

# AMCA Electrocardiogram (EKG) Practice Exam (Sample)

## Study Guide



**Everything you need from our exam experts!**

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# Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

**Remember:** successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

# How to Use This Guide

**This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:**

## **1. Start with a Diagnostic Review**

**Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.**

## **2. Study in Short, Focused Sessions**

**Break your study time into manageable blocks (e.g. 30 - 45 minutes). Review a handful of questions, reflect on the explanations.**

## **3. Learn from the Explanations**

**After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.**

## **4. Track Your Progress**

**Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.**

## **5. Simulate the Real Exam**

**Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.**

## **6. Repeat and Review**

**Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.**

**There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!**

## Questions

- 1. What is the contraction phase of the heartbeat called?**
  - A. Diastole**
  - B. Systole**
  - C. Arrhythmia**
  - D. Electrophysiology**
- 2. What occurs when electrical impulses originate from the foci of the atrium?**
  - A. Atrial flutter**
  - B. Atrial fibrillation**
  - C. Ventricular tachycardia**
  - D. Sinus rhythm**
- 3. What is counted to obtain an atrial rate?**
  - A. P waves**
  - B. Q waves**
  - C. T waves**
  - D. R waves**
- 4. What structure is known as the skeleton of the heart?**
  - A. Heart valves**
  - B. Myocardium**
  - C. Fibrous skeleton**
  - D. Endothelium**
- 5. What takes place as a result of myocardial infarction?**
  - A. The heart rate increases**
  - B. A portion of the heart muscle dies**
  - C. The heart chambers expand**
  - D. Blood flow to the lungs improves**

- 6. The regulation of heart rate and electrical conduction speed is primarily influenced by which part of the nervous system?**
- A. Somatic nervous system**
  - B. Central nervous system**
  - C. Autonomic nervous system**
  - D. Peripheral nervous system**
- 7. What is the most accurate method for measuring heart rate?**
- A. Counting R-R intervals**
  - B. Using a wrist monitor**
  - C. 1500 Method**
  - D. Carotid Pulse Check**
- 8. Which layer of the heart lines the chambers and valves?**
- A. Myocardium**
  - B. Endocardium**
  - C. Epicardium**
  - D. Pericardium**
- 9. Which of the following is a common indication of heart failure on an EKG?**
- A. Wide QRS complexes**
  - B. Elevated ST segments**
  - C. Shortened PR intervals**
  - D. Absent P waves**
- 10. What does the T wave represent on an EKG strip?**
- A. Depolarization of the atria**
  - B. Repolarization of the ventricles**
  - C. Contraction of the ventricles**
  - D. Resting phase of the atria**



## **Answers**

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1. B
2. B
3. A
4. C
5. B
6. C
7. C
8. B
9. A
10. B

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## **Explanations**

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## 1. What is the contraction phase of the heartbeat called?

- A. Diastole
- B. Systole**
- C. Arrhythmia
- D. Electrophysiology

The contraction phase of the heartbeat is known as systole. During systole, the heart muscles contract, leading to the pumping of blood from the heart into the arteries. This phase occurs after diastole, which is the relaxation phase when the heart fills with blood. Understanding systole is crucial because it represents the active phase of the cardiac cycle responsible for generating blood flow throughout the body. In contrast, diastole refers to the phase when the heart muscle relaxes and the chambers of the heart fill with blood. Arrhythmia pertains to irregular heartbeats, which affect the heart's rhythm rather than its contraction efficiency. Electrophysiology focuses on the electrical aspects of the heart but does not specifically refer to the contraction phase. Thus, identifying systole as the contraction phase allows for a clearer understanding of how the heart functions in the broader context of the cardiac cycle.

## 2. What occurs when electrical impulses originate from the foci of the atrium?

- A. Atrial flutter
- B. Atrial fibrillation**
- C. Ventricular tachycardia
- D. Sinus rhythm

When electrical impulses originate from the foci of the atrium, the correct response is atrial fibrillation. In this condition, the atria experience disorganized electrical activity, leading to rapid and irregular heartbeats. This can result from various factors, including heart disease, hypertension, or other health issues affecting the heart. Atrial fibrillation is characterized by the absence of coordinated atrial contractions, which means that the impulses do not originate from the sinus node as they should in normal rhythm. Instead, the erratic impulses cause the atria to quiver ineffectively, increasing the risk of blood clots and other complications. Understanding the distinctions between atrial fibrillation and other arrhythmias, such as atrial flutter, ventricular tachycardia, and sinus rhythm, is vital. Atrial flutter involves organized electrical activity, leading to a rapid but more regular pattern, whereas ventricular tachycardia occurs in the ventricles, posing different risks. Sinus rhythm refers to the normal heartbeat initiated by the sinoatrial (SA) node, signifying proper electrical impulse initiation.

