

EKG NATIONAL PRACTICE EXAM (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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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. During which phase of the cardiac cycle does the heart empty?**
 - A. Diastolic phase
 - B. Isometric phase
 - C. Systolic phase
 - D. Electromechanical phase
- 2. When an electrical impulse originates from a location other than the pacemaker sites, it is referred to as?**
 - A. Normal conduction
 - B. Reentrant circuit
 - C. Stimulus firing
 - D. Ectopic firing
- 3. Where does blood enter the heart after returning from the body?**
 - A. Right atrium
 - B. Left atrium
 - C. Right ventricle
 - D. Left ventricle
- 4. What is a potential explanation for a heart murmur?**
 - A. Dilated cardiomyopathy
 - B. Valvular dysfunction
 - C. Coronary artery disease
 - D. Atrial septal defect
- 5. Which wave indicates atrial depolarization on an EKG?**
 - A. T wave
 - B. P wave
 - C. QRS complex
 - D. U wave
- 6. What are the lower pumping chambers of the heart called?**
 - A. Atria
 - B. Ventricles
 - C. Septum
 - D. Valves

- 7. AVR, AVL, and AVF are classified as which type of leads?**
- A. Standard leads
 - B. Precordial leads
 - C. Augmented leads
 - D. Chest leads
- 8. Which term is used to describe a slow heart rate?**
- A. Bradycardia
 - B. Tachycardia
 - C. Arrhythmia
 - D. Normocardia
- 9. Which structure separates the left and right sides of the heart?**
- A. Septum
 - B. Myocardium
 - C. Valves
 - D. Endocardium
- 10. What is the typical heart rate range for an individual in normal sinus rhythm?**
- A. 40-60 beats per minute
 - B. 50-70 beats per minute
 - C. 60-100 beats per minute
 - D. 70-120 beats per minute

Answers

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

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Explanations

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1. During which phase of the cardiac cycle does the heart empty?

- A. Diastolic phase
- B. Isometric phase
- C. Systolic phase**
- D. Electromechanical phase

The heart empties during the systolic phase of the cardiac cycle. This phase is characterized by the contraction of the heart muscles, specifically the ventricles, which occur after electrical signals stimulate them to contract. As the ventricular pressure rises, it exceeds the pressure in the arteries, causing the valves to open and blood to be ejected into the aorta and pulmonary artery. This process is crucial for delivering oxygenated blood to the body and deoxygenated blood to the lungs for oxygenation. The systolic phase is essential for maintaining circulation and supplying organs and tissues with the necessary nutrients and oxygen. In contrast, during the diastolic phase, the heart is filling with blood rather than emptying. The isometric phase refers to moments in the cardiac cycle when the ventricles contract, but there is no blood ejection. The electromechanical phase is not a standard term commonly used in describing the cardiac cycle phases and does not accurately represent the process of blood emptying from the heart. Understanding these distinctions helps clarify the dynamics of heart function and the importance of each phase within the cardiac cycle.

2. When an electrical impulse originates from a location other than the pacemaker sites, it is referred to as?

- A. Normal conduction
- B. Reentrant circuit
- C. Stimulus firing
- D. Ectopic firing**

When an electrical impulse originates from a location other than the primary pacemaker sites of the heart, it is termed ectopic firing. This phenomenon occurs when cells outside the sinoatrial (SA) node generate an impulse, which can disrupt the normal heart rhythm. Ectopic foci can arise from various areas within the atria, ventricles, or even the junctional tissue, leading to arrhythmias. Determining the origin of electrical impulses is essential in interpreting EKGs, as ectopic firing can result in various clinical conditions such as premature atrial contractions or ventricular ectopy. Recognizing ectopic activity allows healthcare professionals to assess potential underlying cardiac issues or the need for intervention. Understanding ectopic firing enhances the ability to identify abnormal rhythms and their implications effectively, which is crucial for patient care in cardiology settings.

3. Where does blood enter the heart after returning from the body?

- A. Right atrium**
- B. Left atrium
- C. Right ventricle
- D. Left ventricle

Blood enters the heart after returning from the body through the right atrium. This is a fundamental concept in the understanding of human circulation. When deoxygenated blood, which is low in oxygen and high in carbon dioxide, returns from the body's tissues, it does so via the superior and inferior vena cavae, which deliver this blood into the right atrium. From the right atrium, the blood then moves into the right ventricle, where it is pumped to the lungs for oxygenation. This pathway is crucial, as it ensures that the blood is adequately re-oxygenated before being circulated back to the rest of the body. Understanding this sequence is essential for grasping how the circulatory system operates efficiently in transporting blood to and from the heart.

4. What is a potential explanation for a heart murmur?

- A. Dilated cardiomyopathy
- B. Valvular dysfunction**
- C. Coronary artery disease
- D. Atrial septal defect

A heart murmur is an abnormal sound produced by turbulent blood flow within the heart, typically heard through a stethoscope. Valvular dysfunction is a primary cause of murmurs. This condition can arise when heart valves do not open or close properly, which can lead to abnormal blood flow patterns. For instance, a stenotic valve can restrict flow, while a regurgitant valve allows blood to flow backward. Both scenarios create turbulence, resulting in a murmur that is audible during a physical examination. While dilated cardiomyopathy, coronary artery disease, and atrial septal defects can also lead to various cardiac abnormalities, they do not directly cause the characteristic turbulent flow that manifests as a murmur in the same way that valvular dysfunction does. Therefore, understanding the nature of heart murmurs is crucial, and recognizing valvular dysfunction as a key mechanism helps clarify why this option is the most relevant explanation.

