

AQA A LEVEL PE – THE CARDIOVASCULAR SYSTEM PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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 angina?**
 - A. Chest pain due to restricted blood supply to the heart muscles
 - B. Chest pain caused by chest wall injury
 - C. Chest tightness due to anxiety
 - D. Pain only during sleep

- 2. The pressure in the arteries when the ventricles are contracting is known as:**
 - A. Systolic Pressure
 - B. Diastolic Pressure
 - C. Venous Pressure
 - D. Right Atrial Pressure

- 3. What is the function of the endocardium?**
 - A. Lines the chambers and valves
 - B. Forms outer surface and anchors
 - C. Produces heart sounds
 - D. Pumps blood

- 4. Pocket valves are valves located in veins that prevent backflow. Which statement best describes their function?**
 - A. They regulate arterial flow
 - B. They transport nutrients
 - C. They prevent backflow of blood in the veins
 - D. They assist with blood clotting

- 5. Explain how plasma volume expansion reduces the risk of heat illness during endurance events.**
 - A. Increased plasma volume reduces sweating and increases BP at all times.
 - B. Plasma volume expansion has no effect on heat illness risk.
 - C. Plasma volume expansion increases blood viscosity and heat illness risk.
 - D. Increased plasma volume supports greater stroke volume and sweating efficiency, maintaining BP and delaying dehydration-related impairments.

- 6. Which phase of the heartbeat is the heart contracting?**
- A. Movement of blood
 - B. Systole
 - C. Cardiac Conduction System
 - D. Myogenic
- 7. What is the role of the pulmonary system in supporting cardiovascular responses during exercise?**
- A. Decreases ventilation during exercise.
 - B. Increased ventilation improves O₂ uptake and CO₂ removal, supporting gas transport.
 - C. The pulmonary system only supports gas exchange at rest.
 - D. Ventilation has no impact on matching ventilation and perfusion.
- 8. How does training typically affect maximal cardiac output and stroke volume?**
- A. Maximal cardiac output decreases; stroke volume decreases.
 - B. Maximal cardiac output remains constant and stroke volume unchanged.
 - C. Maximal cardiac output is maintained or increased; stroke volume increases.
 - D. Maximal cardiac output increases but stroke volume falls.
- 9. Persistent high blood pressure can lead to damage to which organ?**
- A. Liver disease
 - B. Lung disease
 - C. Bone disease
 - D. Kidney disease
- 10. Regulate blood flow by ensuring that it moves in one direction. They open to allow blood to pass through, and then close to prevent back flow.**
- A. Veins
 - B. Arteries
 - C. Valves
 - D. Capillaries

Answers

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

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Explanations

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1. What is angina?

A. Chest pain due to restricted blood supply to the heart muscles

B. Chest pain caused by chest wall injury

C. Chest tightness due to anxiety

D. Pain only during sleep

Angina is chest pain caused by reduced blood flow to the heart muscle. When the coronary arteries are narrowed, the heart may not receive enough oxygen, especially during physical activity or stress when its demand increases. This lack of oxygen causes myocardial ischemia, producing the characteristic chest pressure or tightness that can also radiate to the arm, neck, jaw, or back. The sensation is typically relieved by rest or with nitroglycerin. It's not simply chest wall injury or anxiety-driven chest tightness, and it isn't accurately described as pain that only occurs during sleep.

2. The pressure in the arteries when the ventricles are contracting is known as:

A. Systolic Pressure

B. Diastolic Pressure

C. Venous Pressure

D. Right Atrial Pressure

During each heartbeat, the ventricles contract and push blood into the arteries, causing the arterial pressure to rise to a peak. This peak pressure is called systolic pressure. It reflects how hard the heart is pumping and the condition of the arteries. After the heart relaxes, the pressure falls to a lower level called diastolic pressure. Venous pressure refers to the pressure in the veins, and right atrial pressure is the pressure in the right atrium, not the arteries.

3. What is the function of the endocardium?

A. Lines the chambers and valves

B. Forms outer surface and anchors

C. Produces heart sounds

D. Pumps blood

The endocardium is the inner lining of the heart. It lines the chambers and covers the heart valves, providing a smooth, low-friction surface for blood to flow and helping protect the heart tissue from wear as blood moves through the heart. It's continuous with the endothelium that lines all blood vessels. The pumping action comes from the muscular heart wall (myocardium), not the endocardium, and heart sounds come from valve closures and blood flow, not from this inner lining.

4. Pocket valves are valves located in veins that prevent backflow. Which statement best describes their function?

- A. They regulate arterial flow
- B. They transport nutrients
- C. They prevent backflow of blood in the veins**
- D. They assist with blood clotting

Valves in veins are all about keeping blood moving in the right direction to aid return to the heart. Pocket valves are one-way flaps formed by folds of the inner lining. They open to let blood flow toward the heart and snap shut if blood tries to move backward, preventing backflow. This is especially important in the legs, where blood must work against gravity, aided by muscle contractions that squeeze the veins to push blood upward. So the function described is that these valves prevent backflow of blood in the veins. They don't regulate arterial flow, transport nutrients, or directly affect clotting.

