

ANATOMY AND PHYSIOLOGY DIAGNOSTIC IMAGING 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 the normal range for left ventricular ejection fraction on echocardiography?**
 - A. Approximately 40-60%
 - B. Approximately 60-75%
 - C. Approximately 55-70%
 - D. 20-40%
- 2. Which imaging modality is most appropriate to detect contrast extravasation from vessels during evaluation of vascular leakage?**
 - A. CT with contrast
 - B. Ultrasound
 - C. MRI without contrast
 - D. X-ray without contrast
- 3. In ultrasound, what does echogenicity describe and what does a completely anechoic structure indicate?**
 - A. Echogenicity describes tissue attenuation; anechoic structures are highly echogenic.
 - B. Echogenicity describes tissue reflecting sound; anechoic structures produce no internal echoes, indicating fluid.
 - C. Echogenicity describes tissue density; anechoic structures contain air.
 - D. Echogenicity describes tissue motion; anechoic structures indicate uniform movement.
- 4. What is the purpose of directional terms in anatomical description?**
 - A. They explain where one body structure is in relation to another.
 - B. They describe how structures move relative to each other.
 - C. They describe the body's chemical properties.
 - D. They specify the size of body organs.
- 5. In Doppler ultrasound, what sign indicates significant stenosis in a vessel?**
 - A. Absence of flow within the vessel
 - B. Increased peak systolic velocity at the stenosis with post-stenotic turbulence
 - C. Laminar flow across the stenotic segment
 - D. Decreased flow velocity at the stenosis

6. The skin is _____ to the skeletal muscles.
- A. Superficial
 - B. Deep
 - C. Internal
 - D. External
7. _____ work cooperatively to perform necessary life functions.
- A. Cell groups
 - B. Organ systems
 - C. Body tissues
 - D. Nervous tissues
8. In Doppler evaluation, what does post-stenotic turbulence indicate?
- A. Laminar flow immediately downstream
 - B. Turbulent flow at the stenosis mouth
 - C. No flow after the stenosis
 - D. Turbulent flow distal to the stenosis
9. Within the thoracic cavity, the space that houses the heart is called the
- A. Pleural cavity
 - B. Mediastinal cavity
 - C. Abdominopelvic cavity
 - D. Pericardial cavity
10. Which organ is located in the abdominal cavity?
- A. Heart
 - B. Bladder
 - C. Stomach
 - D. Lungs

Answers

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

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Explanations

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1. What is the normal range for left ventricular ejection fraction on echocardiography?

- A. Approximately 40-60%
- B. Approximately 60-75%
- C. Approximately 55-70%**
- D. 20-40%

Left ventricular ejection fraction on echocardiography is a measure of how much of the blood in the left ventricle is pumped out with each heartbeat, expressed as a percentage. It is calculated from the ventricle's volumes, typically using the Simpson's biplane method from apical views: $EF = (EDV - ESV) / EDV \times 100$. This value provides a snapshot of systolic function. The normal range is about 55–70%. Values in this window indicate preserved systolic function. If EF falls below roughly 50%, it suggests some degree of systolic dysfunction, with progressively lower values indicating more impairment. The other ranges either miss the typical lower or upper limits of normal or fall clearly into abnormal territory, so the 55–70% range best represents the standard normal for echocardiographic assessment.

2. Which imaging modality is most appropriate to detect contrast extravasation from vessels during evaluation of vascular leakage?

- A. CT with contrast**
- B. Ultrasound
- C. MRI without contrast
- D. X-ray without contrast

When you need to show contrast material leaking outside vessels, you want an imaging study that directly visualizes the contrast as it moves into surrounding tissues. CT with intravenous contrast excels here because it delivers rapid, high-contrast, high-resolution images that clearly depict extravasated contrast material extending beyond the vascular boundaries. This makes it possible to pinpoint the exact site and estimate the extent of leakage quickly, which is crucial in acute vascular leakage scenarios where timely decisions matter. The speed and wide availability of CT also enable prompt assessment in unstable patients or when a broad region must be evaluated, and using arterial and venous phase imaging can help differentiate active leakage from pooled or nonactive extravasation. Ultrasound might detect fluid collections but isn't reliable for identifying active contrast leakage and is highly operator-dependent. MRI without contrast cannot show leaked contrast at all, and MRI with contrast, while capable, is slower and less practical in urgent settings. X-ray without contrast provides no visual of leaked contrast or soft-tissue detail.

3. In ultrasound, what does echogenicity describe and what does a completely anechoic structure indicate?

- A. Echogenicity describes tissue attenuation; anechoic structures are highly echogenic.
- B. Echogenicity describes tissue reflecting sound; anechoic structures produce no internal echoes, indicating fluid.**
- C. Echogenicity describes tissue density; anechoic structures contain air.
- D. Echogenicity describes tissue motion; anechoic structures indicate uniform movement.

In ultrasound, echogenicity is about how strongly a structure reflects the sound waves, which shows up as brightness on the image. A completely anechoic structure has no internal echoes at all, so it appears completely black. This pattern is typical of fluid-filled spaces, because fluids transmit sound with minimal reflection or scattering, unlike solid tissues that reflect more and appear brighter. So echogenicity describes reflectivity, and a blank (no echoes) interior signals fluid content. The other ideas mix in concepts like attenuation, density, or motion, which aren't what echogenicity measures. Attenuation is about how the signal weakens with depth, density is a material property, and motion refers to movement rather than how the tissue reflects sound.

