

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 is the name of the heart disease in which coronary arteries are blocked and cell death occurs?**
 - A. Angina pectoris
 - B. Myocardial infarction
 - C. Congestive heart failure
 - D. Coronary artery disease
- 2. Which arteries primarily supply blood to the heart muscle itself?**
 - A. Carotid arteries
 - B. Coronary arteries
 - C. Subclavian arteries
 - D. Renal arteries
- 3. When placing electrodes on a patient's chest, arms, and legs, what should be done if the patient has a lot of hair covering their body?**
 - A. Ignore the hair and proceed
 - B. Ask the patient's permission before shaving them
 - C. Use a different electrode type
 - D. Place electrodes only on hairless areas
- 4. What is the primary function of the pericardial sac that surrounds the heart?**
 - A. Provides electrical insulation
 - B. Allows the heart to expand and contract with minimal friction
 - C. Houses the coronary arteries
 - D. Stores oxygenated blood
- 5. A dysfunction in which of the following is associated with an abnormal sinus tachycardia?**
 - A. Ventricular valve function
 - B. Nerve signals at sinus node
 - C. Coronary artery function
 - D. Myocardial contractility

- 6. What does the vertical line on an ECG strip represent?**
- A. Time
 - B. Heart rate
 - C. Voltage/amplitude
 - D. Electrical conduction
- 7. What occurs when electrical impulses come from multiple foci in the atrium?**
- A. Atrial flutter
 - B. Atrial fibrillation
 - C. Ventricular tachycardia
 - D. Sinus rhythm
- 8. A patient in the emergency room presents with an irregular heartbeat and a blood pressure of 160/92 mmHg. Which of the following best describes the patient's condition?**
- A. Hypotension
 - B. Arrhythmia
 - C. Hypertension
 - D. Bradycardia
- 9. What class of medication generally lowers overall resistance in vascular beds?**
- A. Beta-blockers
 - B. ACE inhibitors
 - C. Calcium channel blockers
 - D. Diuretics
- 10. Which statement accurately describes the timing represented by the ECG paper?**
- A. Five small squares represent 0.10 seconds
 - B. Five small squares represent 0.20 seconds
 - C. Five small squares represent 0.25 seconds
 - D. Five small squares represent 0.50 seconds

Answers

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

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Explanations

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1. What is the name of the heart disease in which coronary arteries are blocked and cell death occurs?

- A. Angina pectoris
- B. Myocardial infarction**
- C. Congestive heart failure
- D. Coronary artery disease

Myocardial infarction is the correct name for the condition in which the blood supply to a part of the heart is severely reduced or blocked, leading to damage or death of heart muscle cells. This blockage typically occurs due to the buildup of plaque in the coronary arteries, resulting in a lack of oxygen and nutrients to the heart tissue. When the tissue is deprived of blood for a sufficient amount of time, it can die, which is the essence of a myocardial infarction, commonly known as a heart attack. This condition is often characterized by symptoms such as chest pain, shortness of breath, and discomfort that may radiate to other areas like the arms, back, or jaw. It is a medical emergency that requires prompt treatment to restore blood flow to the affected area of the heart to limit damage and improve outcomes for the patient. Understanding myocardial infarction is crucial in the study of cardiovascular health because it contrasts with other conditions, such as angina pectoris, which involves temporary chest pain due to reduced blood flow but does not result in heart muscle cell death. Congestive heart failure is a chronic condition where the heart struggles to pump effectively, and coronary artery disease refers more broadly to the buildup of plaque in the arteries, which can

2. Which arteries primarily supply blood to the heart muscle itself?

- A. Carotid arteries
- B. Coronary arteries**
- C. Subclavian arteries
- D. Renal arteries

The coronary arteries are specifically designed to supply blood to the heart muscle, also known as the myocardium. These arteries branch off from the aorta and encircle the heart, ensuring that it receives an adequate supply of oxygen-rich blood that is essential for its function. The heart is a highly active organ that requires a continuous flow of blood to sustain its pumping action, which is why the coronary arteries are so crucial. The other arteries listed serve different areas and purposes within the body. For instance, the carotid arteries are responsible for supplying blood to the brain, the subclavian arteries supply the arms and parts of the chest, and the renal arteries deliver blood to the kidneys. Each of these arteries has a specific function, but it is the coronary arteries that fulfill the vital role of nourishing the heart itself.

