

Mosby Protection-Safety Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	15

SAMPLE

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

SAMPLE

- 1. What is the embryo or fetus equivalent dose limit for gestation?**
 - A. 5 mSv**
 - B. 10 mSv**
 - C. 0.5 mSv**
 - D. 0.05 mSv**

- 2. Which device is used to survey an area for radiation detection and measurement?**
 - A. Handheld ionization chamber**
 - B. Geiger-Mueller detector**
 - C. TLD**
 - D. Film badge**

- 3. The timer used in fluoroscopy:**
 - A. Should always be reset before the alarm sounds so that it does not annoy the radiologist**
 - B. Sounds an alarm after 3 minutes**
 - C. Is used to alert the fluoroscopist after 5 minutes of fluoroscopy scanning have elapsed**
 - D. Must be 3 minutes**

- 4. Which interaction may result in occupational exposure for a radiographer due to scatter during fluoroscopic or mobile procedures?**
 - A. Photoelectric interaction**
 - B. Compton interaction**
 - C. Coherent scatter**
 - D. Pair production**

- 5. At approximately what energy does pair production begin to occur?**
 - A. 0.5 MeV**
 - B. 1.02 MeV**
 - C. 2.0 MeV**
 - D. 10 MeV**

- 6. Most somatic effects occur:**
- A. At doses used during diagnostic radiography**
 - B. Beyond diagnostic radiography**
 - C. In old age**
 - D. In middle age**
- 7. Which involves interaction between an incident photon and an atomic nucleus?**
- A. Photoelectric interaction**
 - B. Compton interaction**
 - C. Coherent scatter**
 - D. Pair production**
- 8. Which sequence correctly lists the phases contained within interphase in proper order?**
- A. S, G1, G2**
 - B. G1, S, G2**
 - C. G2, G1, S**
 - D. G1, G2, S**
- 9. Which may be used for 3 months at a time?**
- A. Geiger-Mueller detector**
 - B. TLD**
 - C. Film badge**
 - D. Pocket ionization chamber**
- 10. Which statement describes the concept that there is no safe dose and a response occurs at any dose (linear-nonthreshold)?**
- A. Nonlinear-nonthreshold**
 - B. Linear-threshold**
 - C. Linear-nonthreshold**
 - D. Nonlinear-threshold**

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What is the embryo or fetus equivalent dose limit for gestation?

- A. 5 mSv**
- B. 10 mSv**
- C. 0.5 mSv**
- D. 0.05 mSv**

The main idea is how radiation exposure to a developing fetus is regulated. The embryo/fetus equivalent dose limit for gestation is 5 millisieverts in total for the entire pregnancy. This is a cumulative cap, not something you apply month by month, so the fetus should not receive more than about 5 mSv from the start of pregnancy to birth. For X-ray exposure, the dose to the fetus is essentially the same as the fetal tissue's equivalent dose, so the 5 mSv limit directly constrains the fetal dose. In practice, this is managed with ALARA measures—using shielding, optimizing technique, reducing unnecessary exams, and monitoring doses with appropriate dosimeters—to ensure the cumulative fetal dose stays at or below 5 mSv.

2. Which device is used to survey an area for radiation detection and measurement?

- A. Handheld ionization chamber**
- B. Geiger-Mueller detector**
- C. TLD**
- D. Film badge**

When surveying an area for radiation, you want real-time feedback as you move to quickly locate where radiation is present. A Geiger-Mueller detector fits this role because it responds to ionizing events and gives immediate readings, often as a count rate per minute, with audible clicks as you sweep the space. This lets you map out hotspots and gauge radiation levels on the spot, which is essential for an effective area survey. In contrast, a handheld ionization chamber is used to measure the exposure rate at a specific point with higher accuracy, not for sweeping a room. TLDs and film badges measure accumulated dose over time and don't provide instant readings, so they're not suitable for live area surveying. So, for scanning and quickly assessing an area, the Geiger-Mueller detector is the best choice.

3. The timer used in fluoroscopy:

- A. Should always be reset before the alarm sounds so that it does not annoy the radiologist**
- B. Sounds an alarm after 3 minutes**
- C. Is used to alert the fluoroscopist after 5 minutes of fluoroscopy scanning have elapsed**
- D. Must be 3 minutes**

In fluoroscopy, keeping track of how long the X-ray beam has been on is essential to limit radiation exposure. The timer on the fluoroscope serves as a safety reminder, typically sounding an audible alert after five minutes of continuous fluoroscopy. This prompts the fluoroscopist to pause, reduce dose, reposition, or switch to still imaging as needed, helping to adhere to ALARA principles. Resetting the timer before the alarm defeats this safety check, and a three-minute alert isn't the standard practice, since five minutes provides a practical balance between procedural needs and dose control.

4. Which interaction may result in occupational exposure for a radiographer due to scatter during fluoroscopic or mobile procedures?

- A. Photoelectric interaction
- B. Compton interaction**
- C. Coherent scatter
- D. Pair production

Scattered radiation causing occupational exposure during fluoroscopy or mobile imaging mainly comes from Compton scattering. In this interaction, an X-ray photon collides with an outer-shell electron, is deflected, and loses energy. The scattered photon travels in many directions, including toward the radiographer, which is why this interaction is the primary source of staff exposure in these procedures. Other interactions either involve absorption (photoelectric effect) or occur with very low probability at diagnostic energies (coherent scatter) or require much higher energies (pair production), so they contribute far less to occupational scatter.

