

HESI Safety V2 Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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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. Which quantity directly measures the quality of the diagnostic x-ray beam?**
 - A. Milliamperage (mA).**
 - B. Kilovolts peak (kVp).**
 - C. Source to image receptor distance (SID).**
 - D. Half Value Layer (HVL).**

- 2. Who should stay in the patient's room during a portable x-ray examination performed in a hospital room?**
 - A. Nurses.**
 - B. Radiographers.**
 - C. Physicians.**
 - D. Visitors.**

- 3. Which thickness of aluminum filtration will most decrease the patient's skin dose?**
 - A. 1 mm.**
 - B. 0.5 mm.**
 - C. 2.5 mm.**
 - D. 2 mm.**

- 4. Which filtration thickness will most decrease the patient's skin dose?**
 - A. 1 mm**
 - B. 0.5 mm**
 - C. 2.5 mm**
 - D. 2 mm**

- 5. Switching from AP to PA projection reduces gonadal dose. Which option reflects this statement?**
 - A. AP**
 - B. PA**
 - C. AP oblique**
 - D. PA oblique**

- 6. Which of these atoms or parts of atoms exhibits no charge?**
- A. Proton.**
 - B. Electron.**
 - C. Neutron.**
 - D. Hydrogen nucleus.**
- 7. Which statement correctly identifies appropriate use of fluoroscopic technology?**
- A. During C-arm fluoroscopy, the patient-image intensifier distance should be as long as possible.**
 - B. The fluoroscopist must ensure that a cumulative timer is present and used.**
 - C. Mobile C-arm fluoroscopic devices are routinely used for walk-in radiology patients.**
 - D. A primary protective barrier of 1 mm lead equivalent is required.**
- 8. Which qualification is needed to hold the position of Radiation Safety Officer (RSO)?**
- A. Satisfactory completion of RSO training course.**
 - B. Master's or PhD in Health Physics.**
 - C. Knowledge of proper radiation safety.**
 - D. Credentials as a Radiologist or well qualified physician.**
- 9. Which fluoroscopic kilovolts peak (kVp) factor is most appropriate for optimal patient radiation protection?**
- A. 60 - 70 kVp.**
 - B. 80 - 90 kVp.**
 - C. 70 - 80 kVp.**
 - D. 100 - 110 kVp.**
- 10. Hematologic depression is associated with radiation exposure due to dose to which body system?**
- A. Skin**
 - B. Brain**
 - C. Bone marrow**
 - D. Liver**

Answers

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

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Explanations

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1. Which quantity directly measures the quality of the diagnostic x-ray beam?

- A. Milliamperage (mA).**
- B. Kilovolts peak (kVp).**
- C. Source to image receptor distance (SID).**
- D. Half Value Layer (HVL).**

Beam quality is about how penetrating the x-ray beam is, which comes from the photon energy and the filtration in the beam. Half Value Layer directly measures that penetrating power: it's the thickness of material (usually aluminum) required to cut the beam's intensity in half. A larger HVL means the beam has higher average energy and is more penetrating, reflecting greater beam quality. Filtration and higher kVp both increase HVL, making the beam harder, while lower HVL indicates softer photons. In contrast, milliamperage controls how many photons are produced (the beam's quantity), not how penetrable it is. Kilovolts peak does influence the energy spectrum but isn't a direct measure of quality, and source-to-image distance affects image geometry and dose rather than the beam's quality.

2. Who should stay in the patient's room during a portable x-ray examination performed in a hospital room?

- A. Nurses.**
- B. Radiographers.**
- C. Physicians.**
- D. Visitors.**

When a portable X-ray is done at the bedside, the radiographer should stay in the room. They are the one trained to operate the mobile unit, position the patient and the detector correctly, and apply proper collimation and shielding to minimize radiation dose. Their presence allows immediate control of exposure and verification of image quality, while others should step out or stay behind a barrier during the actual exposure to limit unnecessary radiation to staff and visitors.

3. Which thickness of aluminum filtration will most decrease the patient's skin dose?

- A. 1 mm.**
- B. 0.5 mm.**
- C. 2.5 mm.**
- D. 2 mm.**

Filtration works to remove the low-energy photons from the x-ray beam. Those low-energy photons contribute to patient skin dose but don't help form the image, so removing them lowers the dose to the skin while still preserving enough high-energy photons to image well. The thicker the aluminum filter, the more low-energy photons are absorbed, and thus the greater the reduction in skin dose. Among the options, the 2.5 mm aluminum filtration is the thickest, so it provides the most decrease in skin dose. Keep in mind that increasing filtration also reduces beam intensity, so exposure settings may need adjustment to maintain proper image receptor exposure.

4. Which filtration thickness will most decrease the patient's skin dose?

- A. 1 mm
- B. 0.5 mm
- C. 2.5 mm**
- D. 2 mm

Thicker filtration removes more low-energy photons, which are the ones that contribute most to the skin dose because they are readily absorbed by superficial tissues. By filtering them out, the beam becomes harder (higher average energy), so fewer photons deposit energy in the skin while still delivering enough higher-energy photons for image formation. Among the options, the 2.5 mm filtration is the thickest, so it removes the most of these low-energy photons and yields the greatest decrease in entrance skin dose. Keep in mind that while this reduces skin dose, it can affect image quality and may require adjustments to technique to maintain receptor exposure.

