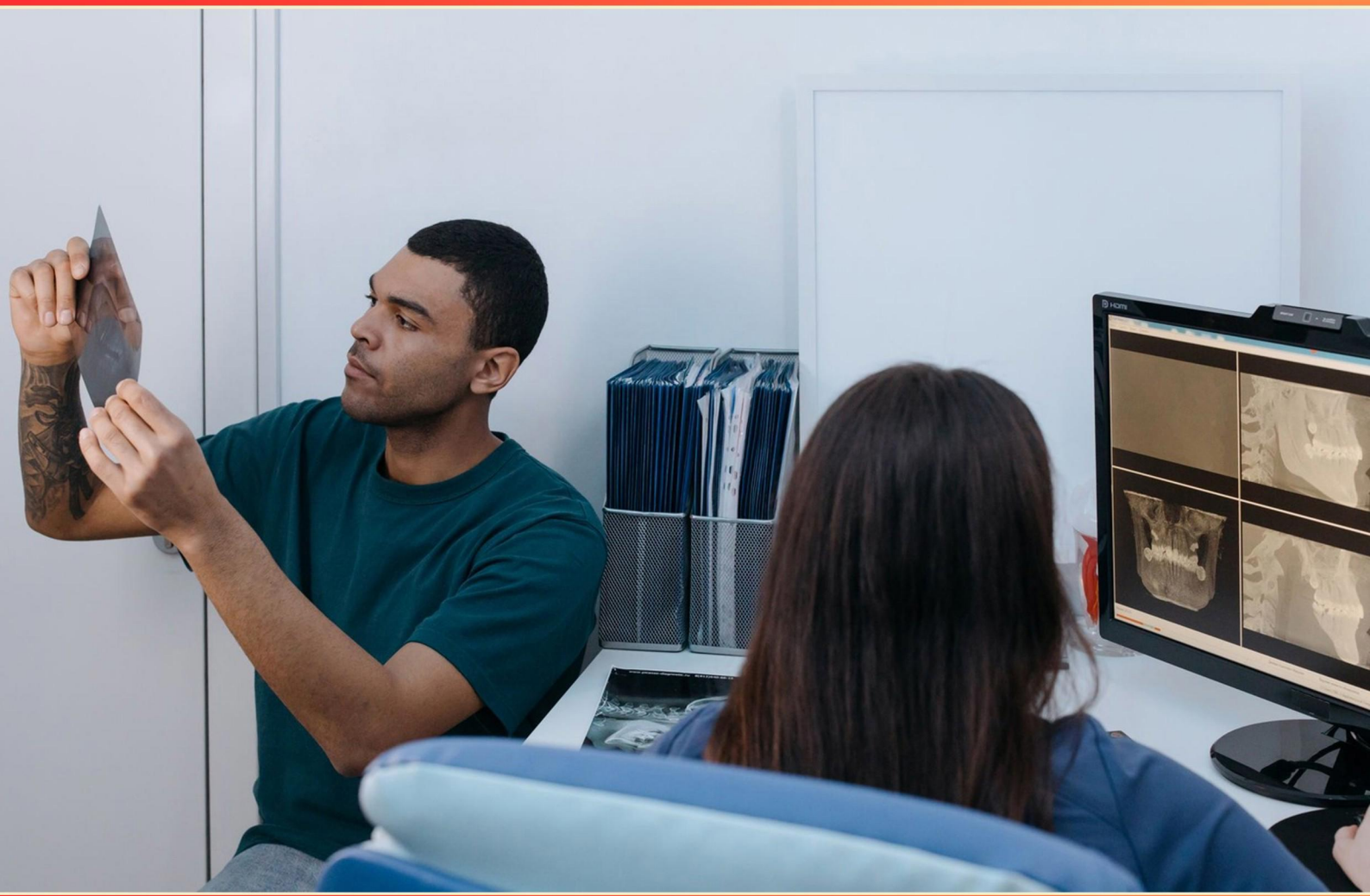
FDI DIAGNOSTIC IMAGING EXAM 1 PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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.

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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!

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Questions

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1. Which modality uses radiolucent/radiopaque/sclerotic terminology to describe density?

A. MRI

B. Ultrasound

C. X-ray (Radiography)

D. PET Scan

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

A. Wavelength; nu

B. Frequency; nu

C. Frequency; lambda

D. Wavelength; lambda

3. Select the TR and TE settings that could have generated this MRI image.

A. TR = 450, TE = 30

B. TR = 3000, TE = 20

C. TR = 2000, TE = 95

D. TR = 2200, TE = 90

4. Which MRI sequence readily allows visualization of edema and pathology due to water sensitivity?

A. T1-weighted

B. T2-weighted

C. FLAIR

D. STIR

5. What radiographic features on a jaw radiograph suggest osteomyelitis in advanced disease?

A. No radiographic changes

B. Areas of radiolucent bone with possible sequestra and surrounding sclerosis

C. Normal lamina dura continuity

D. Uniform radiopacity of the jawbone

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6. What unit of measurement is used when referring to patient exposure?

