

# Radiology State Board Practice Exam (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. What is the primary role of the radiologic technologist?**
  - A. To analyze and interpret radiographic images**
  - B. To perform imaging procedures and ensure patient safety**
  - C. To develop new imaging technologies**
  - D. To conduct research in radiology**
  
- 2. What is the principle behind image fusion in radiology?**
  - A. Using the same imaging modality repetitively**
  - B. Combining images from multiple modalities for enhanced information**
  - C. Creating 3D images from 2D scans**
  - D. Replacing human analysis with AI technology**
  
- 3. Which film size is recommended for anterior use, especially if the paralleling technique is used?**
  - A. Size 0**
  - B. Size 1**
  - C. Size 2**
  - D. Size 3**
  
- 4. What is the role of hand hygiene in the prevention of cross-contamination?**
  - A. It is only necessary before eating**
  - B. Hand hygiene is essential for reducing the transmission of pathogens**
  - C. Hand hygiene does not significantly impact disease spread**
  - D. Hand hygiene should be performed only when visibly dirty**
  
- 5. When is a full mouth X-ray (FMX) recommended?**
  - A. Every six months**
  - B. Whenever the dentist feels it's necessary**
  - C. Only for new patients**
  - D. After every tooth extraction**

- 6. What type of imaging is particularly useful for evaluating cardiac structures?**
- A. X-ray**
  - B. Magnetic Resonance Imaging (MRI)**
  - C. Computed Tomography (CT)**
  - D. Fluoroscopy**
- 7. Extraoral films are primarily used in which of the following?**
- A. Endodontics**
  - B. Orthodontics**
  - C. Esthetic evaluations**
  - D. Periodontics**
- 8. What is required for dental x-ray rooms to ensure safety?**
- A. Thin plastic barriers**
  - B. Lead lined walls**
  - C. Glass partitions**
  - D. Wooden walls**
- 9. Which safety practice minimizes radiation exposure to patients?**
- A. Prolonged imaging sessions**
  - B. Use of lead shields**
  - C. Allowing unrestricted access to radiation areas**
  - D. Using high radiation doses**
- 10. Describe a common use for a PET scan.**
- A. To assess bone density**
  - B. To find fractures in bones**
  - C. To assess metabolic activity in tissues, often for cancer diagnosis**
  - D. To visualize soft tissue injury**

## Answers

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

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## **Explanations**

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## 1. What is the primary role of the radiologic technologist?

- A. To analyze and interpret radiographic images
- B. To perform imaging procedures and ensure patient safety**
- C. To develop new imaging technologies
- D. To conduct research in radiology

The primary role of the radiologic technologist revolves around performing imaging procedures and ensuring patient safety. This encompasses a wide range of responsibilities, including preparing patients for exams, positioning them correctly to obtain the best possible images, operating radiographic equipment, and adhering to safety protocols to protect both patients and staff from unnecessary radiation exposure. In addition, radiologic technologists must be knowledgeable about the equipment and imaging techniques they use, maintain radiation safety standards, and often explain procedures to patients to help alleviate any anxiety. Their training equips them to handle technical aspects while keeping the patient's well-being as a top priority, which is crucial in the healthcare setting. While analyzing and interpreting radiographic images is a necessary skill, it typically falls under the purview of radiologists rather than the technologists themselves. Developing new imaging technologies or conducting research in radiology also involves specialized roles that are outside the common responsibilities of a radiologic technologist. These areas are generally managed by researchers or engineers with specific expertise in those fields.

## 2. What is the principle behind image fusion in radiology?

- A. Using the same imaging modality repetitively
- B. Combining images from multiple modalities for enhanced information**
- C. Creating 3D images from 2D scans
- D. Replacing human analysis with AI technology

The principle behind image fusion in radiology is the combination of images obtained from multiple imaging modalities. This technique enhances the diagnostic information available to radiologists by integrating different types of data that could provide complementary insights into a patient's condition. For example, combining anatomical information from a CT scan with functional data from an MRI or PET scan allows for a more comprehensive view of a lesion, tumor, or other anatomical features. By utilizing data from different modalities, image fusion improves the accuracy of diagnoses, aids in treatment planning, and enhances the overall understanding of complex medical conditions. This multifaceted approach leverages the strengths of each imaging technique while mitigating their individual limitations, ultimately leading to better patient outcomes and more informed clinical decisions.

