and the ECG Waveform

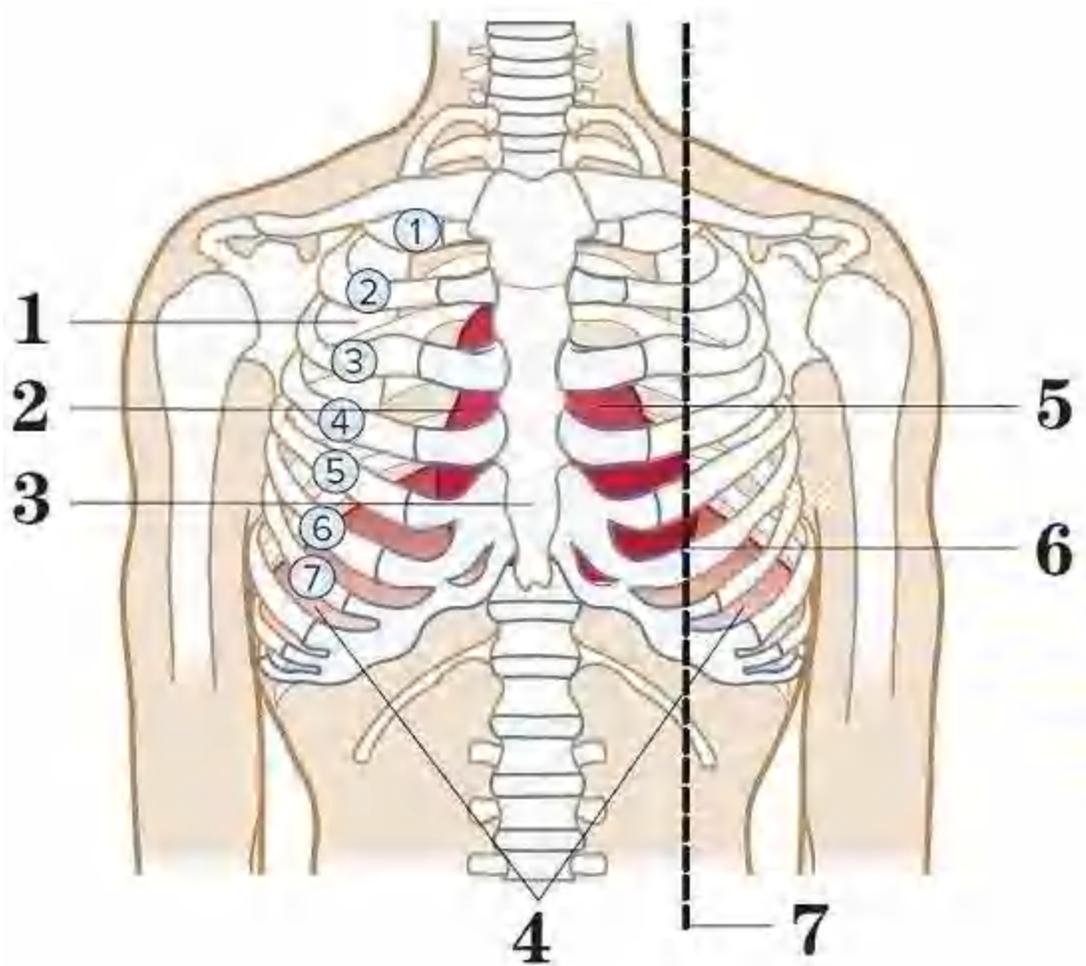
Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

75) Match the numbers from the figure to the correct structure located on the chest.



- A. Diaphragm \_\_\_\_\_
- B. Apex of heart \_\_\_\_\_
- C. Intercostal space \_\_\_\_\_
- D. Sternum \_\_\_\_\_
- E. Base of heart \_\_\_\_\_
- F. Midclavicular line \_\_\_\_\_
- G. Heart \_\_\_\_\_

Answer: A. 4; B. 6; C. 1; D. 3; E. 2; F. 7; G. 5

Explanation:

Numbers	Correct structure
1	Intercostal space
2	Base of heart
3	Sternum
4	Diaphragm
5	Heart
6	Apex of heart
7	Midclavicular line

Difficulty: 2 Medium

Topic: Anatomy of the Heart

Learning Objective: 02.02 Recall the structures of the heart including valves, chambers, and vessels.

Bloom's: Understand

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

76) The rapid change in polarization is known as \_\_\_\_\_.

- A) repolarization
- B) cardiac cycle
- C) action potential
- D) contraction

Answer: C

Explanation: The rapid change in polarization is known as action potential.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 3.c Apply medical terminology for each specialty

77) Repolarization of the cells causes the heart muscle to:

- A) return to their resting phase.
- B) eject the chambers of the heart.
- C) infarct.
- D) contract.

Answer: A

Explanation: The cardiac cells return to their resting phase of internal negativity.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

78) The QRS complex represents:

- A) atrial depolarization.
- B) ventricular repolarization.
- C) ventricular depolarization.
- D) atrial repolarization.

Answer: C

Explanation: The QRS complex represents ventricular depolarization.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

ABHES: 2.a List all body systems and their structures and functions

79) Which of the following is a sign of ischemia?

- A) absence of R waves.
- B) ST segment located on the isoelectric line.
- C) ST segment depression.
- D) P wave inversion.

Answer: C

Explanation: The ST segment becomes elevated or depressed, depending on the extent of the ischemia and the amount of damage to the cardiac cells.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation

80) Where is the PR interval measured?

- A) From the beginning of the P wave to the beginning of the QRS complex.
- B) From the beginning of the Q wave to the end of the T waves.
- C) From the end of the P wave to the beginning of the QRS complex.
- D) From the end of the P wave to the end of the QRS complex.

Answer: A

Explanation: The PR interval is measured from the beginning of the P wave to the beginning of the QRS complex.

Difficulty: 2 Medium

Topic: Electrical Stimulation and the ECG Waveform

Learning Objective: 02.06 Describe the heart activity that produces each part of the ECG waveform.

Bloom's: Remember

Accessibility: Keyboard Navigation