

AMCA ELECTROCARDIOGRAM (EKG) PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

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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

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- 1. What type of electrode placement is commonly used in patients with significant skin irritation?**
 - A. Silver-silver chloride electrodes
 - B. Self-adhesive electrodes
 - C. Pre-gelled electrodes
 - D. Liquid gel electrodes
- 2. What medical condition can result in weakened heart muscle?**
 - A. Hypertension
 - B. Cardiomyopathy
 - C. Coronary artery disease
 - D. Atrial fibrillation
- 3. What part of the heart's electrical conduction system initiates the contraction of both atria?**
 - A. AV node
 - B. Bundle of His
 - C. SA node
 - D. Purkinje fibers
- 4. What is the name for a space between the ribs?**
 - A. Intercostal Space
 - B. Subcostal Space
 - C. Intravertebral Space
 - D. Costovertebral Space
- 5. What is the typical duration of a normal PR interval?**
 - A. Less than 0.06 seconds
 - B. Between 0.12 and 0.20 seconds
 - C. Greater than 0.20 seconds
 - D. Less than 0.12 seconds

- 6. Which part of the body is Narcan administered to block or reverse the side effects of opioid medications?**
- A. In a muscle on the outer thigh
 - B. In a vein in the arm
 - C. Under the tongue
 - D. In the chest area
- 7. Which electrical event in the heart is primarily responsible for ventricular contraction?**
- A. SA node firing
 - B. AV node firing
 - C. Purkinje fiber activation
 - D. Quiescent period
- 8. What is the typical EKG change seen in a patient with hypokalemia?**
- A. Presence of a U wave
 - B. Slowed heart rate
 - C. High frequency QRS
 - D. Inverted T wave
- 9. Lead III in the EKG measures from which electrodes?**
- A. RA to LA
 - B. RA to LL
 - C. LA to LL
 - D. RL to LL
- 10. Which type of heart block is indicated by a progressive prolongation of the PR interval until QRS drops?**
- A. First-degree AV block
 - B. Second-degree AV block, Type I
 - C. Second-degree AV block, Type II
 - D. Third-degree AV block

Answers

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

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Explanations

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1. What type of electrode placement is commonly used in patients with significant skin irritation?

- A. Silver-silver chloride electrodes
- B. Self-adhesive electrodes
- C. Pre-gelled electrodes
- D. Liquid gel electrodes**

Liquid gel electrodes are particularly beneficial for patients with significant skin irritation due to their unique composition, which includes a hydrating gel that can provide a more soothing contact with the skin. This type of electrode minimizes irritation and helps maintain electrode quality during the EKG recording, as the gel can help reduce friction and provide better adherence to sensitive skin. Additionally, liquid gel electrodes typically have a higher flexibility and conform to the contours of the skin, making them suitable for troublesome areas. The hydration aspect of the gel ensures that the electrical conductivity is maintained without causing excessive irritation compared to other types of electrodes, making them an optimal choice for patients who may already be experiencing skin issues.

2. What medical condition can result in weakened heart muscle?

- A. Hypertension
- B. Cardiomyopathy**
- C. Coronary artery disease
- D. Atrial fibrillation

The condition that results in a weakened heart muscle is cardiomyopathy. This is a disease of the heart muscle that affects its size, shape, and ability to pump blood effectively. In cardiomyopathy, the heart muscle may become enlarged, thickened, or stiff, and this impairment can lead to heart failure and other serious complications. There are different types of cardiomyopathy, including dilated, hypertrophic, and restrictive, each with distinct characteristics but all sharing the common feature of muscle weakening. Hypertension, while it can contribute to cardiomyopathy and strain the heart, primarily affects the heart's workload rather than being classified as a direct cause of weakened muscle. Similarly, coronary artery disease involves blockages in the heart's arteries, which can lead to ischemia and damage but does not specifically denote weakening of the heart muscle itself. Atrial fibrillation is an irregular heartbeat that can have various underlying causes and complications but does not directly result in a weakening of the heart muscle. Thus, cardiomyopathy is the most accurate answer when specifically discussing the condition that leads to weakened heart muscle.