**3. Which film size is recommended for anterior use, especially if the paralleling technique is used?**

- A. Size 0
- B. Size 1**
- C. Size 2
- D. Size 3

Size 1 film is the recommended option for anterior use when employing the paralleling technique in dental radiography. This is largely due to its dimensions, which are smaller and more manageable for capturing the images of the anterior teeth, including incisors and canines. The paralleling technique requires the film to be placed parallel to the long axis of the teeth, which helps achieve optimal image quality and minimizes distortion. Size 1 films are specifically designed for use in the anterior region, allowing for better fit within the confines of the oral cavity and facilitating the proper angling of the x-ray beam. Using a larger film, such as size 2, is more appropriate for posterior teeth since they require a larger surface area to capture the broader structure of molars and premolars. Size 0, being even smaller, is typically reserved for very young patients or those with very small mouths and does not provide adequate coverage for anterior teeth. Size 3 films are generally too long for anterior imaging, leading to difficulty in positioning and potentially compromising image quality. Thus, size 1 strikes the right balance for anterior exposure while adhering to the principles of the paralleling technique.

**4. What is the role of hand hygiene in the prevention of cross-contamination?**

- A. It is only necessary before eating
- B. Hand hygiene is essential for reducing the transmission of pathogens**
- C. Hand hygiene does not significantly impact disease spread
- D. Hand hygiene should be performed only when visibly dirty

Hand hygiene plays a critical role in preventing cross-contamination, particularly in healthcare settings where the risk of transmitting infections is heightened. The practice involves washing hands with soap and water or using alcohol-based hand sanitizers to eliminate pathogens that may be present on the skin. Regular and effective hand hygiene significantly reduces the number of microorganisms on hands, which in turn minimizes the likelihood of transferring harmful germs to patients, surfaces, and equipment. This is especially important in environments where patients are vulnerable to infections, as even small amounts of pathogens can lead to serious health issues. The rationale for prioritizing hand hygiene extends beyond just its use before meals or when hands appear dirty; pathogens can be present on hands even when they look clean, and they can be transferred through touch. Therefore, maintaining diligent hand hygiene practices is essential in controlling the spread of infections and ensuring patient safety.

## 5. When is a full mouth X-ray (FMX) recommended?

- A. Every six months
- B. Whenever the dentist feels it's necessary**
- C. Only for new patients
- D. After every tooth extraction

A full mouth X-ray (FMX) is primarily recommended by dental professionals based on the individual needs of the patient, including their dental history, current oral health status, and treatment plans. The timing and necessity of an FMX can vary significantly from one patient to another. For instance, dentists may suggest an FMX when a patient displays symptoms of dental issues, when new patients present without recent X-rays, or when significant changes in oral health occur that necessitate a comprehensive view of all teeth and supporting structures. Routine and frequent radiographs, such as every six months, might not be justified for all patients, especially those who are cavity-free or have infrequent dental problems. Therefore, the decision to take a full mouth X-ray is often made at the discretion of the dentist after a thorough examination, ensuring it aligns with evidence-based practices and individual patient needs. In certain cases, such as after a tooth extraction, a full mouth X-ray may not be necessary. Additionally, it is not exclusively reserved for new patients, as ongoing care and monitoring in existing patients can also warrant an FMX when indicated. This individualized approach highlights the importance of professional judgment in determining the need for comprehensive diagnostic imaging.

## 6. What type of imaging is particularly useful for evaluating cardiac structures?

- A. X-ray
- B. Magnetic Resonance Imaging (MRI)**
- C. Computed Tomography (CT)
- D. Fluoroscopy

Magnetic Resonance Imaging (MRI) is particularly useful for evaluating cardiac structures due to its ability to provide detailed and high-resolution images of the heart and surrounding tissues without the use of ionizing radiation. MRI utilizes strong magnetic fields and radio waves to generate images, allowing for excellent visualization of the myocardium, heart valves, and the great vessels. One of the significant advantages of MRI in cardiology is its capability to assess myocardial function and perfusion, as well as to identify conditions such as cardiomyopathies, congenital heart defects, and ischemic heart disease. Additionally, MRI can provide functional imaging through techniques like cine MRI, which evaluates the heart's motion and can quantify parameters such as ejection fraction. While other imaging modalities like X-ray, Computed Tomography (CT), and Fluoroscopy have their own applications in assessing cardiac conditions, they may not provide the same level of tissue characterization or functional assessment that MRI offers in a non-invasive manner. For instance, X-rays primarily provide structural information and do not capture dynamic functions, while CT can be helpful for assessing coronary artery disease but may expose patients to higher doses of radiation compared to MRI. Fluoroscopy is more often used for real-time imaging of moving structures but is limited in

**7. Extraoral films are primarily used in which of the following?**

- A. Endodontics**
- B. Orthodontics**
- C. Esthetic evaluations**
- D. Periodontics**

