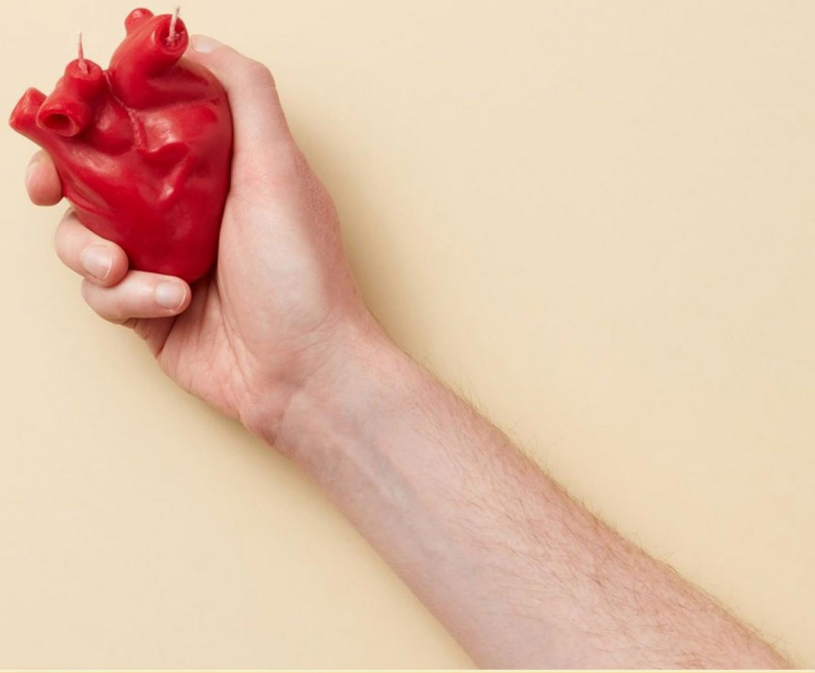


IVY TECH ANATOMY AND PHYSIOLOGY II (APHY 102) HEART PRACTICE TEST (SAMPLE) STUDY GUIDE



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. The volume of blood in a ventricle at the end of contraction (systole) is called which term?**
 - A. End diastolic volume
 - B. End systolic volume
 - C. Stroke volume
 - D. Cardiac output
- 2. Isovolumetric contraction occurs when which valves are closed?**
 - A. Mitral and aortic valves closed
 - B. Mitral and aortic valves open
 - C. Only mitral valve closed
 - D. Only aortic valve closed
- 3. During the cardiac cycle, which phase is characterized by a rapid rise in left ventricular pressure with no change in volume as the mitral and aortic valves are closed?**
 - A. Isovolumetric contraction
 - B. Isovolumetric relaxation
 - C. Ventricular ejection
 - D. Atrial contraction
- 4. Which two valves have chordae tendineae and papillary muscles attached?**
 - A. Tricuspid and Bicuspid
 - B. Aortic and Pulmonary
 - C. Bicuspid and Aortic
 - D. Tricuspid and Aortic
- 5. Which vessel is the major trunk that supplies the right side of the head and arm?**
 - A. Left Pulmonary Artery
 - B. Left Common Carotid Artery
 - C. Anterior Interventricular Artery
 - D. Brachiocephalic Trunk

- 6. Opening of the semilunar valves allows the ventricles to:**
- A. Eject blood into the great arteries
 - B. Fill with blood
 - C. Return blood to the atria
 - D. Relax and rest
- 7. The difference between the rate at which the heart pumps blood at rest and its maximum capacity is called the:**
- A. Cardiac reserve
 - B. Cardiac output
 - C. Stroke volume
 - D. End systolic volume
- 8. Cardiac output is usually expressed in which units?**
- A. Liters per minute
 - B. Milliliters per minute
 - C. Beats per minute
 - D. Milliliters per beat
- 9. Which ECG wave represents ventricular depolarization and atrial repolarization?**
- A. P Wave
 - B. QRS Complex
 - C. T Wave
 - D. ST Segment
- 10. Which arteries nourish the heart muscle?**
- A. Coronary arteries
 - B. Pulmonary arteries
 - C. Aorta
 - D. Carotid arteries

Answers

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

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Explanations

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1. The volume of blood in a ventricle at the end of contraction (systole) is called which term?

- A. End diastolic volume
- B. End systolic volume**
- C. Stroke volume
- D. Cardiac output

The concept being tested is the volume left in the ventricle after it finishes contracting. That remaining blood is called end systolic volume. It contrasts with end diastolic volume, which is the amount in the ventricle at the end of filling (diastole) just before contraction. The amount ejected per beat, or stroke volume, is the difference between EDV and ESV, while cardiac output is the product of stroke volume and heart rate. So the term described here—the volume in the ventricle at the end of systole—is end systolic volume.

2. Isovolumetric contraction occurs when which valves are closed?

- A. Mitral and aortic valves closed
- B. Mitral and aortic valves open**
- C. Only mitral valve closed
- D. Only aortic valve closed

Isovolumetric contraction is the part of ventricular systole when the ventricle is contracting but the volume stays the same. This happens because both valves controlling inflow and outflow are closed: the mitral valve has closed as the ventricular pressure rises above atrial pressure, and the aortic valve remains closed until the ventricle pressure is high enough to open it. With both valves shut, no blood enters or leaves the ventricle, so the pressure increases without a change in volume. When the ventricular pressure finally exceeds the aortic pressure, the aortic valve opens and ejection begins, ending the isovolumetric phase.

3. During the cardiac cycle, which phase is characterized by a rapid rise in left ventricular pressure with no change in volume as the mitral and aortic valves are closed?

