

HEART PHYSIOLOGY 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. Sounds of the aortic valve can be heard in which location?**
 - A. 2nd intercostal space at left sternal margin
 - B. 2nd intercostal space at right sternal margin
 - C. 5th intercostal space at left sternal margin
 - D. 5th intercostal space at right sternal margin
- 2. Where is blood pressure low as blood enters and flows into the heart?**
 - A. atria, ventricles
 - B. ventricles, arteries
 - C. atria, arteries
 - D. veins, atria
- 3. During the rising phase of an action potential, autorhythmic cells primarily rely on what type of influx?**
 - A. Sodium influx
 - B. Calcium influx
 - C. Potassium influx
 - D. Chloride influx
- 4. How does physical exercise impact heart physiology?**
 - A. Decreases heart rate and weakens heart muscles
 - B. Enhances stroke volume and overall cardiovascular health
 - C. Reduces blood oxygen levels
 - D. Increases the risk of arrhythmias
- 5. Which part of the heart is responsible for receiving deoxygenated blood from the body?**
 - A. Left atrium
 - B. Right atrium
 - C. Left ventricle
 - D. Right ventricle

- 6. What is the term for the relaxation of heart muscle?**
- A. systole
 - B. diastole
 - C. ventricular ejection
 - D. isovolumetric relaxation
- 7. Which heart valve condition involves non-functional or weakened mitral valves?**
- A. mitral valve prolapse
 - B. aortic stenosis
 - C. tricuspid regurgitation
 - D. pulmonary stenosis
- 8. What is systolic blood pressure?**
- A. The lowest pressure in the circulatory system
 - B. The pressure during the rest phase of the heart
 - C. The pressure in arteries during heart contraction
 - D. The average pressure throughout the cardiac cycle
- 9. What does an electrocardiogram (ECG or EKG) measure?**
- A. The sound of the heartbeat
 - B. Blood pressure
 - C. The electrical activity of the heart over time
 - D. Heart valve efficiency
- 10. What is the term for the loss of elasticity in the myocardium?**
- A. dilated cardiomyopathy
 - B. hypertrophic cardiomyopathy
 - C. restrictive cardiomyopathy
 - D. ischemic cardiomyopathy

Answers

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

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Explanations

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1. Sounds of the aortic valve can be heard in which location?

- A. 2nd intercostal space at left sternal margin
- B. 2nd intercostal space at right sternal margin**
- C. 5th intercostal space at left sternal margin
- D. 5th intercostal space at right sternal margin

The sounds of the aortic valve are best heard at the 2nd intercostal space at the right sternal margin. This location corresponds to the area where the aorta exits the heart and is positioned behind the sternum. The proximity of the aortic valve to this area allows the sounds generated during its closure to be transmitted efficiently, making it an optimal spot for auscultation. In contrast, other locations such as the 2nd intercostal space on the left sternal margin are more suited for detecting sounds from the pulmonary valve, while the 5th intercostal space at the left sternal margin is typically where the mitral valve sounds are best heard. The 5th intercostal space at the right sternal margin does not correspond to any of the heart valves and therefore is less relevant for auscultation of heart sounds. Understanding these anatomical relationships is crucial for accurate assessment of heart function and detecting abnormal sounds during examination.

2. Where is blood pressure low as blood enters and flows into the heart?

- A. atria, ventricles**
- B. ventricles, arteries
- C. atria, arteries
- D. veins, atria

Blood pressure is low in the atria and the ventricles as blood enters the heart. This is primarily due to the way the heart is structured and functions in the context of the overall circulatory system. As blood returns to the heart from the systemic circulation, it travels through the veins, where pressure is significantly reduced. This low pressure is essential for the efficient filling of the atria. When the blood enters the atria, it further experiences low pressure because the atrial walls are not muscular and pump blood into the ventricles primarily through passive filling. Similarly, when blood is in the ventricles, although the pressure can build during contraction, the overall pressure in the ventricles before they contract is relatively low compared to the high pressure in the arteries. The ventricles need to fill adequately before they contract to push blood into the arteries, which is why the pressure in these chambers is lower compared to the high-pressure systems found in arteries after the ventricles contract. Therefore, the correct choice reflects the regions within the heart where blood pressure is low, enabling the proper function of the heart's chambers in filling and pumping blood.