3. When placing electrodes on a patient's chest, arms, and legs, what should be done if the patient has a lot of hair covering their body?

- A. Ignore the hair and proceed
- B. Ask the patient's permission before shaving them**
- C. Use a different electrode type
- D. Place electrodes only on hairless areas

The correct course of action when dealing with a patient who has a lot of hair covering their body is to ask the patient's permission before shaving them. This approach respects the patient's autonomy and comfort. In a clinical setting, it is crucial to involve the patient in decisions regarding their care, especially when it involves altering their body in some manner, such as shaving hair off to ensure proper electrode adhesion and accurate readings. If the electrode placement area is too hairy, it could impede the skin-electrode contact, leading to potential issues with signal quality on the EKG. Seeking the patient's consent not only builds trust but ensures they are aware and agreeable to the procedure. Alternative methods like ignoring the hair or using different electrode types might lead to inaccurate readings. Placing electrodes solely on hairless areas could limit the ability to gather comprehensive data or adhere well, ultimately compromising the effectiveness of the EKG. Therefore, getting permission to shave is both a respectful and practical step in ensuring accurate electrode placement.

4. What is the primary function of the pericardial sac that surrounds the heart?

- A. Provides electrical insulation
- B. Allows the heart to expand and contract with minimal friction**
- C. Houses the coronary arteries
- D. Stores oxygenated blood

The primary function of the pericardial sac that surrounds the heart indeed revolves around allowing the heart to expand and contract with minimal friction. This fibrous and serous membrane structure provides a protective layer that reduces friction as the heart beats and fills with blood. The heart's rhythmic contractions create significant movement, and the pericardial fluid within the sac serves as a lubricant, ensuring smooth movement during these processes. While the pericardial sac provides cushioning and protection, its role in minimizing friction is fundamental to the heart's efficiency and overall function. The heart's ability to contract and fill properly is crucial for effective circulation, and the pericardial sac plays a vital part in maintaining that functionality. The other options, while they may refer to different aspects of cardiac physiology or anatomy, do not accurately describe the primary role of the pericardial sac. For instance, electrical insulation is primarily provided by other cardiac structures, not the pericardium. The coronary arteries are indeed in proximity to the heart but are not housed within the pericardial sac. Additionally, the storage of oxygenated blood occurs in large vessels and specific heart chambers, not within the pericardial sac.

5. A dysfunction in which of the following is associated with an abnormal sinus tachycardia?

- A. Ventricular valve function
- B. Nerve signals at sinus node**
- C. Coronary artery function
- D. Myocardial contractility

Abnormal sinus tachycardia is primarily linked to dysfunction at the sinus node, which is the heart's natural pacemaker responsible for initiating the electrical impulses that regulate the heart rate. If nerve signals at the sinus node are disturbed, it can lead to an increased heart rate even when the body is at rest or does not require such a high output. This can occur due to various factors, including emotional stress, fever, or certain medical conditions that affect how the sinus node functions. This dysfunction can manifest as an inappropriate increase in heart rate without the usual triggers. Understanding the role of the sinus node highlights the importance of this area in maintaining a proper heart rhythm and how its mismanagement can lead to abnormal rates like sinus tachycardia.

6. What does the vertical line on an ECG strip represent?

- A. Time
- B. Heart rate
- C. Voltage/amplitude**
- D. Electrical conduction

The vertical line on an ECG strip represents voltage or amplitude. In an electrocardiogram, the vertical axis shows the electrical activity of the heart, quantified in millivolts (mV). This indicates how much electrical charge is present at various points in time during the cardiac cycle. The greater the upward deflection from the baseline, the stronger the electrical activity in that region of the myocardium, which can help healthcare professionals assess the heart's function and detect abnormalities such as ischemia or hypertrophy. Understanding this aspect of an ECG is crucial for analyzing the heart's electrical conduction and interpreting the overall health and function of the cardiac system.