- A. Isovolumetric contraction**
- B. Isovolumetric relaxation
- C. Ventricular ejection
- D. Atrial contraction

During the early part of ventricular systole, both the mitral valve and the aortic valve are closed. The ventricle contracts and pressure inside rises rapidly, but the chamber volume stays the same because no blood can enter or leave. This is the phase where the heart builds pressure without a change in volume—isoovolumetric contraction. It continues until left ventricular pressure exceeds aortic pressure and the aortic valve opens, allowing ejection to begin. The other phases involve valves moving (isoovolumetric relaxation with valves closed but pressure falling; ventricular ejection with blood leaving; atrial contraction increasing filling) and do not match the description of a rapid pressure rise with no volume change.

4. Which two valves have chordae tendineae and papillary muscles attached?

A. Tricuspid and Bicuspid

B. Aortic and Pulmonary

C. Bicuspid and Aortic

D. Tricuspid and Aortic

Chordae tendineae and papillary muscles form part of the atrioventricular valve mechanism, preventing the valve leaflets from flipping into the atria when the ventricles contract. The two AV valves—the tricuspid on the right and the mitral (bicuspid) on the left—have these structures attached. The semilunar valves (aortic and pulmonary) lack chordae tendineae and papillary muscles; their cusps are supported differently and closed by pressure rather than by tethered leaflets. So the valves with chordae tendineae and papillary muscles are the tricuspid and bicuspid.

5. Which vessel is the major trunk that supplies the right side of the head and arm?

A. Left Pulmonary Artery

B. Left Common Carotid Artery

C. Anterior Interventricular Artery

D. Brachiocephalic Trunk

The major arterial trunk supplying the right side of the head and upper limb comes off the aortic arch and splits into the right common carotid artery (to the head and neck) and the right subclavian artery (to the upper limb). This trunk is the brachiocephalic trunk, also known as the innominate artery. The other vessels listed don't fit this role: the left pulmonary artery goes to the lungs, the left common carotid supplies the left side of the head/neck, and the anterior interventricular artery serves the heart.

6. Opening of the semilunar valves allows the ventricles to:

A. Eject blood into the great arteries

B. Fill with blood

C. Return blood to the atria

D. Relax and rest

Opening of the semilunar valves happens when the ventricles are contracting. As the ventricle pressure rises above the pressure in the aorta and pulmonary trunk, the cusps of the semilunar valves are forced open, allowing blood to be ejected into the great arteries—the aorta on the left and the pulmonary trunk on the right. This is how the heart delivers blood to circulation. After ejection, ventricular pressure falls and the semilunar valves close to prevent backflow, while filling occurs mainly through the atrioventricular valves during diastole and relaxation follows systole.

7. The difference between the rate at which the heart pumps blood at rest and its maximum capacity is called the:

- A. Cardiac reserve
- B. Cardiac output
- C. Stroke volume
- D. End systolic volume

Cardiac reserve is the heart's extra pumping ability beyond resting output. It's defined as the difference between the maximum cardiac output the heart can achieve during exercise and the cardiac output at rest. Cardiac output equals heart rate multiplied by stroke volume, so the reserve reflects how much you can boost either rate or the amount ejected per beat (or both) to meet greater demands. For context, resting output is about 5 L/min for many people, while peak output during intense activity can reach around 15–25 L/min, giving a substantial reserve. End systolic volume, the amount of blood left in the ventricle after contraction, and stroke volume (per beat) describe other aspects of pumping but not the heart's extra capacity above rest.

8. Cardiac output is usually expressed in which units?

- A. Liters per minute
- B. Milliliters per minute
- C. Beats per minute
- D. Milliliters per beat

Cardiac output measures how much blood the heart pumps each minute. It's the product of how fast the heart beats (heart rate) and how much blood is pumped with each beat (stroke volume). Mathematically, that gives a volume per time, and because stroke volume is typically measured in milliliters per beat and heart rate in beats per minute, CO would be milliliters per minute. In practice this is most commonly expressed as liters per minute for clarity and because resting values are several liters per minute. For example, with a stroke volume around 70 mL/beat and a heart rate around 70 beats/min, $CO \approx 4900 \text{ mL/min} \approx 4.9 \text{ L/min}$. Thus liters per minute is the standard unit. The other options describe heart rate alone (beats per minute) or volume per beat (milliliters per beat) or mix a rate without the per-time context, which don't represent cardiac output.

9. Which ECG wave represents ventricular depolarization and atrial repolarization?

- A. P Wave
- B. QRS Complex
- C. T Wave
- D. ST Segment

Ventricular depolarization shows up as the sharp, rapid deflections of the QRS complex on the ECG. Atrial repolarization occurs at about the same time but is masked by the much larger ventricular depolarization signal, so you don't see a separate wave for it. The P wave corresponds to atrial depolarization, the T wave to ventricular repolarization, and the ST segment is the flat interval between depolarization and repolarization. So the wave that represents ventricular depolarization (with atrial repolarization occurring during that interval but hidden) is the QRS complex.

10. Which arteries nourish the heart muscle?

A. Coronary arteries

B. Pulmonary arteries

C. Aorta

D. Carotid arteries

The heart muscle is nourished by its own dedicated blood supply, the coronary arteries. These vessels originate from the aorta just above the aortic valve and travel over and into the heart muscle to deliver oxygen-rich blood to the myocardium. This specialized circulation is distinct from other arteries: the pulmonary arteries carry blood to the lungs, not to the heart muscle; the aorta mainly distributes blood to the rest of the body rather than specifically nourishing the heart; and the carotid arteries supply the head and neck. Knowing this helps explain why blockages in the coronary arteries can compromise the heart's oxygen supply and lead to heart problems.

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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://ivytechaphy102heart.examzify.com>

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

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