

EKG NATIONAL PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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 does an abnormal prolongation of the P-R interval suggest?**
 - A. Atrial enlargement
 - B. Heart block
 - C. Myocardial infarction
 - D. Pulse deficit
- 2. What is one function of the atria in the heart?**
 - A. To pump blood to the lungs
 - B. To receive blood from the veins
 - C. To regulate heart rhythm
 - D. To prevent backflow of blood
- 3. What effect does the vagus nerve have on heart rate?**
 - A. Increases heart rate
 - B. Decreases heart rate
 - C. Has no effect
 - D. Changes the rhythm
- 4. What is the primary purpose of the EKG test?**
 - A. To measure blood pressure
 - B. To evaluate heart size
 - C. To assess electrical activity of the heart
 - D. To analyze respiratory function
- 5. What is the phase of the heart called when it is relaxed and filling with blood?**
 - A. Systole
 - B. Diastole
 - C. Contraction
 - D. Resting Phase
- 6. What characterizes a normal sinus rhythm complex?**
 - A. It is irregular and inconsistent.
 - B. It is absent in some cycles.
 - C. Each complex is complete and normal in appearance.
 - D. It contains only P waves and no QRS complexes.

7. What does a prolonged QRS complex indicate?

- A. Normal heart function
- B. Possible ventricular hypertrophy or a bundle branch block
- C. Atrial fibrillation
- D. Healthy heart tissue

8. What does the P wave on an ECG signify?

- A. Relaxation of the ventricles
- B. Contraction of the atria
- C. Repolarization of the ventricles
- D. Electrical activity of the nodes

9. What occurs when the atria contracts?

- A. The ventricles fill with blood
- B. Blood is pumped to the lungs
- C. The heart rate increases
- D. The valves open

10. How is oxygenated blood returned to the heart?

- A. By the aorta
- B. Through the pulmonary veins
- C. Via the superior vena cava
- D. Through the coronary arteries

Answers

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

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Explanations

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1. What does an abnormal prolongation of the P-R interval suggest?

- A. Atrial enlargement
- B. Heart block**
- C. Myocardial infarction
- D. Pulse deficit

An abnormal prolongation of the P-R interval indicates a delay in the conduction of electrical impulses through the heart's atrioventricular (AV) node. This is clinically relevant because the P-R interval reflects the time taken for the electrical signal to travel from the atria to the ventricles, and a prolongation can suggest various types of heart block, such as first-degree AV block. In this condition, the signal takes longer than normal to pass through the AV node, which can be detected by an EKG tracing that shows a longer P-R interval than the normal range. Prolonged P-R intervals do not generally correlate with atrial enlargement, myocardial infarction, or pulse deficit, making these options less relevant in the context of P-R interval dynamics. Thus, identifying an abnormal P-R interval is critical for diagnosing conditions related to heart block and determining appropriate management strategies for patients.

2. What is one function of the atria in the heart?

- A. To pump blood to the lungs
- B. To receive blood from the veins**
- C. To regulate heart rhythm
- D. To prevent backflow of blood

The primary function of the atria in the heart is to receive blood returning from the body's veins. The right atrium collects deoxygenated blood from the systemic circulation through the superior and inferior vena cavae, while the left atrium receives oxygenated blood from the pulmonary veins. This function is crucial as it allows the heart to effectively manage blood flow; the atria act as holding chambers before the blood is pumped into the ventricles, which are responsible for the next phase of circulation—pumping blood either to the lungs or to the rest of the body. Understanding this role emphasizes the importance of the atria in the overall cardiac cycle and circulation dynamics. Without the atria performing this function, the heart would struggle to maintain efficient blood flow and pressure throughout the circulatory system.