Extraoral films are primarily utilized in orthodontics due to their ability to provide a broader view of the dental and skeletal structures. These films, such as panoramic radiographs and cephalometric views, allow orthodontists to assess the positions of the teeth, the alignment of the jaws, and the relationship between the dental and skeletal aspects of a patient's profile. This information is crucial for planning orthodontic treatment, monitoring changes over time, and making necessary adjustments to appliances. Panoramic films, for example, capture a complete view of the mouth in one image, which is particularly useful in orthodontics for evaluating the entire dentition and surrounding structures, helping practitioners in making informed decisions about treatment options. Cephalometric radiographs offer essential measurements of the skull and facial structure, aiding in the assessment of growth patterns and planning orthodontic interventions that could influence a patient's alignment and bite. In contrast, while endodontics focuses on the treatment of dental pulp issues and requires specific intraoral images, and periodontics is concerned with the supporting structures of teeth and often relies on different imaging techniques, the unique requirements of orthodontic treatment align more closely with the capabilities that extraoral films provide. Esthetic evaluations may also benefit from these images but are not the primary

**8. What is required for dental x-ray rooms to ensure safety?**

- A. Thin plastic barriers**
- B. Lead lined walls**
- C. Glass partitions**
- D. Wooden walls**

The requirement for dental x-ray rooms to ensure safety primarily involves the use of lead lined walls. This is because lead is an effective material for shielding against ionizing radiation, which is emitted during x-ray procedures. The walls of the room are lined with lead to protect both the operator and any other individuals in adjacent areas from unnecessary exposure to radiation. Lead's high atomic number allows it to absorb a significant portion of the radiation, thereby minimizing the risk of radiation exposure. This is essential in various imaging facilities, including dental practices, where x-rays are frequently taken. While thin plastic barriers and glass partitions may provide some level of protection, they do not offer the same degree of safety that lead walls provide. Wooden walls are not suitable for radiation protection at all, as they allow for the passage of x-rays without sufficient attenuation. Thus, lead lined walls are vital for creating a safe environment for both patients and healthcare providers in dental x-ray rooms.

**9. Which safety practice minimizes radiation exposure to patients?**

- A. Prolonged imaging sessions
- B. Use of lead shields**
- C. Allowing unrestricted access to radiation areas
- D. Using high radiation doses

Using lead shields is a well-established safety practice that effectively minimizes radiation exposure to patients during diagnostic imaging procedures. Lead shields are made from materials that provide a dense barrier to radiation, absorbing the radiation before it can pass through to the patient's body. This is essential in protecting sensitive organs and tissues from unnecessary exposure, thereby reducing the risk of potential harmful effects, such as radiation burns or an increased likelihood of developing radiation-induced conditions, including cancer. In medical imaging, it is standard practice to use lead aprons and thyroid shields, especially in high-risk areas or during procedures that require higher doses of radiation. By blocking or absorbing the stray radiation, lead shields can significantly lower the dose that the patient receives, ensuring a safer diagnostic process. The other choices do not align with safety practices aimed at minimizing radiation exposure. Prolonged imaging sessions would likely increase exposure rather than minimize it. Allowing unrestricted access to radiation areas would pose significant safety risks, as it could allow individuals to be exposed to harmful levels of radiation without appropriate protective measures. Lastly, using high radiation doses contradicts the principle of "as low as reasonably achievable" (ALARA), which emphasizes keeping radiation exposure to the minimum necessary for obtaining quality diagnostic images.

**10. Describe a common use for a PET scan.**

- A. To assess bone density
- B. To find fractures in bones
- C. To assess metabolic activity in tissues, often for cancer diagnosis**
- D. To visualize soft tissue injury

A PET scan, or positron emission tomography scan, is primarily used to assess metabolic activity in tissues, which is particularly useful in cancer diagnosis. Unlike other imaging techniques that primarily focus on the anatomical structure, PET scans provide functional imaging. They detect gamma rays emitted from radioactive tracers that are introduced into the body, usually through an injection. These tracers are taken up by cells in proportion to their metabolic activity. Cancer cells typically have a higher metabolic rate than normal cells, which allows PET scans to identify areas of increased activity indicative of tumors. This capability makes PET scans an invaluable tool in oncology for not only diagnosing cancer but also in evaluating treatment response, determining the extent of disease, and monitoring for recurrence. Other methods listed, such as assessing bone density and finding fractures, are more aligned with X-rays or bone scans rather than PET scans, which focus on metabolic rather than structural assessment. Similarly, while soft tissue injuries can be visualized with techniques such as MRI and ultrasound, they are not the primary purpose of PET imaging. Thus, the use of PET scans in assessing metabolic activity is a well-established and crucial application, particularly in the context of cancer evaluation and management.

## 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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://radiologystateboard.examzify.com>**

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

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