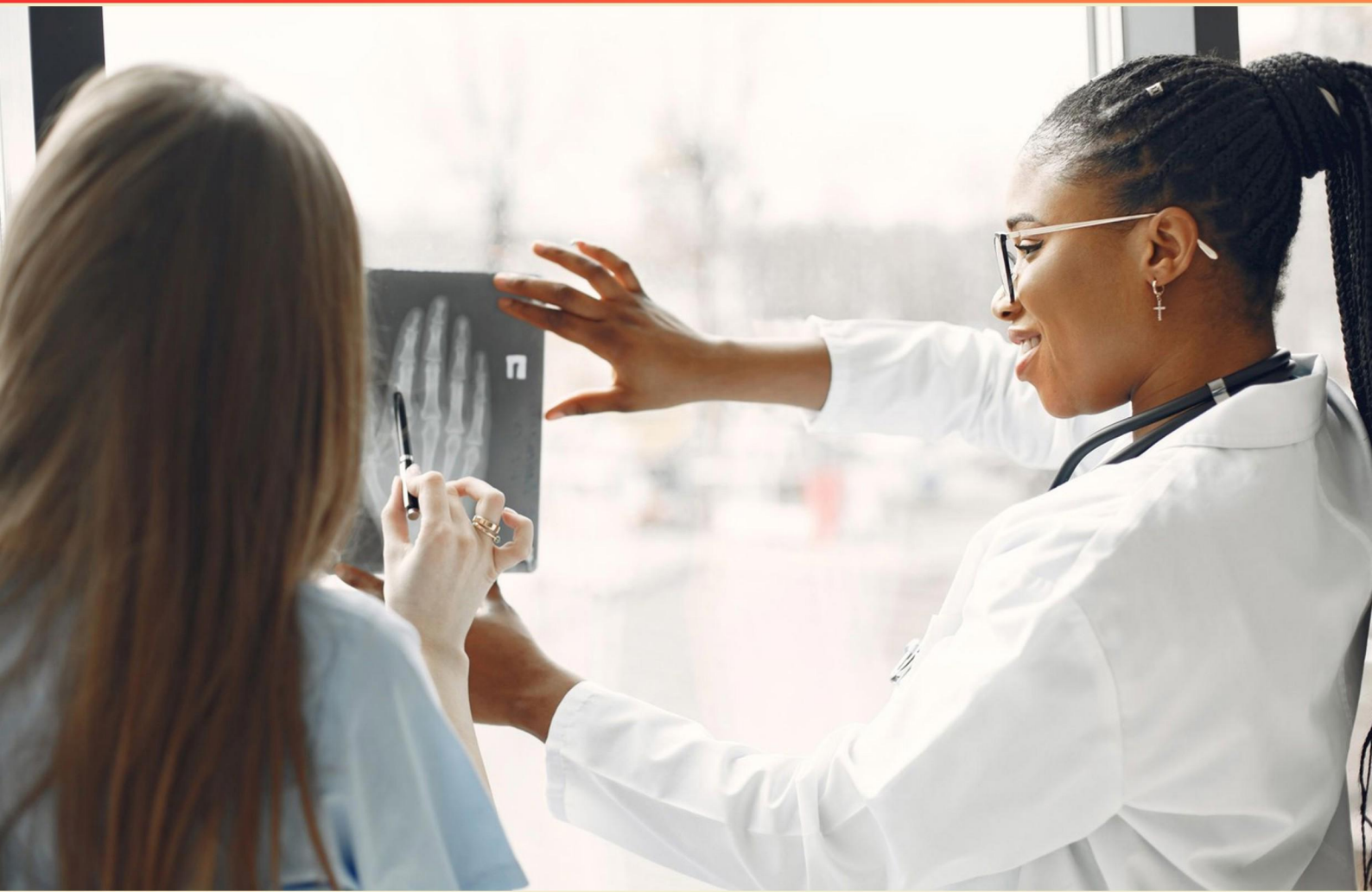


AMERICAN REGISTRY OF RADIOLOGIC TECHNOLOGISTS (ARRT) PRACTICE EXAM (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
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 imaging technique is utilized to demonstrate the frontal and ethmoidal sinuses as best as possible?**
 - A. Horizontal beam lateral
 - B. Pa axial Caldwell
 - C. Submento-vertical
 - D. Water's method