3. What effect does the vagus nerve have on heart rate?

- A. Increases heart rate
- B. Decreases heart rate**
- C. Has no effect
- D. Changes the rhythm

The vagus nerve plays a crucial role in regulating heart rate, primarily through its parasympathetic control over the heart. When the vagus nerve is stimulated, it releases neurotransmitters such as acetylcholine, which act on the heart's pacemaker cells (located in the sinoatrial node) to decrease their firing rate. This leads to a reduction in heart rate, making the heart beat more slowly. This parasympathetic action is counterbalanced by the sympathetic nervous system, which increases heart rate during stress or physical activity. In normal physiological conditions, the vagus nerve helps maintain a baseline heart rate by exerting a slowing effect. This is particularly evident during relaxation or deep breathing, where vagal tone increases, leading to a notable decrease in heart rate. Understanding the role of the vagus nerve is essential in the context of bradycardia, where an excessively slow heart rate may occur due to enhanced vagal activity. Thus, the effect of the vagus nerve on heart rate is primarily a decrease, making the option that states it decreases heart rate the most accurate response.

4. What is the primary purpose of the EKG test?

- A. To measure blood pressure
- B. To evaluate heart size
- C. To assess electrical activity of the heart**
- D. To analyze respiratory function

The primary purpose of the EKG (electrocardiogram) test is to assess the electrical activity of the heart. This test provides critical information about how the heart is functioning electrically by recording the timing and strength of these electrical signals as they travel through the heart. By analyzing the results of an EKG, healthcare providers can identify various conditions such as arrhythmias, ischemia, or heart attacks, and can assess the heart's overall rhythm and health status. While blood pressure measurement is important for evaluating cardiovascular health, it is not what an EKG measures. An EKG also does not directly provide information about heart size, which is typically assessed through imaging techniques like echocardiography. Additionally, an EKG does not analyze respiratory function, as that is typically evaluated with tests focused on the lungs and breathing mechanics. Hence, the EKG is specifically designed to focus on the electrical aspects of heart function, making it a crucial tool in cardiology.

5. What is the phase of the heart called when it is relaxed and filling with blood?

- A. Systole
- B. Diastole**
- C. Contraction
- D. Resting Phase

The phase of the heart referred to when it is relaxed and filling with blood is known as diastole. During diastole, the heart chambers—specifically the atria and ventricles—relax, allowing blood to flow into them from the veins. This phase is crucial for ensuring that the heart is adequately filled with blood before it contracts during the next phase, which is systole. Diastole encompasses several important processes: the atrioventricular valves (the mitral and tricuspid valves) open, allowing blood to fill the ventricles, and the semilunar valves remain closed, preventing blood from flowing back into the heart from the arteries. The relaxation of the heart muscle during diastole is essential for the heart's function, as it prepares the heart to pump a sufficient volume of blood to the body during systole, when the heart contracts. The other options do not accurately describe this phase. Systole refers to the contraction phase when the heart pumps blood out. Contraction is a term that generally describes the action of the heart during systole. The term "resting phase" may colloquially refer to the relaxation period, but it is not the correct technical term used in cardiology.

6. What characterizes a normal sinus rhythm complex?

- A. It is irregular and inconsistent.
- B. It is absent in some cycles.
- C. Each complex is complete and normal in appearance.**
- D. It contains only P waves and no QRS complexes.

A normal sinus rhythm complex is characterized by a consistent appearance of each heartbeat, which is marked by the presence of a P wave followed by a QRS complex and a T wave. In this rhythm, each P wave represents atrial depolarization and is typically followed by a QRS complex, indicating that the electrical impulse generated by the sinoatrial node is successfully transmitted through the atrioventricular node to the ventricles. The complexes appear consistent in shape and interval, demonstrating a regular rhythm, which is a hallmark of normal sinus rhythm. In contrast, an irregular and inconsistent rhythm would not meet the criteria for a normal sinus rhythm, as it would suggest some form of arrhythmia. The absence of complexes in some cycles points toward a more severe issue with heart conduction. Furthermore, having only P waves without QRS complexes indicates a complete blockage of the electrical pathway to the ventricles, also known as a third-degree heart block. In sum, the defining characteristic of a normal sinus rhythm complex is that each complex is complete and exhibits a normal appearance, showing a consistent pattern that reflects the healthy functioning of the heart's electrical system.

