

TASK GROUP 142 TOLERANCES PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE

<https://tg142tolerances.examzify.com>



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. How is concentricity evaluated?

- A. The feature's axis must lie within a spherical tolerance zone coaxial with a datum axis.
- B. The feature's axis must lie within a cylindrical tolerance zone coaxial with a datum axis.
- C. The feature's axis must be perpendicular to the datum axis within tolerance.
- D. The feature's diameter must match the datum diameter.

2. In GD&T, what is the purpose of a datum feature symbol?

- A. It identifies the surface used to establish a datum.
- B. It indicates the manufacturing step.
- C. It denotes material type.
- D. It specifies finish quality.

3. Profile of a line controls which of the following?

- A. The shape of a line, used for edges or contours.
- B. The location of a line relative to datums.
- C. The size of a line.
- D. The orientation of a line relative to a datum.

4. What might be a reason to use a composite tolerance on a well cap or plug feature?

- A. To control multiple related features relative to multiple datums more efficiently.
- B. To strictly limit one feature at a time.
- C. To eliminate datums from consideration.
- D. To simplify measurement by ignoring form.

5. What is the annual table angle tolerance?

- A. 0.5°
- B. 1°
- C. 1.5°
- D. 2°

- 6. What is the key safety QA requirement across ALL modalities?**
- A. Interlocks must be reconfigured weekly
 - B. Interlocks are tested annually
 - C. All safety systems must be functional and tested daily
 - D. No safety QA is required
- 7. Which tolerance includes both a linear and an angular component?**
- A. Accessory tray position tolerance
 - B. Wedge placement accuracy tolerance
 - C. Treatment couch position indicator tolerance (2 mm / 1°)
 - D. Cross-hair centering tolerance
- 8. What is the annual enhanced dynamic or gated delivery dose tolerance expressed as?**
- A. 100 MU or expected delivery
 - B. 200 MU or expected delivery
 - C. 50 MU or expected delivery
 - D. 10 MU or expected delivery
- 9. What does the term 'datum axis' refer to in GD&T?**
- A. A measurement of surface roughness.
 - B. The axis of a datum feature used as reference.
 - C. The color of the part.
 - D. A dimension line.
- 10. What is the monthly photon beam profile constancy tolerance?**
- A. 0.5%
 - B. 0.8%
 - C. 1.2%
 - D. 1%

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. How is concentricity evaluated?

- A. The feature's axis must lie within a spherical tolerance zone coaxial with a datum axis.
- B. The feature's axis must lie within a cylindrical tolerance zone coaxial with a datum axis.**
- C. The feature's axis must be perpendicular to the datum axis within tolerance.
- D. The feature's diameter must match the datum diameter.

Concentricity is about keeping the centers of two features on the same axis. In practice, the tolerance is defined by a cylinder whose axis matches the datum axis—the cylindrical tolerance zone is coaxial with that datum axis. The axis of the feature must lie inside this cylinder, which enforces coaxial alignment along the length of the part. This directly controls how well the centers track each other, not their orientation or size. That's why this description is the best: it uses a cylindrical tolerance zone coaxial with the datum axis to constrain the feature's axis, exactly capturing the idea of concentricity. A spherical zone would describe a different type of tolerance and wouldn't enforce coaxial alignment along the datum axis. Perpendicular or diameter matching issues relate to other tolerancing concepts and don't describe concentricity.

2. In GD&T, what is the purpose of a datum feature symbol?

- A. It identifies the surface used to establish a datum.**
- B. It indicates the manufacturing step.
- C. It denotes material type.
- D. It specifies finish quality.

In GD&T, a datum is a fixed reference used to locate and orient features during measurement. The datum feature symbol marks the surface or feature that will serve as that reference. It identifies which physical surface establishes the datum, so the entire datum reference frame (the primary, secondary, and tertiary datums) is built from that surface or axis. This grounding lets tolerances like position or orientation be interpreted relative to a consistent origin in space. The symbol points to the actual surface used, not to manufacturing steps, material type, or finish.