3. What part of the heart's electrical conduction system initiates the contraction of both atria?

- A. AV node
- B. Bundle of His
- C. SA node**
- D. Purkinje fibers

The correct choice is the SA node, which is known as the sinoatrial node. This structure is often referred to as the heart's natural pacemaker. It is located in the right atrium and generates electrical impulses that trigger the contraction of both atria simultaneously. When the SA node fires, it sends an electrical signal that causes the atrial muscle cells to contract, pushing blood into the ventricles. The significance of the SA node in initiating the heartbeat means that it plays a pivotal role in maintaining a regular heart rhythm. Its function is essential for effective blood circulation throughout the body. The node's ability to spontaneously generate electrical impulses is a fundamental characteristic that sets the pace for the entire heart's conduction system. Other components of the heart's conduction system, such as the AV node, Bundle of His, and Purkinje fibers, have specific roles in the transmission and coordination of electrical impulses but do not initiate the contraction of the atria. They work in sequence after the SA node has set the initial electrical impulse, ensuring efficient heart function overall.

4. What is the name for a space between the ribs?

- A. Intercostal Space**
- B. Subcostal Space
- C. Intravertebral Space
- D. Costovertebral Space

The correct term for the space between the ribs is the intercostal space. This anatomical term describes the regions located between adjacent ribs, where intercostal muscles, nerves, and blood vessels are situated. These spaces are clinically significant because they can be sites for procedures such as chest drainage or injection, and they allow for the expansion and contraction of the thoracic cavity during respiration. In contrast, the subcostal space refers to the area beneath the rib cage, typically associated with the lower margin of the ribcage. The intravertebral space pertains to the area between the individual vertebrae in the spine, which does not directly relate to the ribcage. Lastly, the costovertebral space relates to the joints between the ribs and the vertebrae, again differing from the specifically defined spaces between the ribs themselves. The intercostal space is the most accurate answer for identifying the area specifically located between the ribs.

5. What is the typical duration of a normal PR interval?

- A. Less than 0.06 seconds
- B. Between 0.12 and 0.20 seconds**
- C. Greater than 0.20 seconds
- D. Less than 0.12 seconds

The typical duration of a normal PR interval is between 0.12 and 0.20 seconds. This interval represents the time it takes for electrical impulses to travel from the atria to the ventricles through the atrioventricular (AV) node. This duration is crucial because it reflects the conduction time through the heart's electrical system. If the PR interval falls within the range of 0.12 to 0.20 seconds, it indicates that the conduction is occurring normally, with no delays that could suggest conditions like first-degree AV block. A PR interval shorter than 0.12 seconds could indicate an aberrant conduction pathway, while a PR interval longer than 0.20 seconds may suggest a blockage at the AV node. Therefore, understanding the normal range of the PR interval is essential in EKG interpretation and helps in diagnosing various cardiac conditions.

6. Which part of the body is Narcan administered to block or reverse the side effects of opioid medications?

- A. In a muscle on the outer thigh**
- B. In a vein in the arm
- C. Under the tongue
- D. In the chest area

Narcan, also known as naloxone, is primarily administered as an intramuscular injection, often given in the outer thigh. This route allows for rapid absorption into the bloodstream, making it effective in reversing the effects of opioid overdoses. The outer thigh is a large muscle that provides easy access for administration, especially in emergency situations where immediate action is required to counteract the respiratory depression caused by opioids. While there are other methods of administration for Narcan, such as intranasal or intravenous, the commonly recognized teaching emphasizes the intramuscular route for its accessibility and effectiveness in a wide range of settings, including community use.