5. Explain how plasma volume expansion reduces the risk of heat illness during endurance events.

- A. Increased plasma volume reduces sweating and increases BP at all times.
- B. Plasma volume expansion has no effect on heat illness risk.
- C. Plasma volume expansion increases blood viscosity and heat illness risk.
- D. Increased plasma volume supports greater stroke volume and sweating efficiency, maintaining BP and delaying dehydration-related impairments.**

The main idea being tested is how increasing plasma volume helps the heart and the body's cooling system cope with exercise in the heat. When plasma volume is greater, there is more fluid in the bloodstream, which boosts venous return to the heart. That extra return stretches the heart muscle more (preload), so the heart can squeeze out more blood with each beat (a higher stroke volume) via the Frank-Starling mechanism. With a larger stroke volume, the body can maintain the needed cardiac output for the workload with a lower heart rate, helping keep blood pressure more stable during sustained exercise. Having more circulating fluid also supports the body's cooling process. Better perfusion of the skin helps sustain sweating and evaporative cooling, which lowers core temperature and delays dehydration-related problems that would otherwise impair performance and raise the risk of heat illness. In short, increasing plasma volume keeps blood pressure steady, allows a stronger heartbeat, supports effective cooling, and delays the negative effects of dehydration—together reducing heat illness risk during endurance activity.

6. Which phase of the heartbeat is the heart contracting?

- A. Movement of blood
- B. Systole**
- C. Cardiac Conduction System
- D. Myogenic

The main idea is understanding what each term refers to in the heartbeat cycle. Systole is the contraction phase of the heart; during systole the heart muscle tightens, raising pressure and pushing blood out of the chambers into the arteries. That makes it the specific phase in which the heart is actively contracting. The other terms aren't phases of contraction. "Movement of blood" describes what happens as a result of the heartbeat, not the contraction phase itself. The cardiac conduction system is the network that generates and coordinates the electrical impulses that trigger contraction. And "myogenic" describes the heart's ability to generate rhythmic contractions on its own, not the contraction phase per se.

7. What is the role of the pulmonary system in supporting cardiovascular responses during exercise?

- A. Decreases ventilation during exercise.
- B. Increased ventilation improves O₂ uptake and CO₂ removal, supporting gas transport.**
- C. The pulmonary system only supports gas exchange at rest.
- D. Ventilation has no impact on matching ventilation and perfusion.

During exercise the body's demand for oxygen rises and carbon dioxide production increases. The pulmonary system meets this by increasing ventilation, which raises the alveolar oxygen gradient and speeds up O₂ diffusion into the blood while also accelerating CO₂ removal. This keeps arterial oxygen levels adequate to support aerobic metabolism in the heart and working muscles and helps maintain blood pH by removing CO₂, both of which support cardiovascular performance. In short, better O₂ uptake and CO₂ clearance through ventilation directly enhances the blood's ability to deliver oxygen to tissues and keep the cardiovascular system functioning efficiently during exercise. The other statements don't fit because ventilation does not decrease with exercise, the lungs are active players in exercise, and ventilation helps maintain matching with perfusion rather than being irrelevant to it.

8. How does training typically affect maximal cardiac output and stroke volume?

- A. Maximal cardiac output decreases; stroke volume decreases.
- B. Maximal cardiac output remains constant and stroke volume unchanged.
- C. Maximal cardiac output is maintained or increased; stroke volume increases.**
- D. Maximal cardiac output increases but stroke volume falls.

Training mainly boosts the heart's ability to pump more blood per beat. Endurance adaptations enlarge the left ventricle and improve filling, so stroke volume at maximal effort increases. At the same time, maximal heart rate tends to stay the same or fall a little in trained individuals, so the overall maximal cardiac output (which is heart rate × stroke volume) is kept or can be higher because the bigger stroke volume compensates for any modest change in heart rate. So, the best description is that maximal cardiac output is maintained or increased, and stroke volume increases.

9. Persistent high blood pressure can lead to damage to which organ?

- A. Liver disease
- B. Lung disease
- C. Bone disease
- D. Kidney disease**

Ongoing high blood pressure damages the kidneys because they are repeatedly exposed to elevated pressure in the renal arteries. This pressure causes changes in the small blood vessels of the kidneys (arteriosclerosis), which narrows blood flow and leads to ischemic injury of the nephrons. Over time, this results in scarring of the glomeruli and tubulointerstitial tissue, reducing the kidneys' filtering ability. The outcome is a fall in glomerular filtration rate and can produce protein in the urine, progressing to chronic kidney disease. Controlling blood pressure helps protect the kidneys by lowering the pressure transmitted to the glomeruli. Other organs such as the liver, lungs, or bones are not directly damaged by persistent hypertension in the same way the kidneys are.

10. Regulate blood flow by ensuring that it moves in one direction. They open to allow blood to pass through, and then close to prevent back flow.

A. Veins

B. Arteries

C. Valves

D. Capillaries

Valves regulate blood flow by ensuring blood moves in one direction. They open to let blood pass and close to prevent backflow, a mechanism seen in the heart (the atrioventricular and semilunar valves) and in many veins. When forward pressure pushes blood through, the valve leaflets separate; when pressure would push blood backward, the leaflets come together to block the path. This unidirectional control is essential for efficient circulation and to prevent pooling or backflow. Other vessels like veins, arteries, and capillaries carry blood or exchange substances, but they don't actively regulate direction through opening and closing like valves do.

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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://aqaalevelpecardiovascularsys.examzify.com>

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

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