- 2. What is the maximum allowable leakage radiation at a distance of 1 meter?**
 - A. 50 Mr/h
 - B. 75 Mr/h
 - C. 100 Mr/h
 - D. 125 Mr/h

- 3. As KVP increases, what happens to the quality of radiation produced?**
 - A. It decreases
 - B. It remains the same
 - C. It increases
 - D. It fluctuates

- 4. What is the maximum energy of a radiation beam influenced by?**
 - A. Photon quantity only
 - B. Filtration only
 - C. Kilovoltage (KV) settings
 - D. Thickness of the material

- 5. When restraining a child for an imaging procedure, which of the following is recommended if no mechanical device is available?**
 - A. A parent should hold the child
 - B. Another patient can assist in holding the child
 - C. Quickly complete the procedure without restraint
 - D. The clinician should ask for additional staff assistance

6. What is achalasia?

- A. Swelling of the esophagus
- B. Contraction of the esophagus
- C. Dilation of the esophagus
- D. Infection of the esophagus

7. What is primarily affected by the failure of the cardiac sphincter to relax?

- A. Breathing
- B. Digestion
- C. Heart function
- D. Blood circulation

8. What happens to contrast as filtration increases?

- A. Contrast increases
- B. Contrast decreases
- C. Contrast remains the same
- D. Contrast fluctuates

9. Strep throat is classified as what type of organism?

- A. Virus
- B. Fungus
- C. Bacteria
- D. Parasite

10. Which term refers to a grid artifact that occurs when using stationary grids?

- A. Moire effect
- B. Aliasing artifacts
- C. Pseudomasking
- D. Beam hardening

Answers

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

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Explanations

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1. What imaging technique is utilized to demonstrate the frontal and ethmoidal sinuses as best as possible?

- A. Horizontal beam lateral
- B. Pa axial Caldwell**
- C. Submento-vertical
- D. Water's method

The Pa axial Caldwell projection is specifically designed to visualize the frontal and ethmoidal sinuses with optimal clarity. This technique involves positioning the patient's orbitomeatal line perpendicular to the film and angling the central ray 15 degrees caudally. This angular approach allows the X-ray beam to project beneath the orbits, effectively demonstrating the frontal sinuses located above the orbits and the ethmoidal sinuses situated between them. By using the Caldwell method, structures are well-defined, and unwanted shadowing of the orbits is minimized, making it the preferred technique when the primary goal is to evaluate these specific sinuses. The other commonly used methods, while useful for other imaging objectives, do not provide the same level of clarity for the frontal and ethmoidal sinuses due to their different projections and angles.

2. What is the maximum allowable leakage radiation at a distance of 1 meter?

- A. 50 Mr/h
- B. 75 Mr/h
- C. 100 Mr/h**
- D. 125 Mr/h

The maximum allowable leakage radiation at a distance of 1 meter from the source of radiation is defined by regulatory standards to ensure the safety of personnel and the public. This standard is primarily established by organizations such as the National Council on Radiation Protection and Measurements (NCRP) and the American National Standards Institute (ANSI). The value of 100 mR/h (milliroentgen per hour) at a distance of 1 meter is specifically set to limit the exposure to leakage radiation from x-ray equipment and similar devices. This regulatory limit is critical because it helps minimize the risks associated with prolonged exposure to radiation, which is a concern in environments where radiation-producing equipment is used. By establishing a maximum threshold for allowable leakage, regulatory bodies ensure that the equipment is designed and maintained to reduce unnecessary exposure. Therefore, selecting 100 mR/h indicates compliance with safety standards and reflects the commitment to protecting workers and the public from excessive radiation.

