

RADIOGRAPHIC TESTING LEVEL 2 (RT-2) GENERAL PRACTICE EXAM (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. What does 'dynamic range' mean in the context of digital radiography?**
 - A. The exposure time limits of the imaging system
 - B. The range of film types available
 - C. The range of exposures accurately captured by a system
 - D. The energy levels of the radiation source
- 2. The gamma factor of Tm-170 is how much at one meter?**
 - A. 0.002 R/(h*Ci)
 - B. 0.0062 R/(h*Ci)
 - C. 0.01 R/(h*Ci)
 - D. 0.05 R/(h*Ci)
- 3. What is a plot of film density versus log of relative exposure commonly called?**
 - A. Film curve
 - B. Characteristic curve
 - C. Radiographic graph
 - D. Exposure profile
- 4. Which factor would be detrimental to radiographic image sharpness?**
 - A. Large film focal distance
 - B. High film contrast
 - C. Increased exposure time
 - D. Higher film sensitivity
- 5. Which factor is critical for obtaining an optimal radiographic image?**
 - A. High humidity levels
 - B. Constant heat exposure
 - C. Proper object to film distance
 - D. Use of low-speed film
- 6. Why is knowing the source-to-image distance (SID) important?**
 - A. It determines the type of film used
 - B. It affects image magnification and sharpness
 - C. It influences the development time
 - D. It has no significant impact on imaging

7. What is one of the common uses of gamma rays in radiographic testing?

- A. To measure sound intensity
- B. To conduct temperature analysis in materials
- C. To penetrate dense metals for internal inspection
- D. To detect electrical currents in wiring

8. What materials are commonly used as radiation shielding?

- A. Wood panels
- B. Plastic sheets
- C. Lead
- D. Aluminum foil

9. What is the half-life of Ir-192 approximately?

- A. 30 days
- B. 74 days
- C. 100 days
- D. 365 days

10. What impact does scatter radiation have on radiographic images?

- A. It enhances the quality of images
- B. It leads to unclear and less detailed images
- C. It has no impact on the quality of images
- D. It is used to calibrate the radiography equipment

Answers

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

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Explanations

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1. What does 'dynamic range' mean in the context of digital radiography?

- A. The exposure time limits of the imaging system
- B. The range of film types available
- C. The range of exposures accurately captured by a system**
- D. The energy levels of the radiation source

In digital radiography, 'dynamic range' refers specifically to the range of exposures that a system can accurately capture, which aligns perfectly with the selected answer. This concept is crucial because it indicates the system's sensitivity and ability to record varying levels of radiation exposure. A broader dynamic range allows the imaging system to produce usable images across a wider spectrum of exposure levels, from very low to very high. This capability is essential for obtaining high-quality diagnostic images, as it accommodates different patient sizes, anatomical structures, and varying imaging conditions. It ensures that both underexposed and overexposed areas can be visualized adequately, leading to better interpretation of the radiographs. The other options do not correctly define the term 'dynamic range': exposure time limits refer to the timing of the imaging process rather than the sensitivity of the detector; the availability of film types is unrelated to how the digital system operates; and while energy levels of the radiation source are important, they are not a direct measurement of the system's ability to capture varying exposures.

2. The gamma factor of Tm-170 is how much at one meter?

- A. 0.002 R/(h*Ci)
- B. 0.0062 R/(h*Ci)**
- C. 0.01 R/(h*Ci)
- D. 0.05 R/(h*Ci)

*The gamma factor, also known as the exposure rate constant, provides a measure of the exposure rate at a specific distance from a radionuclide, in this case, Tm-170. The value of the gamma factor reflects how much radiation is emitted from a source, allowing for the calculation of radiation exposure for people or equipment nearby. For Tm-170, the gamma factor is approximately 0.0062 R/(h*Ci) at a distance of one meter. This value is essential in radiographic testing as it helps determine safe exposure levels and informs proper safety protocols when working with radioactive materials. The units indicate that for each curie of Tm-170, the radiation exposure would be 0.0062 roentgen per hour at one meter away from the source. Understanding the gamma factor is crucial for professionals in radiographic testing as it assists in risk assessment and ensuring adequate safety measures in environments where radioactive materials are handled.*