### 3. What is counted to obtain an atrial rate?

- A. P waves**
- B. Q waves**
- C. T waves**
- D. R waves**

To determine the atrial rate, the focus is on the P waves on an electrocardiogram (EKG). The P wave represents atrial depolarization, which is the electrical activity that stimulates the atria to contract. By counting the number of P waves over a given time interval, usually measured in a minute, healthcare professionals can accurately calculate the atrial rate. This is important for diagnosing and managing various cardiac conditions, such as atrial fibrillation or atrial flutter, where the atrial rate may be significantly altered. Counting the P waves ensures that the assessment reflects the true electrical activity of the atria, which is crucial for understanding the overall cardiac rhythm and function.

### 4. What structure is known as the skeleton of the heart?

- A. Heart valves**
- B. Myocardium**
- C. Fibrous skeleton**
- D. Endothelium**

The fibrous skeleton of the heart plays a crucial role in maintaining the structure and function of the heart. It is composed of dense connective tissue and forms a framework that supports the heart's muscle layers, particularly the myocardium. This structure serves several important functions: it provides a stable anchor for the heart valves, ensuring they function properly during the cardiac cycle; it helps maintain the shape of the heart; and it acts as an electrical insulator between the atria and ventricles, allowing for organized and coordinated contractions. In contrast, other options such as heart valves are primarily functional components that regulate blood flow through the heart but do not provide structural support. The myocardium refers to the muscular layer that contracts to pump blood, while the endothelium is the inner lining of blood vessels and does not play a role in the structural support of the heart itself. Understanding the unique roles of these components highlights the importance of the fibrous skeleton as the stabilizing structure in cardiac anatomy.

**5. What takes place as a result of myocardial infarction?**

- A. The heart rate increases
- B. A portion of the heart muscle dies**
- C. The heart chambers expand
- D. Blood flow to the lungs improves

During a myocardial infarction, which is commonly known as a heart attack, a portion of the heart muscle dies due to a lack of blood supply. This occurs when the coronary arteries become blocked, typically by a blood clot that forms over a ruptured atherosclerotic plaque. When the blood flow is insufficient to meet the metabolic demands of the heart tissue, the cells in that area become ischemic and can eventually die if the blood supply is not restored swiftly. The death of heart muscle cells can lead to various complications, including weakened heart function, arrhythmias, or even heart failure, depending on the extent and location of the infarction. Restoration of blood flow through medical interventions, such as angioplasty or thrombolysis, is critical in minimizing the damage to the heart muscle. Understanding this process helps in recognizing the serious implications of myocardial infarction and the importance of prompt treatment.

**6. The regulation of heart rate and electrical conduction speed is primarily influenced by which part of the nervous system?**

- A. Somatic nervous system
- B. Central nervous system
- C. Autonomic nervous system**
- D. Peripheral nervous system

The regulation of heart rate and electrical conduction speed is primarily influenced by the autonomic nervous system. This system operates involuntarily and controls automatic body functions, including heart rate, respiration, digestion, and more. Specifically, the autonomic nervous system is divided into two main branches: the sympathetic and parasympathetic nervous systems. The sympathetic nervous system increases heart rate and enhances the speed of electrical conduction through the heart, preparing the body for situations requiring heightened alertness or physical performance, often referred to as the 'fight or flight' response. Conversely, the parasympathetic nervous system decreases heart rate and slows conduction, promoting a state of rest and recovery. This balance between the two branches of the autonomic nervous system is essential for maintaining physiological homeostasis and responding to various stimuli. The other options are distinct in their functions. The somatic nervous system primarily controls voluntary movements and sensory information, while the central nervous system encompasses the brain and spinal cord and coordinates overall body activities but does not directly regulate heart rate. The peripheral nervous system includes both the somatic and autonomic systems, but it is the autonomic portion that specifically regulates involuntary functions like heart activity.