3. As KVP increases, what happens to the quality of radiation produced?

- A. It decreases
- B. It remains the same
- C. It increases**
- D. It fluctuates

When the kilovolt peak (KVP) increases, the quality of radiation produced improves significantly. Higher KVP results in radiation that has greater energy and penetrating power. This is crucial in radiologic imaging because higher-quality radiation can more effectively penetrate different tissues and structures within the body, leading to clearer and more diagnostic images. As the energy of the X-ray photons increases, not only does the ability to penetrate dense structures improve, but the overall contrast of the images may be enhanced as well due to improved exposure of varying densities within the body. This allows for better differentiation between various types of tissues and abnormalities. The increased quality of radiation facilitates proper imaging while also potentially reducing patient dose because less radiation is required to achieve a suitable image quality. Understanding this relationship is essential for radiologic technologists to optimize imaging protocols and ensure high-quality outputs while minimizing exposure to patients.

4. What is the maximum energy of a radiation beam influenced by?

- A. Photon quantity only
- B. Filtration only
- C. Kilovoltage (KV) settings**
- D. Thickness of the material

The maximum energy of a radiation beam is primarily influenced by the kilovoltage (KV) settings of the generator that produces the X-rays. The kilovoltage determines the potential difference between the cathode and anode in the X-ray tube, affecting the kinetic energy of the electrons accelerated across this potential difference. When these high-energy electrons collide with the target material in the anode, they produce X-rays. Higher kilovoltage settings result in a greater acceleration of the electrons, leading to the production of X-rays with higher energy. This is crucial in determining both the quality and penetrating ability of the X-ray beam. As the KV increases, the spectrum of X-ray energies produced shifts to higher values, which is essential for effective imaging, particularly with thicker or denser tissues. While factors like photon quantity, filtration, and the thickness of materials can influence the overall characteristics and intensity of the beam, they do not directly affect the maximum energy of the radiation produced. Filtration, for example, can remove low-energy photons from the beam, thereby increasing the average energy in the beam, but it doesn't change the maximum energy itself, which is dictated by the kilovoltage settings.

5. When restraining a child for an imaging procedure, which of the following is recommended if no mechanical device is available?

- A. A parent should hold the child**
- B. Another patient can assist in holding the child
- C. Quickly complete the procedure without restraint
- D. The clinician should ask for additional staff assistance

Choosing to have a parent hold the child during an imaging procedure is often recommended because the presence of a parent can provide comfort and reassurance, which may help alleviate the child's anxiety. A familiar figure, like a parent, can ease the child into the situation, making it less intimidating and causing less movement during the imaging process. This approach also allows the parent to communicate with the child, helping to keep them calm and still, thus facilitating a better quality image and potentially reducing the need for repeated exposures. Furthermore, involving the parent is often in line with child-centered care practices, ensuring that the child's emotional needs are addressed alongside their medical needs. In contrast, involving another patient may present safety and ethical concerns, and attempting to complete the procedure quickly without restraint could lead to inadequate imaging or the necessity of repeating the procedure. Seeking additional staff assistance is also important, but it is generally more effective to have a familiar and comforting presence, such as a parent, assist during the procedure when no mechanical devices are available.

6. What is achalasia?

- A. Swelling of the esophagus
- B. Contraction of the esophagus
- C. Dilation of the esophagus**
- D. Infection of the esophagus

Achalasia is a disorder characterized by the inability of the esophagus to move food down to the stomach due to the failure of the lower esophageal sphincter to relax properly. This results in the dilation of the esophagus above the sphincter as food accumulates because it cannot pass through into the stomach. The condition typically leads to symptoms such as difficulty swallowing, regurgitation of undigested food, and chest pain. Over time, the lack of proper movement and pressure changes in the esophagus cause it to widen, or dilate, above the obstruction created by the sphincter not functioning correctly. While swelling, contraction, and infection of the esophagus could relate to various other conditions, they do not capture the essence of what occurs in achalasia, which is primarily the failure of peristalsis (the rhythmic contractions that propel food) and the resultant accumulation and dilation. Therefore, dilation is the key feature of achalasia.