7. What occurs when electrical impulses come from multiple foci in the atrium?

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

When electrical impulses originate from multiple foci in the atrium, it results in atrial fibrillation. This arrhythmia is characterized by a rapid and irregular heartbeat due to the chaotic electrical activity within the atria. Unlike atrial flutter, which typically involves a single focus creating a distinct reentrant circuit, atrial fibrillation features multiple ectopic atrial foci firing at variable rates, leading to an uncoordinated atrial contraction. This contributes to the quivering of the atria rather than an effective contraction, increasing the risk of blood clots and stroke due to stagnant blood flow. The other options do not reflect the same underlying mechanism. Ventricular tachycardia pertains to rapid impulses originating in the ventricles rather than the atria. Sinus rhythm represents a normal heartbeat originating from the natural pacemaker of the heart, the sinoatrial node, where impulses are organized and consistent, unlike the disorganized impulses seen in atrial fibrillation. Atrial flutter also tends to maintain a relatively organized rhythm compared to the chaotic impulses seen in atrial fibrillation.

8. A patient in the emergency room presents with an irregular heartbeat and a blood pressure of 160/92 mmHg. Which of the following best describes the patient's condition?

- A. Hypotension
- B. Arrhythmia
- C. Hypertension**
- D. Bradycardia

The patient's condition is best described as hypertension. In this context, the term hypertension refers to consistently elevated blood pressure, which is indicated by the reading of 160/92 mmHg. This value is above the normal range and suggests that the patient is experiencing high blood pressure, which can put additional strain on the heart and blood vessels. While the patient also has an irregular heartbeat, the defining feature in this scenario is the blood pressure measurement. Hypertension can often coexist with arrhythmias, but the presence of high blood pressure is a critical factor that directly impacts the patient's overall cardiovascular health. Therefore, identifying the condition as hypertension accurately reflects the main clinical concern at this moment. The other terms—hypotension, arrhythmia, and bradycardia—do not suitably encompass the key presentation of this patient's elevated blood pressure, making hypertension the most appropriate description of the patient's condition.

9. What class of medication generally lowers overall resistance in vascular beds?

- A. Beta-blockers
- B. ACE inhibitors**
- C. Calcium channel blockers
- D. Diuretics

The correct choice pertains to ACE inhibitors, which are a class of medication that have a significant role in lowering overall resistance in vascular beds. These medications work by inhibiting the enzyme that converts angiotensin I to angiotensin II, a powerful vasoconstrictor. By blocking this conversion, ACE inhibitors cause blood vessels to dilate, which effectively reduces vascular resistance and lowers blood pressure. This mechanism is particularly beneficial in treating conditions like hypertension and heart failure. Other classes of medications, such as beta-blockers and calcium channel blockers, also influence blood pressure but through different mechanisms. Beta-blockers primarily decrease heart rate and the force of heart contractions, which can lower blood pressure but do not directly affect vascular resistance as significantly as ACE inhibitors. Calcium channel blockers work by preventing calcium from entering heart and blood vessel cells, leading to relaxation of the vascular smooth muscle, thereby also lowering blood pressure, yet this action is not as comprehensive in reducing overall resistance across various vascular beds compared to ACE inhibitors. Diuretics, on the other hand, help lower blood pressure primarily through fluid reduction, which alters blood volume rather than directly impacting vascular resistance. Understanding the distinct mechanisms of these medications highlights why ACE inhibitors stand out in the context of lowering vascular resistance.

10. Which statement accurately describes the timing represented by the ECG paper?

- A. Five small squares represent 0.10 seconds
- B. Five small squares represent 0.20 seconds**
- C. Five small squares represent 0.25 seconds
- D. Five small squares represent 0.50 seconds

The correct understanding of timing in ECG paper is that five small squares equate to 0.20 seconds. This is based on the standard ECG paper speed, which is typically set at 25 millimeters per second. Each small square on the ECG paper measures 1 millimeter in width and height, and thus, at this speed, 5 small squares would cover a duration of 5 millimeters, which corresponds to 0.20 seconds. This timing is crucial for interpreting the rhythm and rate of the heart, as it helps practitioners assess intervals, segment durations, and overall heart function accurately. Knowing that five small squares represent 0.20 seconds allows for effective analysis of the heart's electrical activity and can aid in identifying various cardiac conditions.

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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:

<https://amcaekg.examzify.com>

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

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