

General Core of Radiography - Limited Scope Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

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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 exposure factor combination is commonly recommended to reduce patient dose while maintaining image quality?**
 - A. High mAs and low kVp**
 - B. Low mAs and high kVp**
 - C. Low mAs and low kVp**
 - D. High mAs and high kVp**

- 2. In film processing, which chemical is responsible for removing unexposed silver halide crystals and hardening the emulsion?**
 - A. Fixer**
 - B. Developer**
 - C. Wash**
 - D. Dry**

- 3. The annual dose limit equivalent for the skin and hands of an occupationally exposed individual is?**
 - A. 1 rem**
 - B. 50 rem**
 - C. 100 rem**
 - D. 5 rem**

- 4. Increasing kilovoltage in radiography primarily increases**
 - A. Exposure latitude and long-scale contrast**
 - B. Patient dose**
 - C. Short-scale contrast**
 - D. Image sharpness**

- 5. A major function of filtration in radiography is to**
 - A. Reduce patient dose**
 - B. Increase image noise**
 - C. Increase exposure latitude**
 - D. Increase grid efficiency**

- 6. The fixer in film processing has which primary functions?**
- A. Dry the film**
 - B. Wash the film**
 - C. Remove unexposed silver bromide crystals and hardens the emulsion**
 - D. Develop the latent image**
- 7. Shape distortion is caused by**
- A. Film fog due to scatter**
 - B. Misalignment of tube-part-film relationship**
 - C. Short exposure time**
 - D. Increase in mA**
- 8. Which statement best describes the photoelectric effect?**
- A. It occurs when a photon scatters off a nucleus**
 - B. It results in pair production**
 - C. It occurs primarily in the Compton region**
 - D. It occurs when a photon is absorbed by an atom causing ejection of a bound electron**
- 9. Bradycardia is defined as a slow heart rate below how many beats per minute?**
- A. Below 60**
 - B. Below 40**
 - C. Below 100**
 - D. Below 80**
- 10. Which combination increases cellular radiosensitivity according to Bergonie and Tribondeau?**
- A. Young, Rapidly Dividing, Undifferentiated**
 - B. Old, Mature, Differentiated**
 - C. Quiescent Cells With Short Lifespan**
 - D. Post-Mitotic Neurons**

Answers

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

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Explanations

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1. Which exposure factor combination is commonly recommended to reduce patient dose while maintaining image quality?

- A. High mAs and low kVp**
- B. Low mAs and high kVp**
- C. Low mAs and low kVp**
- D. High mAs and high kVp**

The idea here is to reduce the radiation dose to the patient by adjusting exposure factors to keep enough photons reaching the detector without producing excessive photons. Using a high kilovoltage peak increases the energy of the X-ray photons, which improves penetration through body tissues. This allows you to lower the milliamperere-seconds (mAs), which directly controls the number of photons produced. With fewer photons emitted, the patient's dose drops, yet the higher energy beam can still produce a receptor exposure that is sufficient for a diagnostic image. Modern digital detectors can tolerate the resulting lower contrast, and image processing can help maintain diagnostic quality, so the overall image remains acceptable while the dose is minimized. Other factor combinations either raise dose (high mAs) or risk underpenetration and noisy images (too low mAs with too low kVp or insufficient beam quality), making them less favorable for dose reduction with preserved quality.

2. In film processing, which chemical is responsible for removing unexposed silver halide crystals and hardening the emulsion?

- A. Fixer**
- B. Developer**
- C. Wash**
- D. Dry**

The key action here is fixing: it clears unexposed silver halide from the emulsion and hardens the gelatin coating. The fixer uses a clearing agent (like thiosulfate) to dissolve any silver halide that was not exposed, so the unexposed crystals don't remain in the emulsion. It also includes a hardening agent that strengthens the gelatin, making the film more durable during washing and handling. In contrast, the developer creates the visible image by reducing exposed crystals to metallic silver, the wash cleans residual chemicals, and drying simply prepares the film for viewing.

3. The annual dose limit equivalent for the skin and hands of an occupationally exposed individual is?

- A. 1 rem**
- B. 50 rem**
- C. 100 rem**
- D. 5 rem**

Tissues and areas exposed to radiation have different annual dose limits. For someone with occupational exposure, the skin, hands, and feet can tolerate a higher dose than the whole body, because exposure is often localized and the rest of the body remains less affected. The annual limit for the skin and hands is 50 rem per year. This reflects allowing higher localized doses to these exposed surfaces while still protecting overall health. In contrast, the whole-body limit is 5 rem per year, which is much lower because it represents the dose to the entire body. The 15 rem limit for the lens of the eye is another tissue-specific value, and 100 rem isn't the standard annual limit for skin/hands in modern guidelines. So the concept is that skin and hands have a higher permissible annual dose (50 rem) than the whole body (5 rem), to account for localized exposure while still maintaining overall safety.