**7. What is the most accurate method for measuring heart rate?**

- A. Counting R-R intervals**
- B. Using a wrist monitor**
- C. 1500 Method**
- D. Carotid Pulse Check**

The most accurate method for measuring heart rate is counting R-R intervals. This method involves measuring the distance between successive R waves on an EKG strip. Each R-R interval represents one complete cardiac cycle, and by calculating the number of R-R intervals in a specific time frame, you can derive the heart rate with precision, especially when conducted over a longer period to minimize errors from irregular heartbeats. While the 1500 method, which divides 1500 by the number of small squares between R waves on an EKG to calculate heart rate, can also be accurate, it is primarily a secondary method and less commonly relied upon than directly counting the intervals. Other methods, like using a wrist monitor or carotid pulse checks, may provide estimates of heart rate but lack the precision of measuring R-R intervals, particularly in a clinical setting where accurate data is crucial.

**8. Which layer of the heart lines the chambers and valves?**

- A. Myocardium**
- B. Endocardium**
- C. Epicardium**
- D. Pericardium**

The endocardium is the innermost layer of the heart and is significant because it lines the chambers of the heart as well as the heart valves. This layer consists of a thin layer of endothelial cells, which helps facilitate smooth blood flow within the heart and prevents turbulent flow that could lead to clot formation. By providing a smooth surface, the endocardium plays a crucial role in maintaining the efficiency of the heart's pumping action and protecting the heart's inner structures. In contrast, the myocardium is the thick, muscular middle layer of the heart responsible for the contraction that pumps blood. The epicardium, which is the outer layer, provides a protective coating and can also house blood vessels that supply the heart. The pericardium is a double-walled sac that surrounds the heart and provides cushioning and protection from infection and trauma, but it does not line the chambers or valves. Understanding the distinct roles of each layer helps in comprehending the anatomy and function of the heart more clearly.

**9. Which of the following is a common indication of heart failure on an EKG?**

- A. Wide QRS complexes**
- B. Elevated ST segments**
- C. Shortened PR intervals**
- D. Absent P waves**

Wide QRS complexes on an EKG are a common indication of heart failure because they often indicate underlying conduction abnormalities within the heart's ventricles. In heart failure, the heart may struggle to pump effectively due to issues such as ventricular hypertrophy or dilatation, which can lead to a delay in electrical conduction. This results in wider-than-normal QRS complexes, reflecting prolonged ventricular depolarization. In addition to wide QRS complexes, other EKG findings could suggest heart failure, but they may not be as direct or common as QRS widening. For instance, elevated ST segments might indicate myocardial ischemia rather than heart failure directly, while shortened PR intervals are typically not associated with heart failure but might suggest other types of conduction disturbances like pre-excitation syndromes. Absent P waves can point towards atrial fibrillation or other atrial arrhythmias, which can coexist with heart failure but do not specifically indicate it. Therefore, wide QRS complexes serve as a significant marker for identifying heart failure on an EKG.

**10. What does the T wave represent on an EKG strip?**

- A. Depolarization of the atria**
- B. Repolarization of the ventricles**
- C. Contraction of the ventricles**
- D. Resting phase of the atria**

The T wave on an EKG strip represents the repolarization of the ventricles. This is the process where the ventricular muscle cells return to their resting state after contraction, allowing the heart to reset and prepare for the next heartbeat. During repolarization, the electrical activity indicates that the ventricles are recovering from the depolarization that preceded their contraction, which is represented by the QRS complex.

Understanding the significance of the T wave is vital for interpreting EKGs, as abnormalities in this wave can indicate various cardiac issues, such as electrolyte imbalances or ischemia. The timing and shape of the T wave are also crucial for diagnosing potential heart problems. Recognizing that the T wave is specifically related to ventricular activity helps in distinguishing it from other components of the EKG, such as the P wave, which corresponds to atrial depolarization, and the QRS complex, which involves ventricular depolarization.



## Next Steps

**Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.**

**As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.**

**If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at [hello@examzify.com](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://amcaekg.examzify.com>**

**We wish you the very best on your exam journey. You've got this!**