5. At approximately what energy does pair production begin to occur?

- A. 0.5 MeV
- B. 1.02 MeV**
- C. 2.0 MeV
- D. 10 MeV

Pair production needs enough energy to create a real electron-positron pair. Each has a rest energy of 0.511 MeV, so creating both requires at least $0.511 + 0.511 = 1.022$ MeV of energy. In practice, momentum conservation with a nearby nucleus means the threshold is slightly higher, but it's commonly quoted as about 1.02 MeV. So pair production begins at roughly 1.02 MeV. Energies well below this can't produce the pair, while energies above it can, with increasing likelihood as energy grows.

6. Most somatic effects occur:

- A. At doses used during diagnostic radiography
- B. Beyond diagnostic radiography**
- C. In old age
- D. In middle age

Somatic effects from radiation are typically deterministic, meaning they have a dose threshold and become more likely and more severe as the dose increases. The doses used in diagnostic radiography are very small, far below the levels needed to trigger these tissue reactions. That's why most somatic effects don't occur with standard X-ray exams. Only when the exposure is well beyond diagnostic levels—such as in high-dose radiotherapy, large accidental exposures, or occupational overload—do you start to see noticeable somatic damage like skin changes, hair loss, radiation sickness, or organ/tissue injury. Age isn't the main factor shaping this likelihood; it's the amount of radiation dose. Stochastic risks like cancer can still be influenced by dose at diagnostic levels, but the question about somatic (deterministic) effects centers on dose thresholds, which is why the correct idea is that most such effects occur beyond diagnostic radiography.

7. Which involves interaction between an incident photon and an atomic nucleus?

- A. Photoelectric interaction**
- B. Compton interaction**
- C. Coherent scatter**
- D. Pair production**

Pair production is the interaction where a photon is transformed into an electron-positron pair in the electromagnetic field of a nucleus. The nucleus must participate to conserve momentum, which is why this process specifically involves the atomic nucleus. The photon must have at least 1.022 MeV of energy to create the two rest masses, and any excess energy becomes kinetic energy of the electron, positron, and the recoiling nucleus. Other processes involve electrons rather than producing new particles with the nucleus's help: the photoelectric effect happens when a photon is absorbed by an atomic electron, ejecting it from the atom; Compton scattering is a photon scattering off a bound electron, transferring some energy to that electron; and coherent (Rayleigh) scattering is elastic scattering from the entire atom with negligible energy loss. Thus, the interaction that explicitly requires the nuclear field to create particle-antiparticle pairs is the one described here.

8. Which sequence correctly lists the phases contained within interphase in proper order?

- A. S, G1, G2**
- B. G1, S, G2**
- C. G2, G1, S**
- D. G1, G2, S**

Interphase is the period of the cell cycle when the cell grows and duplicates its contents in preparation for division. It unfolds in three consecutive stages: first, G1, a growth and metabolic activity phase where the cell increases in size and makes the RNA and proteins needed for DNA replication. Next comes S phase, the DNA synthesis stage where the cell copies its genetic material so that each daughter cell will have a full set of chromosomes. Finally, G2 is a second growth and preparation phase, during which the cell produces what's needed for mitosis and checks for any DNA damage before division. Because DNA replication must occur before the cell enters mitosis, the proper order is G1, then S, then G2. Any sequence that places S before the initial growth phase or places G2 before completion of DNA replication would not align with how the cell readies itself for division.

9. Which may be used for 3 months at a time?

- A. Geiger-Mueller detector**
- B. TLD**
- C. Film badge**
- D. Pocket ionization chamber**

The key idea is how different dosimeters are meant to be worn and read out over time. A thermoluminescent dosimeter is designed for quarterly monitoring; you wear it for about three months, then send it in to be read. It traps energy from radiation in crystal lattices during exposure, and later heating releases light in proportion to the absorbed dose—allowing a reliable, cumulative measurement that can be reused after annealing for the next cycle. In contrast, a Geiger-Mueller detector is an active instrument that gives real-time counts to indicate radiation presence or intensity, not a stored, cumulative dose over months. A pocket ionization chamber provides an immediate exposure-rate reading and isn't used to track the total dose accumulated over a long period. Film badges can be used for varying intervals (often monthly or quarterly depending on policy) but aren't as standardized for a strict three-month cycle as a TLD system is. So, for a three-month wear period, the thermoluminescent dosimeter is the best fit because it reliably captures and can be read out after a full quarter while remaining reusable for the next cycle.

10. Which statement describes the concept that there is no safe dose and a response occurs at any dose (linear-nonthreshold)?

- A. Nonlinear-nonthreshold**
- B. Linear-threshold**
- C. Linear-nonthreshold**
- D. Nonlinear-threshold**

This concept is about how risk from radiation grows with dose. Saying there is no safe dose and that a response occurs at any dose means that even the smallest amount of radiation carries some chance of causing an effect, and that risk increases in direct proportion to how much dose you receive. That straight-line, through-origin relationship is the linear-nonthreshold model: zero dose yields zero risk, and any incremental dose adds the same incremental risk, with no minimum level below which nothing happens. This is in contrast to models with a threshold, where nothing happens below a certain dose, or nonlinear models where risk doesn't rise in a simple straight-line way as dose increases. So the best fit for the idea of no safe dose and a response at any dose is the linear-nonthreshold concept.

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://mosbyprotsafety.examzify.com>

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

SAMPLE