5. Which wave indicates atrial depolarization on an EKG?

- A. T wave
- B. P wave**
- C. QRS complex
- D. U wave

The P wave indicates atrial depolarization on an EKG. This wave represents the electrical activity that causes the atria to contract, leading to the initiation of blood flow into the ventricles. When the electrical impulse generated by the sinoatrial (SA) node travels through the atrial myocardium, the resulting depolarization is recorded as the P wave on the EKG. Understanding the role of the P wave is critical for interpreting an EKG because it is a key component of the normal cardiac cycle, reflecting the health and functioning of the atria. A deviation or abnormality in the P wave can signify various atrial conditions, such as atrial enlargement or arrhythmias, which can have significant implications for a patient's cardiac health. In contrast, the T wave represents ventricular repolarization, the QRS complex reflects ventricular depolarization, and the U wave is often associated with repolarization effects or electrolyte imbalances, making them unrelated to atrial depolarization. Therefore, recognizing the P wave's significance is essential for effective EKG interpretation.

6. What are the lower pumping chambers of the heart called?

- A. Atria
- B. Ventricles**
- C. Septum
- D. Valves

The lower pumping chambers of the heart are called ventricles. The heart consists of four chambers: two atria (upper chambers) and two ventricles (lower chambers). The role of the ventricles is crucial as they are responsible for pumping blood out of the heart to the lungs and the rest of the body. The right ventricle pumps deoxygenated blood to the lungs for oxygenation, while the left ventricle pumps oxygenated blood to the systemic circulation. In contrast, the atria are the upper chambers that receive blood returning to the heart. The septum is the wall that divides the left and right sides of the heart, while valves are structures that prevent the backflow of blood and ensure unidirectional flow within the heart. Understanding the function and location of these components is vital for a comprehensive grasp of cardiac physiology and the EKG interpretation.

7. AVR, AVL, and AVF are classified as which type of leads?

- A. Standard leads
- B. Precordial leads
- C. Augmented leads**
- D. Chest leads

AVR, AVL, and AVF are classified as augmented leads because they are derived from the three standard limb leads (lead I, lead II, and lead III) but have an increased sensitivity. The term "augmented" indicates that these leads use a different approach to measure the electrical activity of the heart. While standard leads provide direct measurements from two limb electrodes, augmented leads use a combination of two limb electrodes and reference the third electrode to enhance the visibility of the heart's electrical signals. Each augmented lead represents the electrical activity in a specific direction: AVR looks from the right arm towards the heart, AVL looks from the left arm towards the heart, and AVF looks from the left leg towards the heart. The augmentation helps to provide a clearer view of the heart's electrical activity in areas that might be less prominent in standard leads. Understanding the classification of leads is crucial in interpreting EKGs, as it aids in identifying the origin of various cardiac events and understanding the overall electrical functioning of the heart.

8. Which term is used to describe a slow heart rate?

- A. Bradycardia**
- B. Tachycardia
- C. Arrhythmia
- D. Normocardia

Bradycardia is the term specifically used to describe a slow heart rate, typically defined as a heart rate that is less than 60 beats per minute in adults. It can occur in healthy individuals, especially athletes, as a physiological adaptation to regular intense training. In other contexts, bradycardia can be indicative of underlying health issues, such as heart block or issues with the conduction system of the heart, necessitating further evaluation. The terms tachycardia, arrhythmia, and normocardia refer to different heart rate conditions. Tachycardia indicates a rapid heart rate exceeding 100 beats per minute, whereas arrhythmia describes any irregular heartbeat, regardless of the speed. Normocardia refers to a normal heart rate range, typically between 60-100 beats per minute. Understanding these distinctions is important in accurately assessing cardiac health.

9. Which structure separates the left and right sides of the heart?

- A. Septum**
- B. Myocardium
- C. Valves
- D. Endocardium

The septum is the structure that separates the left and right sides of the heart, playing a crucial role in maintaining the separation of oxygenated and deoxygenated blood. The heart has two main septa: the interatrial septum separates the left and right atria, while the interventricular septum separates the left and right ventricles. This division is essential for efficient circulation, as it prevents the mixing of oxygen-rich blood from the left side of the heart with oxygen-poor blood from the right side. The myocardium, which is the heart muscle itself, is involved in the contraction of the heart to pump blood but does not provide separation between the sides. Similarly, valves function to ensure unidirectional blood flow within the heart and prevent backflow, but they do not separate the heart chambers. The endocardium is the inner lining of the heart chambers but also does not serve the purpose of separating the left and right sides. Understanding the function of the septum is fundamental for grasping the overall anatomy and function of the heart in the context of cardiovascular physiology.

10. What is the typical heart rate range for an individual in normal sinus rhythm?

- A. 40-60 beats per minute
- B. 50-70 beats per minute
- C. 60-100 beats per minute**
- D. 70-120 beats per minute

In a normal sinus rhythm, the heart rate typically ranges from 60 to 100 beats per minute. This range is considered the standard for a healthy adult at rest and reflects the normal pacing initiated by the sinoatrial (SA) node, which serves as the natural pacemaker of the heart. Each beat within this range corresponds to effective electrical activity leading to coordinated heart contractions, ensuring adequate blood flow throughout the body. The significance of this heart rate range lies in its implications for cardiovascular health. A heart rate below 60 beats per minute can indicate bradycardia, which may require further investigation if symptoms are present. Conversely, a heart rate consistently above 100 beats per minute, termed tachycardia, can suggest underlying health issues or stressors affecting the heart. Understanding the normal range helps healthcare providers assess a patient's cardiac function and overall health status effectively.

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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://ekgnatl.examzify.com>

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

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