

ASNT RADIOGRAPHIC TESTING (RT) LEVEL II PRACTICE TEST (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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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. When considering x-ray film, what does 'contrast' refer to?**
 - A. The difference in density between light and dark areas
 - B. The overall darkness of the image
 - C. The duration of exposure
 - D. The film's sensitivity to radiation
- 2. Increasing the energy of x-ray or gamma rays has what effect on the characteristic curve?**
 - A. It greatly alters the shape of the curve
 - B. It has little effect on the shape of the curve
 - C. It causes the curve to flatten
 - D. It makes the curve less steep
- 3. How is the adjustment of tube current made in conventional X-ray tube circuits?**
 - A. By varying the X-ray tube voltage
 - B. By adjusting the exposure time
 - C. By adjusting the filament heating current
 - D. By changing the type of X-ray film
- 4. Which type of glass is most likely used as an x-ray barrier window in fluoroscopic equipment?**
 - A. Regular glass
 - B. Plastic glass
 - C. Lead glass
 - D. Crystal glass
- 5. What does the term "radiographic sensitivity" refer to in the context of film exposure?**
 - A. The ability to detect radiation
 - B. The speed at which film responds to radiation
 - C. The range of exposure that can be recorded
 - D. The depth of penetration of the radiation

- 6. Which measurement indicates the effectiveness of a radiographic inspection?**
- A. Exposure time
 - B. Filtration levels
 - C. Penetrameter sensitivity
 - D. Radiation dose
- 7. In radiography, what effect does increasing the kilovoltage generally have on the resulting image?**
- A. Increases contrast
 - B. Decreases contrast
 - C. Increases exposure time
 - D. No effect on image quality
- 8. Which component is essential for ensuring unidirectional current in X-ray radiography?**
- A. Capacitor
 - B. Transformer
 - C. Rectifier
 - D. Filter
- 9. What primarily prevents the intensity of radiation emitted from an x-ray tube from being exactly proportional to tube current?**
- A. The type of x-ray tube used
 - B. The voltage and voltage waveform of the transformer
 - C. The distance from the specimen
 - D. The size of the x-ray film
- 10. The purpose of filtering in an X-ray tube is primarily to:**
- A. Enhance the image quality
 - B. Reduce patient dose
 - C. Increase energy of the beam
 - D. Minimize apparatus overheating

Answers

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

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Explanations

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1. When considering x-ray film, what does 'contrast' refer to?

A. The difference in density between light and dark areas

B. The overall darkness of the image

C. The duration of exposure

D. The film's sensitivity to radiation

In radiographic testing, 'contrast' specifically refers to the difference in density between light and dark areas on the X-ray film. This difference is crucial for distinguishing between different material properties and detecting flaws or inconsistencies within the tested object. High contrast indicates that there is a significant difference between the darkest and lightest areas of the image, making it easier to identify features, defects, and boundaries. It allows radiographers to interpret the images effectively, as areas of interest become clearer against the background. The other options address different attributes of the X-ray film. The overall darkness of the image refers more to exposure levels rather than the comparative difference between light and dark areas. The duration of exposure deals with how long the film is exposed to X-rays, which impacts the film's density but not its contrast directly. Lastly, the film's sensitivity to radiation pertains to the film's responsiveness to x-ray exposure, which influences how well an image forms but is not directly related to the definition of contrast. Understanding the concept of contrast helps radiographers evaluate and interpret images accurately, ensuring that critical information is not overlooked in the inspection process.

2. Increasing the energy of x-ray or gamma rays has what effect on the characteristic curve?

A. It greatly alters the shape of the curve

B. It has little effect on the shape of the curve

C. It causes the curve to flatten

D. It makes the curve less steep

Increasing the energy of x-rays or gamma rays, while keeping other factors constant, typically has little effect on the shape of the characteristic curve. The characteristic curve, which represents the response of a radiographic film or screen to radiation intensity, is influenced more so by factors such as film processing and the energy of the radiation only moderately affects it. X-rays and gamma rays of higher energy can provide better penetration and contrast for certain materials, enabling greater detail in radiographic images. However, the fundamental relationships portrayed in the characteristic curve—such as exposure and resulting density—remain largely consistent, indicating that the overall shape of the curve is stable under varying energy levels. While variations in optimum energy might refine contrast or detail, the primary characteristics of the curve itself tend to remain unchanged.