5. Switching from AP to PA projection reduces gonadal dose. Which option reflects this statement?

- A. AP
- B. PA**
- C. AP oblique
- D. PA oblique

Switching from AP to PA reduces gonadal dose because the X-ray tube is moved to the opposite side and the gonads lie farther from the source. In a PA setup, the beam must travel through more tissue before reaching the anterior gonads, and the distance from the tube to the gonads is increased, so the dose to those organs drops according to the inverse square law and tissue attenuation. Oblique positions change the path length and dose distribution in less predictable ways, so they don't reliably minimize gonadal exposure. Therefore, the PA projection reflects this statement.

6. Which of these atoms or parts of atoms exhibits no charge?

- A. Proton.
- B. Electron.
- C. Neutron.**
- D. Hydrogen nucleus.

The thing being tested is which subatomic particle has zero electric charge. Protons carry a positive charge, electrons carry a negative charge, and neutrons have no charge at all. In the nucleus, neutrons add mass but not charge, while protons give the nucleus its positive charge. The hydrogen nucleus is essentially a single proton, so it is positively charged. Therefore, the neutral option is the neutron.

7. Which statement correctly identifies appropriate use of fluoroscopic technology?

- A. During C-arm fluoroscopy, the patient-image intensifier distance should be as long as possible.**
- B. The fluoroscopist must ensure that a cumulative timer is present and used.**
- C. Mobile C-arm fluoroscopic devices are routinely used for walk-in radiology patients.**
- D. A primary protective barrier of 1 mm lead equivalent is required.**

The key idea here is controlling exposure in fluoroscopy by actively tracking how long the beam is on. Fluoroscopy delivers X-rays in real time, so the total amount of exposure a patient or staff member receives depends on how long you use the instrument. A cumulative timer built into the fluoroscopy system records the running fluoroscopy time and can alert you or shut the beam off when a preset limit is reached. This simple, direct tool helps enforce ALARA—keeping radiation as low as reasonably achievable—by giving you a concrete, time-based measure to manage dose during procedures. Maximizing the distance between the patient and the image intensifier isn't a standard safety target. In practice, dose management relies on multiple factors, including optimizing beam-on time, using pulsed fluoroscopy, and maintaining proper geometry and collimation to minimize exposure while preserving image quality. Mobile C-arm devices aren't routinely used for standard walk-in radiology exams; they're typically reserved for specific procedures or bedside imaging where fixed, high-quality systems aren't available, and they can introduce variability in dose control. And protective barrier requirements aren't a one-size-fits-all rule; the thickness needed depends on the work environment, beam energy, and occupancy, so stating a flat 1 mm lead equivalent for all primary barriers isn't universally correct. So, the most reliable safety practice is ensuring that a cumulative timer is present and actively used to monitor and limit fluoroscopy exposure.

8. Which qualification is needed to hold the position of Radiation Safety Officer (RSO)?

- A. Satisfactory completion of RSO training course.**
- B. Master's or PhD in Health Physics.**
- C. Knowledge of proper radiation safety.**
- D. Credentials as a Radiologist or well qualified physician.**

Understanding how radiation safety is managed is the core requirement for an RSO. This role hinges on having solid knowledge of how radiation behaves, how to minimize exposure, and how to apply safety controls in real-world operations. With this knowledge, an RSO can assess risks, implement shielding and monitoring, ensure regulatory compliance, train staff, and respond to incidents effectively. While specialized training and credentials can greatly support an RSO, they're not universally required as the sole qualification. Completing an RSO training course or holding an advanced degree in Health Physics can enhance competence, but the essential criterion is a thorough grasp of proper radiation safety and the ability to apply it. Credentials like radiologist qualifications aren't typically relevant to the safety program in most settings.

9. Which fluoroscopic kilovolts peak (kVp) factor is most appropriate for optimal patient radiation protection?

- A. 60 - 70 kVp.
- B. 80 - 90 kVp.
- C. 70 - 80 kVp.
- D. 100 - 110 kVp.**

Higher kilovoltage peak during fluoroscopy generally lowers patient radiation dose because it allows the image to be produced with lower exposure (mA and/or shorter time) while still achieving adequate brightness. As kVp increases, beam energy rises, so you can use a lower dose to reach the same receptor signal. This comes with less contrast, but modern systems and processing help preserve diagnostic usefulness, making higher kVp a key dose-saving strategy. Among the options, the highest kVp range—100 to 110 kVp—offers the greatest potential for protection because it uses the most penetrating beam, enabling lower exposure settings overall. Lower kVp ranges would require higher mA or longer exposure to achieve the same image brightness, increasing the patient dose.

10. Hematologic depression is associated with radiation exposure due to dose to which body system?

- A. Skin
- B. Brain
- C. Bone marrow**
- D. Liver

Hematologic depression occurs when radiation hits the body's blood-forming tissues. The bone marrow is the primary site for producing blood cells, housing the hematopoietic stem cells that generate white cells, red cells, and platelets. Because these cells divide rapidly, they are highly sensitive to radiation. When the bone marrow receives a radiation dose, its ability to produce blood cells drops, leading to cytopenias and overall hematologic depression. Other tissues like skin, brain, or liver aren't the main sources of blood cell production in adults, so exposure to those areas doesn't cause hematologic depression in the same direct way.

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://hesisafetyv2.examzify.com>

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

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