4. What is the purpose of directional terms in anatomical description?

- A. They explain where one body structure is in relation to another.
- B. They describe how structures move relative to each other.**
- C. They describe the body's chemical properties.
- D. They specify the size of body organs.

Directional terms are used to describe where a structure is located relative to another, grounded in the standard anatomical position. They let us convey precise spatial relationships without ambiguity. For example, terms like anterior (toward the front) and posterior (toward the back) tell us where one structure lies in relation to another; superior (above) and inferior (below) describe vertical position; medial and lateral indicate closeness to or distance from the midline. Proximal and distal describe closeness to a point of attachment or origin, while superficial and deep describe relative closeness to the body surface or to the inside. These terms are about location, not movement. They're used to describe static relationships in a consistent way, so clinicians and scientists can communicate clearly regardless of the body's orientation. They rely on the standard anatomical position as the reference frame, which keeps descriptions the same whether a person is standing, sitting, or lying down. So, the purpose is to explain where a structure is in relation to another—providing a clear map of spatial relationships rather than describing how structures move, their chemical properties, or their size.

5. In Doppler ultrasound, what sign indicates significant stenosis in a vessel?

- A. Absence of flow within the vessel
- B. Increased peak systolic velocity at the stenosis with post-stenotic turbulence**
- C. Laminar flow across the stenotic segment
- D. Decreased flow velocity at the stenosis

When a vessel narrows, the flow has to speed up at that point to push the same amount of blood through a smaller area. That rise in velocity shows up on Doppler as a high peak systolic velocity right at the stenosis. After the narrow segment, the jet often decelerates and becomes unstable as it expands again, creating turbulent flow downstream. You'll see spectral broadening and irregular color flow in that post-stenotic region. So the combination of increased peak systolic velocity at the narrowing plus post-stenotic turbulence is the best sign that the stenosis is hemodynamically significant. Absence of flow points to occlusion rather than stenosis, laminar flow across a narrowed segment is uncommon due to disturbance, and decreased velocity contradicts the basic principle that velocity rises with reduced cross-sectional area.

6. The skin is _____ to the skeletal muscles.

- A. Superficial
- B. Deep**
- C. Internal
- D. External

Skin is superficial to skeletal muscles. It sits near the body's exterior, with the epidermis and dermis overlying subcutaneous tissue, and the muscles located deeper underneath. Deep would place the skin farther inside, which isn't correct for this relationship. Internal describes being inside, and while external could be used, the most accurate term for this context is superficial.

7. _____ work cooperatively to perform necessary life functions.

- A. Cell groups
- B. Organ systems**
- C. Body tissues
- D. Nervous tissues

Organ systems are groups of organs that work together to perform the functions necessary for life. This cooperation across different organs allows the body to carry out broad tasks like digestion, circulation, respiration, and maintaining stable internal conditions. While cells form tissues that perform specific roles, it takes multiple organ systems to coordinate these processes and keep the organism functioning. For example, the respiratory and circulatory systems work together to exchange gases and transport them to tissues, and the nervous and endocrine systems help regulate the speed and control of these activities. So, the idea of multiple parts acting in concert to support life points to organ systems as the correct concept.

8. In Doppler evaluation, what does post-stenotic turbulence indicate?

- A. Laminar flow immediately downstream
- B. Turbulent flow at the stenosis mouth
- C. No flow after the stenosis
- D. Turbulent flow distal to the stenosis**

Post-stenotic turbulence occurs because the narrowed segment accelerates the blood jet, and as the flow exits the stenosis it expands and decelerates, leading to flow separation and eddies downstream. This disrupted flow is what Doppler detects as turbulent or disturbed flow distal to the stenosis, often with spectral broadening. It's not laminar right after the narrowing, not zero flow, and turbulence at the stenosis mouth would be at the narrowest point itself rather than downstream. Thus, turbulent flow distal to the stenosis best explains post-stenotic turbulence.

9. Within the thoracic cavity, the space that houses the heart is called the

- A. Pleural cavity
- B. Mediastinal cavity
- C. Abdominopelvic cavity
- D. Pericardial cavity**

The space that houses the heart is the pericardial cavity. The heart sits inside a two-layered membrane called the pericardium, and the pericardial cavity is the potential space between the inner visceral layer and the outer parietal layer of that membrane. This fluid-filled space reduces friction during each heartbeat as the heart moves within the mediastinum of the thorax. The pleural cavities surround the lungs, not the heart; the mediastinal area is the central chest region that contains the heart and great vessels, but the specific space around the heart is the pericardial cavity; the abdominopelvic cavity lies below the diaphragm.

10. Which organ is located in the abdominal cavity?

- A. Heart
- B. Bladder
- C. Stomach**
- D. Lungs

Understanding body cavities helps locate organs. The abdominal cavity houses most digestive organs, including the stomach, which sits in the upper abdomen just below the diaphragm. The heart and lungs are in the thoracic cavity, separated from the abdomen by the diaphragm. The bladder is located in the pelvic cavity, though it can extend upward when full. So, the organ located in the abdominal cavity is the stomach.

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://anatomyphysiodiagnosticimaging.examzify.com>

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

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