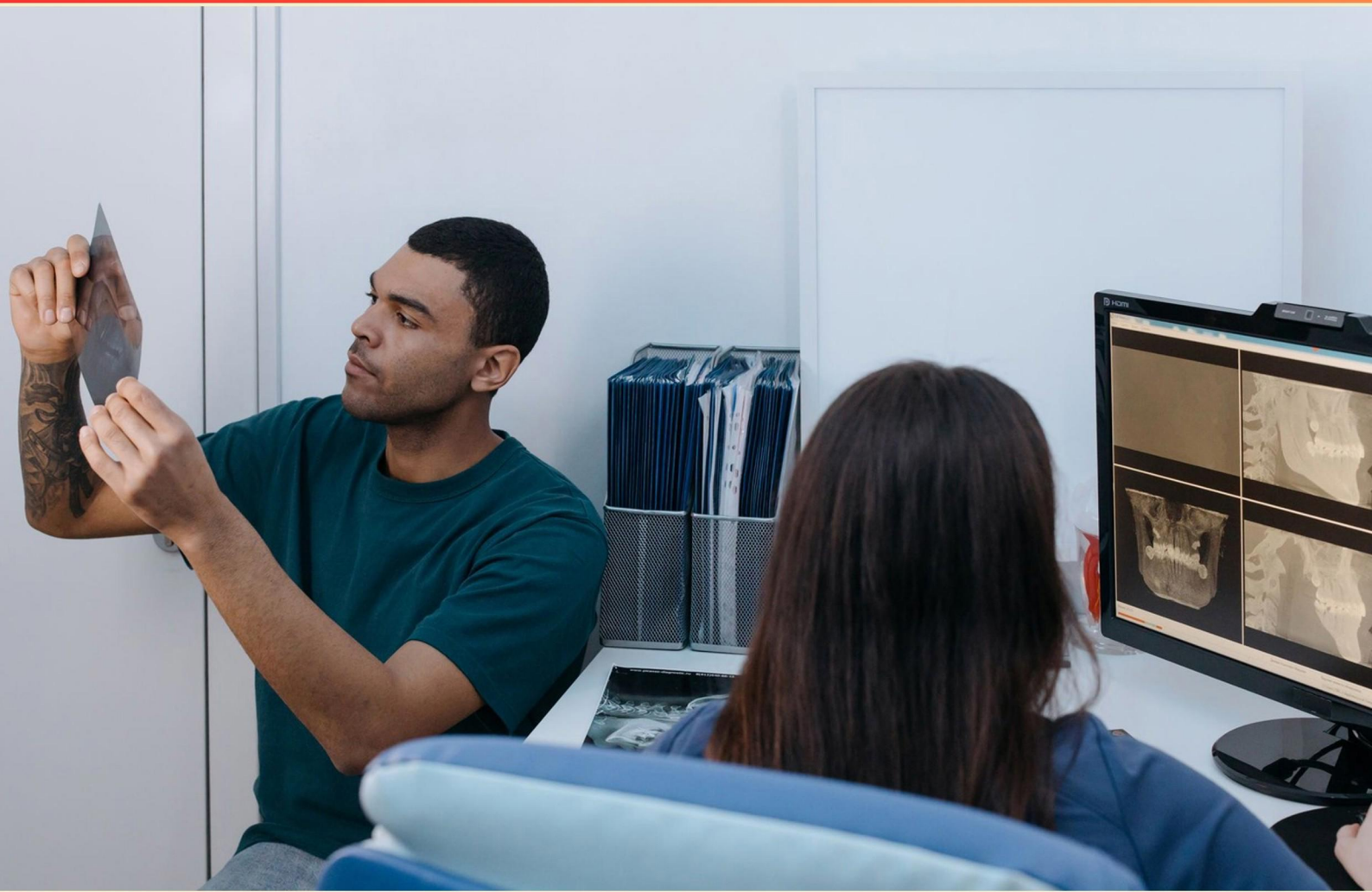


FDI DIAGNOSTIC IMAGING EXAM 1 PRACTICE EXAM (SAMPLE)

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 is a common limitation of radiographs in early caries detection?
 - A. Radiographs often overestimate the extent of caries
 - B. Bitewing radiographs are unnecessary for caries detection
 - C. Proximal caries in early stages may be radiographically invisible; bitewings improve detection but can still miss early lesions
 - D. Radiographs detect all caries at all stages
2. On CT, cortical bone appears which color?
 - A. White
 - B. Dark gray
 - C. It is not visible on CT
 - D. Black
3. What does ALARA stand for?
 - A. As Low As Reasonable Achievable
 - B. As Low As Reasonably Achievable
 - C. Always Limit As Radiation Amount
 - D. As Low As Radiological Allowance
4. The distance between two successive crests or troughs of a wave defines _____ and is represented by the Greek letter _____.
 - A. Wavelength; ν
 - B. Frequency; ν
 - C. Frequency; λ
 - D. Wavelength; λ
5. Which MRI parameter set would produce a T1 weighted image?
 - A. TE: 25 TR: 1750
 - B. TE: 60 TR: 600
 - C. TE: 175 TR: 1250
 - D. TE: 200 TR: 500