3. What is a plot of film density versus log of relative exposure commonly called?

- A. Film curve
- B. Characteristic curve**
- C. Radiographic graph
- D. Exposure profile

The plot of film density versus the logarithm of relative exposure is commonly referred to as the characteristic curve. This graphical representation is essential in radiographic testing as it illustrates the relationship between the exposure of the film and the resulting density obtained after development. The characteristic curve is important because it helps radiographers understand the film's sensitivity to exposure and how effectively the film will capture the variations in density that correlate with the thickness and types of materials being radiographed. It allows for the assessment of film performance under different exposure conditions, thus guiding the selection of appropriate exposure settings for optimal radiographic quality. Understanding the correct terminology and concepts associated with radiographic processes enhances the ability to analyze and interpret results in tests and examinations. The characteristic curve is a fundamental concept in radiography, establishing it as the preferred term in the context of this question.

4. Which factor would be detrimental to radiographic image sharpness?

- A. Large film focal distance**
- B. High film contrast
- C. Increased exposure time
- D. Higher film sensitivity

A large film focal distance can significantly compromise radiographic image sharpness. In radiography, the focal distance refers to the distance between the radiation source (the x-ray tube) and the film or detector. When this distance is increased, the x-rays scatter more before reaching the film, leading to a decrease in image sharpness. This scattering effect can create a blurred image, as the rays are not as well-defined in their path to the film surface. In contrast, high film contrast enhances the visibility of different densities on a radiograph, allowing for greater differentiation between structures. Increased exposure time typically allows more x-rays to reach the film, contributing to a denser image that can actually improve sharpness, as long as other variables are controlled. Similarly, higher film sensitivity can allow for clearer images with lower doses of radiation, maintaining or enhancing sharpness. Therefore, the factor that detracts from image sharpness is indeed a large film focal distance.

5. Which factor is critical for obtaining an optimal radiographic image?

- A. High humidity levels
- B. Constant heat exposure
- C. Proper object to film distance**
- D. Use of low-speed film

The critical factor for obtaining an optimal radiographic image is proper object to film distance. This distance plays a significant role in the clarity and quality of the radiograph. When the object is placed too close to the film, there can be an increase in geometric distortion, leading to a loss of image sharpness. Conversely, if the object is too far away, there may be a decrease in image detail due to reduced exposure intensity. Maintaining the appropriate distance ensures that the X-rays are adequately distributed and that the image is well-defined, enhancing visibility of relevant features and flaws in the material being examined. High humidity levels, constant heat exposure, and the use of low-speed film do not contribute effectively to achieving an optimal radiographic image. High humidity can lead to film fogging, compromising image quality. Constant heat exposure can damage film or cause chemical changes that are detrimental to image clarity. While low-speed film may be used in certain circumstances for specific applications, it does not inherently contribute to optimal results when compared to the critical importance of managing the object to film distance.

6. Why is knowing the source-to-image distance (SID) important?

- A. It determines the type of film used
- B. It affects image magnification and sharpness**
- C. It influences the development time
- D. It has no significant impact on imaging

Knowing the source-to-image distance (SID) is crucial in radiographic testing because it plays a significant role in the image quality, specifically concerning image magnification and sharpness. When the SID is increased, the amount of magnification decreases, which leads to a more accurate representation of the object's size and geometry. This distance affects the geometric properties of the image; a longer SID typically produces a sharper image with less distortion, as the X-ray beam spreads less over a distance, ensuring that more parallel rays strike the film or detector. Additionally, increasing the SID enhances the sharpness of the image by reducing the penumbra effect, which is the gradual transition between light and dark on the edges of an image caused by the divergence of X-ray beams. This principle is fundamental for achieving high-quality radiographic images that allow for better interpretation and diagnosis. While the type of film used, development time, and the statement about having no significant impact on imaging are associated with different aspects of radiography, they do not directly connect to the importance of SID in determining the clarity and accuracy of the images produced.

