INVASIVE CARDIOLOGY 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.

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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!

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Questions

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1. **During a DSA run-off, what does the computer do to enhance arterial visualization?**

   A. Subtract bone landmarks and some motion

   B. Add bone landmarks to outline tissues

   C. Colorize only veins

   D. Create a 3D model from CT

2. **What percentage of adverse reactions to contrast occur within the first five minutes?**

   A. 60%

   B. 70%

   C. 80%

   D. 50%

3. **Which item is primarily used to navigate vessels and deliver devices during PCI?**

   A. Guide wire

   B. Manifold

   C. Extension tubing

   D. Blunt tip wire introducer

4. **During the application of a TR band, what is the second step?**

   A. Flush sheath

   B. Withdraw 2-3 cm of sheath and slide band over puncture site

   C. Align the green marker on the device to the puncture site

   D. Inflate balloon to at least 13 cc or nominal while removing sheath

5. **Antegrade femoral cannulation involves placing the cannula at which location and orientation?**

   A. 2 cm below inguinal ligament, at least 1 cm above CFA bifurcation; patient usually flipped on table

   B. 2 cm above inguinal ligament; patient upright

   C. At CFA bifurcation; patient in lateral decubitus

   D. 2 cm below CFA bifurcation; patient prone

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6. Which step is part of performing an ABI exam?

A. Apply Doppler gel

B. Inflate cuff to 100 mmHg above systolic

C. Place the probe at a 90-degree angle toward the elbow

D. Record the systolic pressure of only one arm

7. Which device developer is associated with molding pre-shaped catheters and contributed to catheter technology around 1960?

A. Melvin Judkins

B. Andreas Gruentzig

C. Sven-Ivar Seldinger

D. Charles Dotter

8. Which technique, introduced in 1953, is named after its developer and involves arterial access via needle puncture followed by guidewire placement?

A. Sven-Ivar Seldinger

B. Mason Sones

C. Wilhelm Roentgen

D. Charles Dotter

9. Can you use the Spectranetics Excimer Laser if the artery has contrast in it?

A. No, it will hurt the patient

B. Yes, it is safe with contrast

C. It can be used with any contrast

D. Only if contrast is nonionic

10. Which vessel layer is the middle layer composed of smooth muscle cells, elastic fibers and connective tissues?

A. Tunica Media

B. Tunica Adventitia

C. Tunica Intima

D. Endothelium

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Answers

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

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Explanations

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1. During a DSA run-off, what does the computer do to enhance arterial visualization?

A. Subtract bone landmarks and some motion

B. Add bone landmarks to outline tissues

C. Colorize only veins

D. Create a 3D model from CT

In a DSA run-off, arterial visualization is sharpened by subtracting nonvascular structures from the images. The system uses a pre-contrast reference (a mask) and subtracts it from subsequent frames after contrast is injected, so bones and surrounding tissues disappear and the contrast-filled arteries stand out. Motion compensation is often applied as part of this subtraction to reduce misregistration from patient movement or cardiac motion, further clarifying the arterial tree. This method directly enhances arteries; it's not about adding bone landmarks, coloring veins, or creating a CT-derived 3D model, which are different techniques or goals.

2. What percentage of adverse reactions to contrast occur within the first five minutes?

A. 60%

B. 70%

C. 80%

D. 50%

Most adverse reactions to iodinated contrast occur very soon after administration. About 70% of these events happen within the first five minutes, reflecting the rapid onset of immediate hypersensitivity-type reactions and direct mediator release that produce symptoms like flushing, hives, bronchospasm, or low blood pressure within minutes. The remaining reactions occur later, either within minutes to an hour or as delayed reactions that can appear hours to days after exposure. This pattern underlines why vigilant monitoring is essential during and right after contrast administration.

3. Which item is primarily used to navigate vessels and deliver devices during PCI?

A. Guide wire

B. Manifold

C. Extension tubing

D. Blunt tip wire introducer

Navigating vessels and delivering devices during PCI relies on a guide wire as the primary navigation rail. This slender, steerable wire is advanced through the arterial access into the coronary artery and across the lesion, providing a stable track over which balloons, stents, and guiding catheters can be advanced and exchanged. The guide wire offers tactile feedback and control to cross difficult lesions while keeping access to the true lumen intact, which is essential for safe and effective device delivery. The other items serve roles in access or setup rather than providing the navigational path: a manifold is part of the irrigation/flush system, extension tubing connects components but doesn't act as a rail, and a blunt tip wire introducer is used to gain access and introduce a wire, not to facilitate navigation and device delivery.

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4. During the application of a TR band, what is the second step?

A. Flush sheath

B. Withdraw 2-3 cm of sheath and slide band over puncture site

C. Align the green marker on the device to the puncture site

D. Inflate balloon to at least 13 cc or nominal while removing sheath

The TR Band must be positioned so the balloon sits directly over the arterial puncture to provide effective compression. The second step involves withdrawing a small amount of the sheath (about 2–3 cm) and sliding the band over the puncture site so the balloon portion will be centered over the arteriotomy. After this, you align the device's green marker with the puncture site to verify accurate placement, then inflate the balloon to the prescribed volume (often around 13 mL or nominal) while removing the sheath to achieve hemostasis. Flushing the sheath is a preparatory step, but it does not accomplish the positioning required for correct TR Band deployment.