- 6. Which pattern is most characteristic of chronic generalized periodontitis on radiographs?**
- A. Uniform horizontal bone loss with relatively intact lamina dura around multiple teeth.
 - B. Vertical angular bone loss with lamina dura destruction.
 - C. Diffuse sclerosis of the jaw.
 - D. No bone loss.
- 7. When evaluating a jaw lesion with complex anatomy, which imaging modality is preferred for precise localization and size assessment?**
- A. Panoramic radiography
 - B. MRI
 - C. Intraoral periapical radiographs
 - D. CBCT
- 8. What is the impact of a high-density metal crown on adjacent tooth imaging?**
- A. It can reduce patient dose.
 - B. It enhances contrast of neighboring tissues.
 - C. It causes no artifacts at all.
 - D. It can cause beam hardening and streak artifacts that obscure adjacent structures.
- 9. Does magnetic resonance imaging rely on X-ray photons to generate images?**
- A. No
 - B. Yes
 - C. It uses gamma rays
 - D. It uses ultrasound waves
- 10. Which primary control is responsible for the quality or penetrating power of the x-ray beam?**
- A. Kilovoltage peak (kVp)
 - B. Distance
 - C. Time (sec)
 - D. Milliampereage (mA)

Answers

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

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Explanations

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1. What is a common limitation of radiographs in early caries detection?

- A. Radiographs often overestimate the extent of caries
- B. Bitewing radiographs are unnecessary for caries detection
- C. Proximal caries in early stages may be radiographically invisible; bitewings improve detection but can still miss early lesions**
- D. Radiographs detect all caries at all stages

Radiographs pick up caries by showing radiolucent areas where mineral loss has occurred, but that contrast only appears once a lesion has progressed enough. In the early stages of proximal caries, demineralization often starts in enamel and may not create a visible radiolucent zone yet, so the lesion can be radiographically invisible. Bitewing images help by capturing the proximal surfaces across the contacts, but even these can miss early lesions due to subtle mineral loss, the thickness of enamel, and projection/overlap limitations. That's why radiographs are useful for detecting caries that have advanced or are near restorations, but they're not reliable for spotting very early proximal lesions on their own; clinical examination and other diagnostic tools are still important for early detection.

2. On CT, cortical bone appears which color?

- A. White**
- B. Dark gray
- C. It is not visible on CT
- D. Black

On CT, brightness reflects how much X-ray energy a tissue attenuates. Cortical bone has a high mineral content, so it attenuates X-rays strongly and appears as the brightest area—white—on the image. This high attenuation corresponds to high Hounsfield units, roughly around a thousand or more. In contrast, fat and softer tissues appear as mid-gray, while air appears black. So cortical bone is white on CT.

3. What does ALARA stand for?

- A. As Low As Reasonable Achievable
- B. As Low As Reasonably Achievable**
- C. Always Limit As Radiation Amount
- D. As Low As Radiological Allowance

ALARA stands for As Low As Reasonably Achievable. It's the guiding principle in diagnostic imaging to minimize radiation dose to patients and staff while still obtaining the necessary diagnostic information. In practice, this means optimizing exposure settings, using shielding and collimation, employing dose-saving technologies, choosing alternatives when feasible, and avoiding unnecessary repeats. The word "reasonably" reflects a balance: pushing doses down as low as possible without compromising image quality or diagnostic value. Other phrasings don't capture this balance or use the correct wording.

4. The distance between two successive crests or troughs of a wave defines _____ and is represented by the Greek letter _____

- A. Wavelength; ν
- B. Frequency; ν
- C. Frequency; λ
- D. Wavelength; λ**

This tests distinguishing between spatial period and temporal rate of a wave. The distance between two successive crests (or troughs) is the wavelength, a spatial measure of the wave's cycle. The standard symbol for wavelength is λ . Frequency, on the other hand, counts how many cycles occur per unit time and is denoted by ν . These two are related by the wave speed with $v = f \lambda$ (or $v = \nu \lambda$). So the correct pairing is wavelength with λ .

5. Which MRI parameter set would produce a T1 weighted image?

- A. TE: 25 TR: 1750
- B. TE: 60 TR: 600**
- C. TE: 175 TR: 1250
- D. TE: 200 TR: 500

T1 weighting is achieved with a short repetition time and a short echo time. Using a short TR means there isn't much time for longitudinal magnetization to recover between pulses, so tissues with shorter T1 recover signal more quickly and appear brighter relative to tissues with longer T1. A short TE minimizes signal loss from T2 decay, so the image contrast is driven mainly by T1 differences rather than T2. Among the options, the combination with TE around 60 ms and TR around 600 ms provides the shortest practical TE while keeping TR relatively short, emphasizing T1 contrast. The other sets involve a very long TR or a long TE, which introduce more T2 weighting and reduce T1 emphasis. Therefore this option is best for T1-weighted imaging.