7. What is primarily affected by the failure of the cardiac sphincter to relax?

- A. Breathing
- B. Digestion**
- C. Heart function
- D. Blood circulation

The primary function of the cardiac sphincter, also known as the lower esophageal sphincter (LES), is to control the flow of food and liquids from the esophagus into the stomach. When the cardiac sphincter fails to relax properly, it can lead to issues such as gastroesophageal reflux disease (GERD), where stomach contents can flow back into the esophagus. This condition adversely affects the digestion process, as it interrupts the normal progression of food from the esophagus into the stomach, leading to symptoms such as heartburn, regurgitation, and discomfort. In this context, breathing, heart function, and blood circulation are not primarily influenced by the relaxation of the cardiac sphincter. While severe cases of reflux can lead to complications that might indirectly affect breathing (for instance, aspiration due to reflux), the primary impact is on the digestive system. Thus, the correct answer focuses on digestion being the most directly affected system due to the failure of the cardiac sphincter to relax.

8. What happens to contrast as filtration increases?

- A. Contrast increases
- B. Contrast decreases**
- C. Contrast remains the same
- D. Contrast fluctuates

As filtration increases in radiographic imaging, the amount of low-energy, less penetrating X-ray photons is reduced. Filtration is used to enhance image quality by allowing only higher-energy photons to reach the patient and the detector. However, because these lower-energy photons contribute to the overall image contrast, their removal leads to a decrease in the contrast of the image. In a radiographic image, contrast refers to the difference in optical density between various structures. When filtration is increased, the primary beam becomes more homogeneous, and there is a reduction in the scatter radiation that can obscure fine details in the image. This results in a less pronounced difference in density between adjacent structures, thus decreasing image contrast. Therefore, with increasing filtration, the overall image appears flatter and less defined, exemplifying why the correct choice is that contrast decreases as filtration increases.

9. Strep throat is classified as what type of organism?

- A. Virus
- B. Fungus
- C. Bacteria**
- D. Parasite

Strep throat is classified as a bacterial infection primarily caused by Streptococcus pyogenes, a type of bacteria known for its ability to infect the throat and skin. Understanding this classification is crucial because it influences the approach to treatment and management. Bacterial infections, like strep throat, are typically treated with antibiotics, which target and eliminate the bacteria causing the illness. In the case of strep throat, the presence of bacteria, particularly Streptococcus, leads to symptoms such as sore throat, redness in the throat, and sometimes fever or swollen lymph nodes. Recognizing strep throat as a bacterial infection means that healthcare providers can effectively implement appropriate diagnostic tests (like rapid strep tests) and treatments to alleviate the symptoms and prevent complications, such as rheumatic fever. Knowing that strep throat is not caused by viruses, fungi, or parasites helps differentiate it from other throat infections. For example, viral sore throats are usually self-limiting, fungal infections might require antifungal treatments, and parasitic infections are less common in relation to throat symptoms. This understanding is essential for effective patient care and management in the clinical setting.

10. Which term refers to a grid artifact that occurs when using stationary grids?

- A. Moire effect**
- B. Aliasing artifacts
- C. Pseudomasking
- D. Beam hardening

The term that refers to a grid artifact occurring when using stationary grids is known as the Moire effect. This artifact typically arises from the interaction between the linear grid lines and the digital imaging system's pixel array, leading to visible lines or patterns on the final image. In radiography, stationary grids are used to improve image contrast by reducing scatter radiation. However, when the grid lines are aligned or closely spaced in relation to the pixel structure of the imaging detector, interference patterns can emerge, resulting in the distinct appearance that characterizes the Moire effect. Recognizing this effect is important for radiologic technologists, as it can obscure diagnostic information and must be addressed to ensure high-quality imaging. The other terms relate to different concepts in imaging and do not describe the specific problem associated with stationary grids. Aliasing artifacts are generally associated with sampling issues in digital imaging, pseudomasking pertains to certain visualization techniques or imaging methods, and beam hardening relates to the alteration of x-ray beam quality due to the absorption characteristics of the tissue. Understanding the specifics of these terms can help further clarify why the Moire effect is the most appropriate answer in this context.

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://arrt.examzify.com>

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

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