5. Antegrade femoral cannulation involves placing the cannula at which location and orientation?

A. 2 cm below inguinal ligament, at least 1 cm above CFA bifurcation; patient usually flipped on table

B. 2 cm above inguinal ligament; patient upright

C. At CFA bifurcation; patient in lateral decubitus

D. 2 cm below CFA bifurcation; patient prone

In antegrade femoral cannulation you want to access the common femoral artery in a segment where you can advance the catheter toward the heart with a smooth, relatively straight path. This is achieved by puncturing about 2 cm below the inguinal ligament, placing the entry just above the bifurcation of the common femoral artery. Staying at least 1 cm above the bifurcation ensures you're in the CFA rather than the superficial femoral or profunda branches, reducing the risk of entering a smaller branch or causing a dissection. The orientation matters because the catheter should be directed cephalad (toward the aorta). Positioning the patient appropriately, often flipping them on the table, aligns the CFA with the catheter's trajectory, facilitating forward advancement with minimal acute angles. Thus, this site and position optimize stability and safety for advancing the cannula antegrade toward the central circulation.

6. Which step is part of performing an ABI exam?

A. Apply Doppler gel

B. Inflate cuff to 100 mmHg above systolic

C. Place the probe at a 90-degree angle toward the elbow

D. Record the systolic pressure of only one arm

Applying Doppler gel is essential in an ABI exam because the Doppler device relies on good acoustic coupling between the transducer and the skin to hear arterial flow signals clearly. The gel fills tiny air gaps that would otherwise block the ultrasound waves, enabling accurate detection of systolic waveforms as you measure pressures in the brachial and ankle arteries. Other choices don't fit the technique: inflating the cuff to 100 mmHg above systolic is too high for a standard ABI maneuver—typically you inflate just enough (about 20–30 mmHg above systolic) to occlude flow and then gradually deflate to get the systolic pressure. Placing the probe at a 90-degree angle toward the elbow isn't correct because the transducer should lie along the artery's course with a small, appropriate angle to optimize signal, not perpendicular. Recording the systolic pressure of only one arm omits essential data—ABI requires measurements from both arms (and both ankles) to determine the appropriate reference pressures for calculating the index.

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7. Which device developer is associated with molding pre-shaped catheters and contributed to catheter technology around 1960?

A. Melvin Judkins

B. Andreas Gruentzig

C. Sven-Ivar Seldinger

D. Charles Dotter

Molding pre-shaped catheters to match the typical anatomy of the coronary takeoffs revolutionized selective coronary angiography by letting a single, properly shaped catheter engage the coronary ostia with minimal manipulation. Melvin Judkins developed standardized pre-shaped catheters—the famous Judkins left and Judkins right—that were designed to reach the coronary openings reliably with simple, one-catheter access. This approach, in the 1960s, made selective imaging faster, safer, and more reproducible, because clinicians could anticipate the catheter's course and engage the vessels without repeatedly reshaping or maneuvering the catheter. Other figures contributed in different ways: Sven-Ivar Seldinger introduced the percutaneous access technique that underlies modern catheter insertion; Charles Dotter pioneered transluminal angioplasty with early catheter work but not the standard molded shapes; Andreas Gruentzig later popularized balloon angioplasty. The molding of pre-shaped catheters and their use in routine selective coronary angiography is most closely tied to Melvin Judkins.

8. Which technique, introduced in 1953, is named after its developer and involves arterial access via needle puncture followed by guidewire placement?

A. Sven-Ivar Seldinger

B. Mason Sones

C. Wilhelm Roentgen

D. Charles Dotter

The main idea here is the Seldinger technique, a safe way to gain arterial access using a needle puncture followed by a guidewire. In 1953, Sven-Ivar Seldinger described this method: you puncture the vessel with a needle, pass a flexible guidewire through the needle into the lumen, remove the needle while keeping the wire in place, and then advance a catheter over the wire into the vessel before removing the wire. This sequence—puncture, wire, catheter—allows precise, minimally traumatic catheter placement and became the standard for angiography and many vascular interventions. This technique revolutionized how arterial and venous access is obtained, enabling safer diagnostic angiography and later a wide range of interventional procedures in cardiology and radiology. As context, this is distinct from Mason Sones, who is known for pioneering selective coronary angiography, Wilhelm Roentgen, who discovered X-rays, and Charles Dotter, who advanced percutaneous transluminal angioplasty.

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9. Can you use the Spectranetics Excimer Laser if the artery has contrast in it?

A. No, it will hurt the patient

B. Yes, it is safe with contrast

C. It can be used with any contrast

D. Only if contrast is nonionic

The key idea is that the excimer laser relies on delivering energy to a clear, fluid-free field to control where ablation happens. The lumen is typically flushed with saline to displace blood because blood absorbs the UV energy and can blunt or misdirect the laser, risking ineffective treatment or injury. If contrast medium remains in the artery, it alters the optical and thermal environment and can absorb or scatter energy in unpredictable ways, potentially causing local overheating, gas formation, or vessel wall injury. For safety, you would not activate the laser while contrast is present; first clear the field with saline so the laser can ablate tissue under well-controlled conditions.

10. Which vessel layer is the middle layer composed of smooth muscle cells, elastic fibers and connective tissues?

A. Tunica Media

B. Tunica Adventitia

C. Tunica Intima

D. Endothelium

The middle layer of a blood vessel wall is the tunica media. This layer is rich in smooth muscle cells arranged in concentric layers, with elastic fibers and supportive connective tissue. The smooth muscle allows the vessel to constrict or dilate, regulating blood flow and pressure, while the elastic fibers give the wall the ability to recoil after being stretched by the pulse. By contrast, the innermost layer is the tunica intima, which is the endothelial lining (plus a subendothelial layer). The outermost layer is the tunica adventitia, made mostly of connective tissue and containing vessels and nerves that supply the vessel. The endothelium refers specifically to the single-cell lining of the intima, not the middle layer.

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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://invasivecardiology.examzify.com

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

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