3. During the rising phase of an action potential, autorhythmic cells primarily rely on what type of influx?

- A. Sodium influx
- B. Calcium influx**
- C. Potassium influx
- D. Chloride influx

During the rising phase of an action potential in autorhythmic cells, the primary mechanism driving the depolarization is the influx of calcium ions. Autorhythmic cells, found in structures like the sinoatrial (SA) node of the heart, are responsible for generating the action potentials that initiate the heartbeat. As these cells reach a threshold level of depolarization, voltage-gated calcium channels open, allowing calcium ions to rapidly enter the cell. This influx of calcium is crucial for the rising phase because it contributes to the strong depolarization that characterizes this part of the action potential. While sodium influx does play a role in the depolarization of other types of excitable cells, such as neurons and ventricular myocytes, in autorhythmic cardiac cells, calcium is the dominant ion that facilitates the rapid rise in membrane potential. Additionally, during repolarization, potassium ions leave the cell to restore the membrane potential, but this occurs after the peak of the action potential. Thus, within the context of autorhythmic cells, the crucial ion contributing to the rising phase of the action potential is calcium.

4. How does physical exercise impact heart physiology?

- A. Decreases heart rate and weakens heart muscles
- B. Enhances stroke volume and overall cardiovascular health**
- C. Reduces blood oxygen levels
- D. Increases the risk of arrhythmias

Physical exercise has a significant positive impact on heart physiology, primarily by enhancing stroke volume and overall cardiovascular health. During exercise, the heart pumps more robustly, which increases the amount of blood expelled with each heartbeat—this is known as stroke volume. Regular physical activity strengthens the cardiac muscles, improves the efficiency of the heart, and increases its capacity to deliver oxygenated blood throughout the body. Moreover, exercise promotes better circulation and vascular health, reduces resting heart rate over time, improves blood pressure regulation, and contributes to overall heart health by helping manage cholesterol levels. These adaptations collectively support efficient metabolic processes and better oxygen delivery to tissues during both exercise and rest. Understanding these benefits illustrates the crucial role regular physical activity plays in maintaining a healthy heart and preventing cardiovascular diseases.

5. Which part of the heart is responsible for receiving deoxygenated blood from the body?

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

The right atrium is responsible for receiving deoxygenated blood from the body. This chamber collects blood from two major veins, the superior and inferior vena cavae, which return blood that has delivered oxygen to the body's tissues and is now low in oxygen. The right atrium serves as a holding area for this deoxygenated blood before it passes into the right ventricle, which then pumps it to the lungs for oxygenation. This process is a critical part of the pulmonary circulation, allowing the body to re-oxygenate the blood efficiently. In contrast, the left atrium receives oxygen-rich blood from the lungs, the left ventricle is responsible for pumping oxygenated blood to the rest of the body, and the right ventricle pumps deoxygenated blood to the lungs, so they do not directly handle deoxygenated blood coming from the systemic circulation.

6. What is the term for the relaxation of heart muscle?

- A. systole
- B. diastole**
- C. ventricular ejection
- D. isovolumetric relaxation

The term for the relaxation of heart muscle is diastole. During diastole, the heart chambers, specifically the atria and ventricles, relax and fill with blood. This phase is essential for allowing adequate blood volume to enter the heart, preparing it for the subsequent contraction phase known as systole. Diastole includes several sub-phases, but the key aspect is the overall relaxation of the myocardium which permits the chambers to enlarge and receive blood from the body and lungs. Understanding diastole is crucial for grasping how the heart functions in a rhythmic and coordinated manner, maintaining an effective cardiac cycle that supports blood circulation throughout the body.

7. Which heart valve condition involves non-functional or weakened mitral valves?

- A. mitral valve prolapse**
- B. aortic stenosis
- C. tricuspid regurgitation
- D. pulmonary stenosis

Mitral valve prolapse is characterized by the weakening or improper functioning of the mitral valve, which is located between the left atrium and left ventricle of the heart. In this condition, the valve's leaflets become enlarged or floppy and may bulge (prolapse) back into the left atrium during the heart's contraction. This can lead to symptoms such as palpitations, chest pain, or even shortness of breath in some individuals, although many remain asymptomatic. On the other hand, the other conditions listed involve different aspects of heart valve function. Aortic stenosis primarily affects the aortic valve and involves narrowing that impedes blood flow from the heart. Tricuspid regurgitation involves the tricuspid valve, where blood flows backward into the right atrium. Pulmonary stenosis relates to the narrowing of the pulmonary valve, affecting blood flow to the lungs. None of these conditions specifically describe issues with the mitral valve itself, making mitral valve prolapse the correct choice for a condition that involves non-functional or weakened mitral valves.