6. Which pattern is most characteristic of chronic generalized periodontitis on radiographs?

- A. Uniform horizontal bone loss with relatively intact lamina dura around multiple teeth.**
- B. Vertical angular bone loss with lamina dura destruction.
- C. Diffuse sclerosis of the jaw.
- D. No bone loss.

Chronic generalized periodontitis tends to cause a uniform, generalized loss of supporting bone around many teeth, producing horizontal bone loss rather than angular defects. On radiographs, this appears as a consistent reduction in alveolar bone height across multiple teeth with the lamina dura around those teeth often remaining relatively intact, at least in earlier to moderate stages. This horizontal pattern reflects a spreading, but even, inflammatory process affecting the dentoalveolar bone. Vertical or angular bone loss with destruction of the lamina dura is more characteristic of localized or aggressive forms of periodontal destruction, not the generalized pattern. Diffuse sclerosis of the jaw or no bone loss would not align with the typical radiographic presentation of chronic generalized periodontitis.

7. When evaluating a jaw lesion with complex anatomy, which imaging modality is preferred for precise localization and size assessment?

- A. Panoramic radiography
- B. MRI
- C. Intraoral periapical radiographs

D. CBCT

When a jaw lesion has complex anatomy, you need imaging that reveals the lesion in three dimensions to pin down its exact location and size. Cone-beam CT provides high-resolution, three-dimensional images with isotropic voxels, so you can measure the lesion accurately in all planes and see its buccolingual extent. It also shows how the lesion relates to critical structures like the inferior alveolar nerve canal, the maxillary sinus, and nearby roots—information essential for planning treatment or surgery. The multiplanar reconstructions and 3D renderings let you assess cortical integrity and any perforation that might be missed on 2D views. In contrast, panoramic and intraoral periapical radiographs are two-dimensional and prone to distortion and superimposition, making precise localization and size estimation unreliable in complex cases. MRI excels at soft tissue but doesn't provide the detailed bone anatomy needed for exact measurement, and conventional CT, while good for bone, involves higher dose and less practicality in everyday dental imaging. So CBCT is preferred for precise localization and size assessment.

8. What is the impact of a high-density metal crown on adjacent tooth imaging?

- A. It can reduce patient dose.
- B. It enhances contrast of neighboring tissues.
- C. It causes no artifacts at all.

D. It can cause beam hardening and streak artifacts that obscure adjacent structures.

When dense metal crowns are present, they interact with the X-ray beam in a way that changes the beam's quality and the image it creates. The X-ray beam is polychromatic, containing photons of a range of energies. A high-density metal crown absorbs more of the lower-energy photons, so the beam that emerges is enriched in higher-energy photons—this is beam hardening. The hardening, along with the heavy attenuation at and around the crown, produces nonuniform shading and streaks that extend into the surrounding area. These beam-hardening and streak artifacts can obscure adjacent teeth and surrounding structures, making it harder to see details like caries, cracks, or bone changes near the crown. The other options don't fit: a high-density crown does not reduce patient dose, it does not enhance contrast of neighboring tissues, and it certainly does not produce an image with no artifacts.

9. Does magnetic resonance imaging rely on X-ray photons to generate images?

A. No

B. Yes

C. It uses gamma rays

D. It uses ultrasound waves

The key idea is that MRI does not depend on X-ray photons. Instead, it uses a strong magnetic field to align abundant hydrogen nuclei in the body and radiofrequency pulses to perturb that alignment. When the nuclei relax back, they emit signals in the radiofrequency range, which are detected and converted into images. Those signals are RF photons, not X-ray photons, and they come with far lower energy, making MRI non-ionizing. This contrasts with X-ray-based imaging like CT or radiography, and with other modalities that use gamma rays or ultrasound. So the best answer is that MRI does not rely on X-ray photons.

10. Which primary control is responsible for the quality or penetrating power of the x-ray beam?

A. Kilovoltage peak (kVp)

B. Distance

C. Time (sec)

D. Miliamperage (mA)

The main concept here is how the energy of the x-ray beam, its quality, is controlled. Kilovoltage peak sets the energy of the individual photons; increasing kVp raises their energy, so the beam penetrates more readily and has greater penetrating power (though it may reduce image contrast). Distance, time, and mA affect how many photons reach the receptor (the beam's quantity) or how long the exposure lasts, but they don't change the energy of the photons themselves. Specifically, distance lowers exposure due to the inverse-square law, while time and mA determine the total number of photons produced. So, the primary control for quality or penetrating power is the kilovoltage peak.

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://fdi1.examzify.com>

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

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