A. Rad or gray

B. Rem or sievert

C. Curie or becquerel

D. Roentgen or gray

7. Which imaging approach is most appropriate for assessing degenerative changes in TMJ bones?

A. CBCT

B. Panoramic radiography

C. Lateral cephalometric radiography

D. Ultrasound

8. What color does cortical bone appear on MRI?

A. White

B. Light gray

C. It is not visible on MRI

D. Black

9. What normal anatomic structure appears as a radiolucent crescent-shaped area between the roots of the maxillary central incisors?

A. Nasopalatine canal (incisive foramen)

B. Infundibulum of the maxillary sinus

C. Median palatine suture

D. Zygomatic process

10. Which parameter set would produce a T1 weighted MRI?

A. TE: 60 TR: 600

B. TE: 200 TR: 500

C. TE: 175 TR: 1250

D. TE: 25 TR: 1750

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Answers

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

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Explanations

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1. Which modality uses radiolucent/radiopaque/sclerotic terminology to describe density?

A. MRI

B. Ultrasound

C. X-ray (Radiography)

D. PET Scan

In radiography, density is described using radiolucent, radiopaque, and often sclerotic descriptors because X-ray attenuation varies with tissue composition. Radiolucent means the structure allows X-rays to pass through with little attenuation, so it appears darker on the image (air or soft tissue pathways). Radiopaque describes structures that strongly attenuate X-rays, blocking more photons and showing up white or bright, such as bone or metal. Sclerotic refers to an area of increased bone density relative to surrounding bone, also appearing whiter than adjacent bone due to new mineral deposition or remodeling. This terminology is specific to X-ray imaging because it directly reflects how tissues interact with X-rays to create the image. Other modalities use different descriptors: MRI relies on signal intensity on T1/T2-weighted images; ultrasound uses echogenicity (hyperechoic or hypoechoic) to describe how structures reflect sound waves; PET focuses on metabolic activity and tracer uptake rather than density.

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

A. Wavelength; nu

B. Frequency; nu

C. Frequency; lambda

D. Wavelength; lambda

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 lambda. Frequency, on the other hand, counts how many cycles occur per unit time and is denoted by nu. These two are related by the wave speed with $v = f \lambda$ (or $v = v \lambda$). So the correct pairing is wavelength with lambda.

3. Select the TR and TE settings that could have generated this MRI image.

A. TR = 450, TE = 30

B. TR = 3000, TE = 20

C. TR = 2000, TE = 95

D. TR = 2200, TE = 90

Short TR and short TE give a T1-weighted image, where contrast is dominated by T1 relaxation differences. When TR is small, longitudinal magnetization is rapidly reset, causing tissues with shorter T1 (like fat) to appear bright while fluid appears dark. TE being short means you're not letting T2 decay strongly affect the signal, so the image emphasizes T1 contrast rather than T2 effects. The setting with TR around 450 ms and TE around 30 ms fits this pattern, producing a T1-weighted appearance. The other options push toward different weightings: a long TR (thousands of ms) reduces T1 contrast and can yield proton-density weighting when TE is short, while long TE values (around 90–95 ms) emphasize T2 differences, making fluids bright and altering fat's appearance. Thus they would not produce the same image contrast as a T1-weighted exam.

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4. Which MRI sequence readily allows visualization of edema and pathology due to water sensitivity?

A. T1-weighted

B. T2-weighted

C. FLAIR

D. STIR

Edema signals reflect increased water content in tissues, so sequences that emphasize water content show edema as bright signals. A fat-suppressed T2-weighted sequence does this even more clearly: it keeps the water-related brightness but removes the surrounding fat signal. Short Tau Inversion Recovery (STIR) does exactly that—nulls fat and highlights water-rich abnormalities—so edema and related pathology stand out prominently. While standard T2-weighted imaging already highlights edema, STIR provides better contrast in areas with a lot fat, making edema more conspicuous. T1 is not optimal for water content, and FLAIR, though useful for certain CNS lesions by suppressing CSF, does not emphasize edema as distinctly as STIR in this context.