8. What is systolic blood pressure?

- A. The lowest pressure in the circulatory system
- B. The pressure during the rest phase of the heart
- C. The pressure in arteries during heart contraction**
- D. The average pressure throughout the cardiac cycle

Systolic blood pressure refers specifically to the pressure exerted on the walls of the arteries during the contraction of the heart's ventricles, known as systole. During this phase, blood is actively pumped from the heart into the aorta and subsequently into the arteries, resulting in the highest level of pressure within the circulatory system. This measurement is crucial as it reflects how efficiently the heart is working to supply blood to the body during periods of activity. In contrast, options related to the lowest pressure, rest phase, or average pressure describe other aspects of blood pressure dynamics. The lowest pressure pertains to diastolic blood pressure, which occurs when the heart relaxes. The average pressure throughout the cardiac cycle is known as mean arterial pressure, an important measure for understanding overall blood flow but distinct from systolic blood pressure. Each of these concepts plays a role in cardiovascular health, but systolic pressure is specifically defined by the contraction of the heart muscle.

9. What does an electrocardiogram (ECG or EKG) measure?

- A. The sound of the heartbeat
- B. Blood pressure
- C. The electrical activity of the heart over time**
- D. Heart valve efficiency

The electrocardiogram (ECG or EKG) is a crucial tool used in cardiology to assess the heart's function. It specifically measures the electrical activity of the heart over time. This electrical activity is generated by the heart's pacemaker cells and propagates through the heart muscle, prompting the cardiac chambers to contract and pump blood. The ECG provides a graphical representation of these electrical impulses, allowing healthcare professionals to analyze the rhythm, rate, and overall health of the heart. Understanding this electrical activity is vital for diagnosing various cardiac conditions, such as arrhythmias, heart attacks, and other heart diseases. The data collected from an ECG can reveal important information about the timing and duration of each phase of the heartbeat, which is essential for evaluating the heart's rhythm and function. In contrast, other choices relate to different aspects of cardiac assessment. The sound of the heartbeat pertains to auscultation and does not provide the electrical signals. Blood pressure measurement reflects the pressure exerted by circulating blood but does not capture electrical activity. Lastly, heart valve efficiency relates to the functionality and competence of the heart valves but is not something directly measured by an ECG. Each of these methods plays a role in cardiovascular assessment, but the ECG is uniquely focused on electrical

10. What is the term for the loss of elasticity in the myocardium?

- A. dilated cardiomyopathy**
- B. hypertrophic cardiomyopathy
- C. restrictive cardiomyopathy
- D. ischemic cardiomyopathy

The correct answer relates to dilated cardiomyopathy, which is characterized by the dilation of the ventricles and a subsequent loss of myocardial elasticity. This condition leads to impaired contractility as the heart muscle becomes weakened and thinned, making it difficult for the heart to pump blood effectively. In dilated cardiomyopathy, the loss of elasticity primarily arises due to structural changes associated with the dilation of the heart chambers, affecting the overall function and efficiency of the myocardium. In contrast, hypertrophic cardiomyopathy involves the thickening of the heart muscle, particularly the ventricular septum, which may lead to obstruction of blood flow and altered compliance but does not primarily highlight the loss of elasticity. Restrictive cardiomyopathy is a different condition where the heart muscle becomes rigid, restricting the filling of the ventricles, though this corresponds to stiffness rather than a general loss of elasticity. Ischemic cardiomyopathy results from the effects of coronary artery disease where heart tissue is damaged due to chronic ischemia, compromising myocardial function without directly indicating a generalized loss of elasticity. Each of these conditions affects heart function differently, emphasizing why dilated cardiomyopathy is the term most directly associated with the loss of myocardial elasticity.

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://heartphysiology.examzify.com>

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

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