4. Increasing kilovoltage in radiography primarily increases

- A. Exposure latitude and long-scale contrast**
- B. Patient dose**
- C. Short-scale contrast**
- D. Image sharpness**

Raising kilovoltage increases the energy of the x-ray photons, so more photons penetrate the patient and reach the image receptor. This reduces the difference in attenuation between tissues, producing a longer gray scale—low-contrast, or long-scale, contrast. Because the image becomes less sensitive to exact exposure values, the range of exposures that still yield a diagnostically acceptable image widens, known as exposure latitude. It doesn't primarily improve sharpness, which is governed more by geometric factors like focal spot size and motion, and it doesn't inherently increase patient dose—when kVp is higher, you can often reduce mAs to maintain receptor exposure, which can lower dose. Short-scale contrast is produced with lower kVp.

5. A major function of filtration in radiography is to

- A. Reduce patient dose**
- B. Increase image noise**
- C. Increase exposure latitude**
- D. Increase grid efficiency**

Filtration works by removing the softer, low-energy photons from the x-ray beam. These low-energy photons would deposit most of their energy in superficial tissues, increasing patient skin dose without significantly contributing to image formation. By absorbing them, the beam becomes "harder" (higher average energy), which lowers the dose to the patient and maintains or even improves image quality because the photons that reach the detector are more penetrating and useful for imaging. Filtration doesn't purposefully raise image noise, nor does it increase exposure latitude or grid efficiency—those are not its primary effects and are handled by other aspects of technique and equipment.

6. The fixer in film processing has which primary functions?

- A. Dry the film**
- B. Wash the film**
- C. Remove unexposed silver bromide crystals and hardens the emulsion**
- D. Develop the latent image**

The fixing step is about making the image permanent. It clears unexposed silver halide crystals (silver bromide) from the emulsion and also hardens the gelatin. Removing those unexposed crystals stops them from later reacting or darkening the film, and hardening the emulsion protects the image during washing and handling, helping ensure longevity. The other actions belong to other stages: developing creates the visible image by reducing exposed silver halide to metallic silver; washing removes residual chemicals; drying occurs after everything is washed.

7. Shape distortion is caused by

- A. Film fog due to scatter**
- B. Misalignment of tube-part-film relationship**
- C. Short exposure time**
- D. Increase in mA**

Shape distortion comes from incorrect projection geometry: if the x-ray beam, the body part, and the image receptor aren't aligned, the part's image on the film will be stretched or compressed. The central ray should be perpendicular to the image receptor and the part should lie parallel to the receptor so the image is true to size. When the tube, part, and film aren't in a straight line, you get elongation or foreshortening, which is distortion. This is why misalignment of the tube-part-film relationship is the best answer. Film fog from scatter mainly affects contrast, not shape. A short exposure time reduces motion blur, not distortion. Increasing mA changes density, not geometry.

8. Which statement best describes the photoelectric effect?

- A. It occurs when a photon scatters off a nucleus**
- B. It results in pair production**
- C. It occurs primarily in the Compton region**
- D. It occurs when a photon is absorbed by an atom causing ejection of a bound electron**

The photoelectric effect is the emission of a bound electron from an atom when light with enough energy is absorbed. If the incoming photon's energy exceeds the electron's binding energy (work function), the atom takes up that energy and the electron is ejected; any extra energy becomes the electron's kinetic energy. This is why the statement describing a photon absorbed by an atom causing ejection of a bound electron is the best description. It also highlights a key experimental observation: below the threshold energy, no electrons are emitted, and above threshold the emission can continue as light energy increases, with the kinetic energy of the ejected electron increasing as the photon energy increases. The other scenarios describe different interactions. Scattering off a nucleus is a different process (nuclear or Rutherford-type scattering), not the absorption and ejection seen in the photoelectric effect. Pair production involves creating an electron-positron pair and requires much higher photon energies. Compton scattering involves a photon scattering from a free or loosely bound electron, resulting in a change of the photon's direction and energy rather than causing ejection by absorption.

9. Bradycardia is defined as a slow heart rate below how many beats per minute?

- A. Below 60**
- B. Below 40**
- C. Below 100**
- D. Below 80**

Bradycardia means a heart rate that is slower than normal at rest. The standard cutoff for adults is below 60 beats per minute, which is why that value is used as the definition. Below 60 bpm indicates a slower-than-normal rate, while 60-100 bpm is generally normal for resting adults. Very slow rates like 40 bpm can be considered clinically significant and may cause symptoms or require evaluation. A heart rate of 100 bpm is fast and classified as tachycardia, not bradycardia. An 80 bpm resting rate is within normal limits for many people.

10. Which combination increases cellular radiosensitivity according to Bergonie and Tribondeau?

- A. Young, Rapidly Dividing, Undifferentiated**
- B. Old, Mature, Differentiated**
- C. Quiescent Cells With Short Lifespan**
- D. Post-Mitotic Neurons**

Radiosensitivity depends on how actively a cell is dividing, how differentiated it is, and how much future cell division it has. Bergonie and Tribondeau showed that cells with high mitotic activity, that are undifferentiated, and that have a long potential for division are the most radiosensitive. So a young cell that is rapidly dividing and not yet specialized fits all three factors, making it the most susceptible to radiation damage. In contrast, older, mature, differentiated cells divide rarely and have limited division potential, which makes them more resistant. Quiescent cells and post-mitotic neurons are not actively dividing, so they are even less radiosensitive.

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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://gencoreradiographylimscope.examzify.com>

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

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