3. How is the adjustment of tube current made in conventional X-ray tube circuits?

- A. By varying the X-ray tube voltage
- B. By adjusting the exposure time
- C. By adjusting the filament heating current**
- D. By changing the type of X-ray film

In conventional X-ray tube circuits, the adjustment of tube current is achieved by adjusting the filament heating current. The filament in the X-ray tube is heated to generate electrons through thermionic emission. The amount of current flowing through the filament directly influences the number of electrons produced; a higher filament current results in more electrons being emitted and, consequently, an increase in the tube current. This allows for better control over the intensity of the X-ray beam, which is critical for obtaining quality radiographic images. Other options do not directly influence the tube current itself. Adjusting the X-ray tube voltage affects the quality and energy of the X-rays produced, while adjusting the exposure time changes the duration of the X-ray exposure but does not change the tube current directly. Changing the type of X-ray film impacts the sensitivity and detail of the images produced but does not influence the tube current. Therefore, the mechanism of controlling the tube current lies in the adjustment of the filament heating current.

4. Which type of glass is most likely used as an x-ray barrier window in fluoroscopic equipment?

- A. Regular glass
- B. Plastic glass
- C. Lead glass**
- D. Crystal glass

The use of lead glass in fluoroscopic equipment is essential due to its unique properties that effectively attenuate x-ray radiation. Unlike regular or plastic glass, lead glass contains a high percentage of lead oxide, which provides significant shielding against harmful radiation. This is particularly important in medical settings, where both patients and medical staff are exposed to x-rays during diagnostic procedures. Regular glass does not offer adequate protection from radiation, as its density and composition are insufficient to absorb or deflect x-ray photons effectively. Plastic glass, while lightweight and possibly more shatter-resistant, also lacks the necessary density to function as a reliable barrier against x-rays. Crystal glass, although aesthetically appealing and often used for decorative purposes, has no advantages in terms of radiographic protection since it does not contain lead or any significant radiation-shielding materials. In summary, lead glass is distinctly designed for applications that require radiation barriers, making it the appropriate choice for x-ray barrier windows in fluoroscopic equipment. Its composition enables it to protect individuals from radiation exposure, fulfilling a critical safety requirement in healthcare environments.

5. What does the term "radiographic sensitivity" refer to in the context of film exposure?

- A. The ability to detect radiation
- B. The speed at which film responds to radiation**
- C. The range of exposure that can be recorded
- D. The depth of penetration of the radiation

The term "radiographic sensitivity" primarily refers to the speed at which film responds to radiation. This characteristic indicates how quickly and effectively the film can capture the image when exposed to X-rays or gamma rays during the radiographic testing process. A film with high sensitivity will require less radiation to achieve adequate exposure, which can be crucial for producing quality images while minimizing the risk of overexposure or damage from excessive radiation. In radiographic testing, the sensitivity of the film affects both the quality and efficiency of the radiographic process. Rapidly responding films can help in situations where quick results are necessary, or where reducing radiation dose is particularly important, such as in the examination of sensitive components or in medical applications. Understanding the sensitivity of the film allows technicians to make informed decisions about exposure times and the overall radiographic setup, directly impacting the clarity and usefulness of the resultant images.

6. Which measurement indicates the effectiveness of a radiographic inspection?

- A. Exposure time
- B. Filtration levels
- C. Penetrameter sensitivity**
- D. Radiation dose

The effectiveness of a radiographic inspection is primarily indicated by penetrameter sensitivity. A penetrameter, commonly referred to as a "step wedge" or "density step," is a device made of a material similar to that being inspected and is used to verify the sensitivity and responsiveness of the radiographic system used. It provides a benchmark for the detection of flaws by introducing known thickness variations into the radiation beam, which allows for the assessment of image quality and contrast. Penetrameter sensitivity helps establish the minimum detectable size of defects within the examined material, thus directly relating to the reliability and accuracy of the inspection results. A radiographic technique yielding a higher sensitivity will allow for the identification of smaller defects, leading to a more effective and comprehensive inspection. While exposure time, filtration levels, and radiation dose are important parameters in the radiographic process, they do not directly measure the quality of the inspection's capability to detect flaws. Exposure time affects the amount of radiation that reaches the film or detector, filtration levels can influence the quality of the radiation beam, and radiation dose pertains to safety and compliance. However, none of these factors provide a direct assessment of how effectively the inspection can identify discontinuities or defects within the material itself.