7. Which electrical event in the heart is primarily responsible for ventricular contraction?

- A. SA node firing
- B. AV node firing
- C. Purkinje fiber activation**
- D. Quiescent period

The electrical event primarily responsible for ventricular contraction is the activation of the Purkinje fibers. The conduction system of the heart involves a sequence of electrical impulses that enable coordinated heart contractions. When the SA node fires, it initiates the heartbeat by causing atrial contraction. This impulse subsequently reaches the AV node, which serves as a critical relay point to delay the signal slightly, allowing the ventricles to fill with blood. However, for the actual contraction of the ventricles to occur, it is the Purkinje fibers that play the essential role. These fibers rapidly distribute the electrical signal throughout the ventricular myocardium, triggering ventricular contraction almost simultaneously. This ensures that the ventricles contract efficiently and effectively pump blood out of the heart. The other options do not directly result in ventricular contraction. While the SA node and AV node are crucial for coordinating the heart's rhythm, they do not directly stimulate the ventricles to contract. The quiescent period refers to a phase of heart activity where the heart muscle is relaxed and not contracting.

8. What is the typical EKG change seen in a patient with hypokalemia?

A. Presence of a U wave

B. Slowed heart rate

C. High frequency QRS

D. Inverted T wave

In patients with hypokalemia, one characteristic EKG change that is typically observed is the presence of a U wave. This U wave occurs after the T wave and is related to delayed repolarization of the ventricular myocardial cells. Low potassium levels can lead to changes in cardiac myocyte excitability and can impact the duration of the action potential, thus influencing the repolarization process. The appearance of a U wave in the context of hypokalemia can be an important clinical indicator for healthcare providers, as it suggests the patient's electrolyte balance is disrupted and may need correction. Monitoring these changes in the EKG is vital for patient management, especially in those at risk of severe hypokalemia, such as individuals on diuretics or those with gastrointestinal losses. In contrast, the other options do not represent the typical changes seen with hypokalemia. Slowed heart rate, high frequency QRS, and inverted T waves may occur in other conditions or situations but are not specifically indicative of hypokalemia as the presence of a U wave is.

9. Lead III in the EKG measures from which electrodes?

A. RA to LA

B. RA to LL

C. LA to LL

D. RL to LL

Lead III in an electrocardiogram (EKG) is derived from the difference in electrical potential between the left arm and the left leg. It specifically measures the voltage between the electrodes placed on these two locations—hence the involvement of the left arm (LA) and left leg (LL). This lead is significant because it helps in visualizing the heart's electrical activity as it travels from the upper parts of the heart (where the left arm electrode is placed) down towards the lower parts (where the left leg electrode is located). By capturing this information, Lead III contributes to the overall assessment of the heart's rhythm and can be particularly useful in identifying issues related to the inferior region of the heart. The other options involve combinations of electrodes that do not align with the configuration for Lead III, making the correct identification of electrode pairs essential for accurate heart monitoring.

10. Which type of heart block is indicated by a progressive prolongation of the PR interval until QRS drops?

A. First-degree AV block

B. Second-degree AV block, Type I

C. Second-degree AV block, Type II

D. Third-degree AV block

The type of heart block indicated by a progressive prolongation of the PR interval until a QRS complex is dropped is Second-degree AV block, Type I, also known as Mobitz Type I or Wenckebach phenomenon. In this mechanism, the PR interval gradually lengthens with each successive heartbeat until the electrical impulse fails to conduct through the AV node, resulting in a dropped QRS complex. This pattern is characteristic of Type I block and is often seen in young, healthy individuals or during situations where there is increased vagal tone. This specific sequence of events is what distinguishes Type I from other types of AV blocks. In contrast, first-degree AV block involves a consistently prolonged PR interval without any dropped beats; Type II features intermittent dropped beats without a progressive increase in the PR interval; and third-degree AV block presents with complete disassociation between atrial and ventricular rhythms, with no relation between P waves and QRS complexes.

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.

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

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

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