5. What radiographic features on a jaw radiograph suggest osteomyelitis in advanced disease?

A. No radiographic changes

B. Areas of radiolucent bone with possible sequestra and surrounding sclerosis

C. Normal lamina dura continuity

D. Uniform radiopacity of the jawbone

Advanced jaw osteomyelitis shows a destructive pattern with bone loss that appears radiolucent, often containing sequestra—dead bone fragments that stand out within the lucent areas. Surrounding this destruction, the bone may respond with sclerosis as part of a reparative process, and there can be involucrum formed around the necrotic zones. This combination of radiolucent areas with sequestra and surrounding sclerosis is the hallmark of advanced disease on a jaw radiograph. The alternatives don't fit because no changes would contradict active infection, a normal lamina dura continuity would not reflect the destructive process, and uniform radiopacity does not capture the focal bone destruction with dead fragments characteristic of osteomyelitis.

6. What unit of measurement is used when referring to patient exposure?

A. Rad or gray

B. Rem or sievert

C. Curie or becquerel

D. Roentgen or gray

The key idea is that patient exposure is described by the energy actually deposited in tissue, i.e., the absorbed dose. That quantity is measured in rad (an older CGS unit) or gray (the SI unit). One gray equals 100 rad. These units directly reflect how much energy per kilogram tissue has received. Other terms refer to different concepts: roentgen measures exposure in air (not absorbed by the patient), rem or sievert measure dose equivalent (biological effect with tissue-weighting factors), and curie or becquerel measure activity of radioactive material, not dose to tissue. So for talking about how much energy a patient's tissues absorb during imaging or therapy, rad or gray is the appropriate unit.

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7. Which imaging approach is most appropriate for assessing degenerative changes in TMJ bones?

A. CBCT

B. Panoramic radiography

C. Lateral cephalometric radiography

D. Ultrasound

Assessing degenerative changes in TMJ bones requires high-resolution, three-dimensional visualization of the condyle, fossa, and articular eminence to detect subtle erosions, osteophytes, flattening, and sclerosis in multiple planes. Cone-beam computed tomography provides isotropic 3D imaging with excellent spatial resolution for osseous structures and allows viewing the joint in axial, coronal, and sagittal reconstructions. This enables precise evaluation of the shape and integrity of the condyle and adjacent joint surfaces, which is essential for identifying degenerative changes. Panoramic radiography offers only a two-dimensional view with potential distortion and overlapping structures, limiting its ability to reveal fine bony details of the TMJ. Lateral cephalometric radiography is focused on skeletal relationships and offers little detail about TMJ bony morphology. Ultrasound struggles to image bone well and is not reliable for assessing deep TMJ bony structures, though it may have limited soft-tissue utility. Therefore, CBCT is the best choice for evaluating degenerative bony changes in the TMJ.

8. What color does cortical bone appear on MRI?

A. White

B. Light gray

C. It is not visible on MRI

D. Black

Cortical bone appears black on MRI because it has very few mobile hydrogen protons and an extremely short T2 relaxation time, so it generates almost no MR signal. On standard MRI sequences this lack of signal shows up as a signal void, a dark outline surrounding the bone marrow and soft tissues. While bone may be a visible boundary as a dark line, it isn't bright or gray; it's the absence of signal that makes it look black. (Very short TE sequences can sometimes show bone more, but with routine imaging the cortex is dark.)

9. What normal anatomic structure appears as a radiolucent crescent-shaped area between the roots of the maxillary central incisors?

A. Nasopalatine canal (incisive foramen)

B. Infundibulum of the maxillary sinus

C. Median palatine suture

D. Zygomatic process

Recognizing normal anatomy in the anterior maxilla on radiographs is key. Between the roots of the maxillary central incisors you can see a radiolucent crescent-shaped area representing the nasopalatine canal, also called the incisive foramen. This space corresponds to the canal that houses the nasopalatine nerve and vessels, with surrounding bone forming radiopaque borders that outline the canal. The appearance can vary with the angle of the image, sometimes more oval or heart-shaped, but the location and radiolucent crescent between the two central incisors is classic for this normal structure. Other landmarks, such as the infundibulum of the maxillary sinus (higher and lateral), the median palatine suture (a thin midline radiolucent line), or the zygomatic process (a lateral radiopaque band), don't present as that crescent-shaped radiolucency between the centrals.

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10. Which parameter set would produce a T1 weighted MRI?

A. TE: 60 TR: 600

B. TE: 200 TR: 500

C. TE: 175 TR: 1250

D. TE: 25 TR: 1750

In T1-weighted MRI, contrast comes from differences in T1 relaxation, so you want a short repetition time (TR) and a short echo time (TE) to maximize T1 contrast and minimize T2 effects. The set with a TE around 60 ms and a TR around 600 ms uses the shortest combination of values that still keep the sequence primarily T1-weighted compared with the other options. The other choices push TE longer or TR longer, which shifts the weighting toward T2 or proton density rather than T1. So this parameter set best yields T1 weighting.

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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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