7. What does a prolonged QRS complex indicate?

- A. Normal heart function
- B. Possible ventricular hypertrophy or a bundle branch block**
- C. Atrial fibrillation
- D. Healthy heart tissue

A prolonged QRS complex indicates possible ventricular hypertrophy or a bundle branch block due to the delayed conduction of electrical impulses through the ventricles. Normally, the QRS complex duration is less than 120 milliseconds, reflecting the timely contraction of the ventricles. When this duration exceeds the normal value, it suggests that there might be an underlying issue affecting the heart's ability to conduct impulses efficiently. Ventricular hypertrophy can result from the heart working harder than normal, often due to conditions such as hypertension or valvular heart disease, leading to an increase in the muscle mass of the ventricles. This hypertrophy can disrupt the normal conduction pathways, resulting in a wider QRS complex. On the other hand, a bundle branch block occurs when there is a blockage of electrical impulses in one of the branches that conduct signals to the ventricles. The right or left bundle branch may be affected, and the blockage leads to a slower impulse traveling through the affected side, which can manifest as a prolonged QRS complex as well. This is in contrast to options indicating normal heart function, atrial fibrillation, or healthy heart tissue, which would not typically correlate with a prolonged QRS interval. Normal measurements would suggest efficient conduction and healthy myocardial tissue,

8. What does the P wave on an ECG signify?

- A. Relaxation of the ventricles
- B. Contraction of the atria**
- C. Repolarization of the ventricles
- D. Electrical activity of the nodes

The P wave on an ECG is an essential component that represents the contraction of the atria. When the heart's electrical impulse is generated in the sinoatrial (SA) node, it spreads throughout the atria, causing them to depolarize and contract. This electrical activity is reflected on the ECG as the P wave. The significance of the P wave lies in its role in initiating the cardiac cycle, signifying that blood is being pushed from the atria into the ventricles. Understanding the characteristics of the P wave is crucial for interpreting cardiac rhythms and diagnosing various types of heart conditions. The other choices relate to different electrical or mechanical events in the heart that do not pertain to the P wave specifically. For instance, relaxation of the ventricles is associated with the T wave, while ventricular repolarization is also depicted by the T wave, and the electrical activity of the nodes involves multiple components of the cardiac cycle not solely represented by the P wave.

9. What occurs when the atria contracts?

- A. The ventricles fill with blood**
- B. Blood is pumped to the lungs
- C. The heart rate increases
- D. The valves open

When the atria contract, they push blood into the ventricles, which is why the ventricles fill with blood. This process is part of the cardiac cycle known as atrial systole, where the contraction of the atria helps ensure that the ventricles receive a sufficient volume of blood to pump out to the body and lungs during the subsequent ventricular contraction. This filling also helps maintain adequate preload, which is crucial for the ventricles to generate the appropriate stroke volume during their contraction. Filling of the ventricles occurs before they contract, ensuring that the heart operates efficiently. The other options do not directly relate to the immediate action of atrial contraction. Blood being pumped to the lungs typically occurs during ventricular contraction, when the right ventricle pumps blood through the pulmonary artery. An increase in heart rate is a result of various factors such as exercise or conditions affecting the autonomic nervous system, rather than the simple action of atrial contraction. Lastly, while the opening and closing of heart valves are part of the overall function of the heart, atrial contraction does not directly cause valves to open; it depends on the pressure dynamics in the heart chambers and the timing of contractions.

10. How is oxygenated blood returned to the heart?

- A. By the aorta
- B. Through the pulmonary veins**
- C. Via the superior vena cava
- D. Through the coronary arteries

Oxygenated blood is returned to the heart through the pulmonary veins. After the blood has been oxygenated in the lungs, it flows back to the left atrium of the heart via these veins. This process is crucial for maintaining the circulation of blood; it allows the heart to receive oxygen-rich blood before it is pumped out to the rest of the body through the aorta. The pulmonary veins are unique in that they are the only veins in the body that carry oxygenated blood. This function is essential for efficient circulation, as it directly contrasts with the role of other blood vessels like the superior vena cava, which returns deoxygenated blood from the body to the heart. Meanwhile, the aorta is responsible for distributing oxygenated blood to the body, and the coronary arteries supply blood to the heart muscle itself, ensuring its proper function. Understanding the pathway of blood flow is key to comprehending how the cardiovascular system operates as a whole.

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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