7. What is one of the common uses of gamma rays in radiographic testing?

- A. To measure sound intensity
- B. To conduct temperature analysis in materials
- C. To penetrate dense metals for internal inspection**
- D. To detect electrical currents in wiring

Gamma rays are commonly used in radiographic testing primarily because of their ability to penetrate dense materials, such as metals. This characteristic makes them particularly effective for internal inspections of welded joints, castings, and other components that may have structural integrity concerns. In the context of radiographic testing, gamma rays produce a clear image of the internal features of objects, allowing inspectors to identify flaws such as cracks, voids, and inclusions that are not visible from the surface. The other options do not align with the applications of gamma rays in radiographic testing. For example, measuring sound intensity pertains to acoustic principles rather than the penetrating abilities of gamma rays. Similarly, temperature analysis is typically performed using thermography or other temperature-measuring techniques and is not related to gamma radiation. Detecting electrical currents in wiring falls under electrical testing methods and does not involve radiographic techniques. Therefore, the correct choice highlights the foundational role of gamma rays in ensuring the reliability and safety of components through internal examination.

8. What materials are commonly used as radiation shielding?

- A. Wood panels
- B. Plastic sheets
- C. Lead**
- D. Aluminum foil

Lead is commonly used as radiation shielding because of its high density and atomic number, which effectively attenuate various types of radiation, including gamma rays and X-rays. The ability of a material to block or absorb radiation depends largely on its density and thickness, and lead, being dense and heavy, provides superior protection compared to other materials. This makes it a standard choice in environments where radiation exposure is a concern, such as in radiology and nuclear facilities. Other materials listed, while potentially useful in specific contexts, do not provide the same level of radiation shielding as lead. For instance, wood panels and plastic sheets are much less effective at attenuating radiation, primarily due to their lower density. Aluminum foil offers slight protection but is also not nearly as effective as lead, particularly against high-energy radiation. Therefore, lead's properties make it the preferred material for radiation shielding.

9. What is the half-life of Ir-192 approximately?

- A. 30 days
- B. 74 days**
- C. 100 days
- D. 365 days

The half-life of Iridium-192 (Ir-192) is approximately 74 days. This means that after 74 days, half of the original quantity of Ir-192 will have decayed into other isotopes, primarily into platinum-192. This property is significant in applications such as radiographic testing and cancer treatment, where Ir-192 is utilized as a source of gamma radiation. Understanding the half-life helps professionals calculate the amount of Ir-192 available for use over time, ensuring effective and safe application in various practices. The other options reflect incorrect half-lives for Ir-192. For instance, a half-life of 30 days would not correspond to Ir-192's decay characteristics and could mislead professionals regarding the isotope's behavior over time in a radiological context. Similarly, a half-life of 100 days or 365 days would also misrepresent the rate of decay, which is critical in relevant applications like radiographic imaging and therapy planning. Understanding the correct half-life ensures accurate dosimetry and effective use of the isotope in medical and industrial applications.

10. What impact does scatter radiation have on radiographic images?

- A. It enhances the quality of images
- B. It leads to unclear and less detailed images**
- C. It has no impact on the quality of images
- D. It is used to calibrate the radiography equipment

Scatter radiation refers to the secondary radiation that occurs when primary X-rays interact with an object and change direction, which often leads to various detrimental effects on radiographic imaging. The presence of scatter radiation can result in a significant decrease in the clarity and detail of an image. This occurs because the scattered rays can expose the radiographic film or digital detector indiscriminately, resulting in fogging and a loss of contrast. When scatter radiation is present, it reduces the overall image quality by obscuring fine details that are critical for accurate interpretation. The image may become more uniform in density, producing a "washed out" appearance that makes it difficult to distinguish between different structures. Thus, understanding the effects of scatter radiation is crucial for radiographers as they work to produce high-quality diagnostic images. In contrast, the other options suggest effects that are either neutral or beneficial, which do not align with the recognized impact of scatter radiation on image quality. Therefore, the assertion that scatter radiation leads to unclear and less detailed images accurately captures the challenges faced by radiographers in minimizing scatter to enhance the clarity and diagnostic utility of radiographic images.

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://rt2general.examzify.com>

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

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