7. In radiography, what effect does increasing the kilovoltage generally have on the resulting image?

- A. Increases contrast
- B. Decreases contrast**
- C. Increases exposure time
- D. No effect on image quality

Increasing the kilovoltage (kV) in radiography typically decreases the contrast of the resulting image. This is because higher kilovoltage produces a greater penetration ability of the x-rays, allowing more radiation to pass through the specimen being examined. As a result, the differences in attenuation between various materials become less pronounced, leading to a more uniform gray scale and lower contrast. This means that although the overall exposure to the film or digital sensor may be increased, the distinction between different densities within the image is reduced. Therefore, the choice indicating that increasing kilovoltage decreases contrast is aligned with the principles of radiographic imaging.

8. Which component is essential for ensuring unidirectional current in X-ray radiography?

- A. Capacitor
- B. Transformer
- C. Rectifier**
- D. Filter

In X-ray radiography, the component that is essential for ensuring unidirectional current is the rectifier. Rectifiers are devices that allow current to flow in one direction only, converting alternating current (AC) to direct current (DC). This is crucial in X-ray systems since the X-ray tube requires a steady flow of electrons from the cathode to the anode in a single direction to produce consistent and high-quality X-rays. The unidirectional current helps to maintain a constant and stable operation of the X-ray tube by preventing any reverse current that could potentially damage the tube and produce less effective imaging results. Thus, the rectifier plays a key role in the functionality and reliability of X-ray radiography systems, making it a vital component in their design and operation.

9. What primarily prevents the intensity of radiation emitted from an x-ray tube from being exactly proportional to tube current?

- A. The type of x-ray tube used
- B. The voltage and voltage waveform of the transformer**
- C. The distance from the specimen
- D. The size of the x-ray film

The primary factor that affects the intensity of radiation emitted from an x-ray tube and prevents it from being exactly proportional to tube current is the voltage and voltage waveform of the transformer. In an x-ray tube, the tube current refers to the flow of electrons from the cathode to the anode, which is indeed influenced by the tube current; however, the resultant x-ray intensity also heavily depends on the voltage applied across the x-ray tube. When the voltage is increased, not only does it influence the kinetic energy of the electrons, but it also affects the shape and quality of the x-ray output. The waveform of the voltage can describe how consistently the voltage is applied; for example, a more constant waveform will generally produce more consistent x-ray intensity across time. If the voltage fluctuates, the wattage, and consequently the intensity of the emitted radiation, will not directly correlate to the tube current. The interplay between voltage and current ultimately determines the efficiency of x-ray production, as higher voltage typically allows for a more efficient conversion of electron energy to x-ray photons, leading to variations that deviate from a simplistic linear relationship based solely on tube current. While the other options, such as the type of x-ray tube, distance from the specimen,

10. The purpose of filtering in an X-ray tube is primarily to:

- A. Enhance the image quality
- B. Reduce patient dose**
- C. Increase energy of the beam
- D. Minimize apparatus overheating

Filtering in an X-ray tube serves the primary purpose of reducing patient dose. This is achieved by allowing only the higher-energy X-rays to pass through the filter while absorbing the lower-energy, less useful X-rays, which contribute more to the radiation dose without enhancing image quality. The lower-energy X-rays tend to be absorbed by the patient's body rather than penetrating it, generating unnecessary dose without contributing to the diagnostic information required from the radiograph. By filtering out these less effective rays, the overall radiation exposure to the patient is minimized while maintaining adequate image quality for diagnostic purposes. While filtering can have some secondary benefits, such as potentially enhancing image quality by improving contrast or reducing the risk of overheating in some contexts, these are not the primary reasons for its implementation in X-ray technology. The key focus remains on protecting the patient from excessive radiation exposure.

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://asnrtrlvl2.examzify.com>

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

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