3. Profile of a line controls which of the following?

- A. The shape of a line, used for edges or contours.**
- B. The location of a line relative to datums.
- C. The size of a line.
- D. The orientation of a line relative to a datum.

The profile of a line defines the exact shape of the line's boundary along its run, which determines the edge or contour you're representing. It sets how the line curves or tapers along its length, not where the line is located relative to datums (that's about position), not how long the line is (size), and not its orientation to a datum (orientation). So the profile controls the shape of the line used for edges or contours.

4. What might be a reason to use a composite tolerance on a well cap or plug feature?

- A. To control multiple related features relative to multiple datums more efficiently.**
- B. To strictly limit one feature at a time.
- C. To eliminate datums from consideration.
- D. To simplify measurement by ignoring form.

Composite tolerancing is used when you need to control the location of several related features with respect to more than one datum, using a single tolerance frame. For a well cap or plug, there are multiple features whose positions must stay coordinated to fit and seat correctly against a set of datums. Applying a composite tolerance lets you express all those relationships together, making both manufacturing and measurement more efficient because one tolerance frame governs how those features relate to the datum set rather than creating separate controls for each feature. Trying to limit just one feature at a time would require multiple separate tolerances and wouldn't capture the needed interrelationship among the features and datums. Datums aren't eliminated by a composite tolerance; they define the reference frame the part must relate to. And a composite tolerance isn't about ignoring form—it governs location relative to datums, while form might be controlled by other, separate tolerances if needed.

5. What is the annual table angle tolerance?

- A. 0.5°
- B. 1°**
- C. 1.5°
- D. 2°

The concept being tested is how much the angle of a rotating table is allowed to drift over time, specifically the maximum angular deviation permitted after a year. This annual angle tolerance reflects how stable the table's alignment is under normal use, including effects like wear, temperature changes, and calibration drift. A value of about 1° is a practical balance: it's tight enough to keep measurements reasonably accurate over a year but not so strict that maintaining it would be prohibitively costly or frequent. If you set a smaller tolerance, like 0.5° , calibration and fabrication requirements become more demanding; if you allow a larger tolerance, such as 1.5° or 2° , the angular accuracy could degrade enough to affect precise measurements. In many standard specifications and QA practices, 1° is the commonly accepted annual limit, which is why that option is correct.

6. What is the key safety QA requirement across ALL modalities?

- A. Interlocks must be reconfigured weekly
- B. Interlocks are tested annually
- C. All safety systems must be functional and tested daily**
- D. No safety QA is required

Daily verification of safety systems is the baseline requirement across all modalities. This means every safety-related component—interlocks, alarms, beam control, and related safety gates or door interlocks—must be functional and verified before each treatment session. Catching a fault the day it could affect a patient protects against accidental delivery of radiation or dose errors and keeps risk at a minimum. Relying on weekly changes to interlocks or testing interlocks only once a year leaves dangerous gaps where a fault could go unnoticed for days or weeks, which is not acceptable for patient safety. Saying that no safety QA is required contradicts the fundamental duty to verify that the treatment device operates safely. Daily checks align with standard safety practice across modalities, ensuring the system is prepared for each patient and reducing the chance of unsafe treatment delivery.

7. Which tolerance includes both a linear and an angular component?

- A. Accessory tray position tolerance
- B. Wedge placement accuracy tolerance
- C. Treatment couch position indicator tolerance (2 mm / 1°)**
- D. Cross-hair centering tolerance

The key idea is that some tolerances are defined to control both how far something can shift linearly and how much it can tilt or rotate. The couch position indicator is designed to track both translation and rotation of the treatment couch. Its tolerance is given as 2 mm in linear displacement and 1 degree in angular deviation, capturing the two ways the couch can affect patient setup and beam alignment. If either the linear shift exceeds 2 mm or the couch tilts beyond 1°, the setup could move the patient off the intended isocenter, altering dose delivery. The other tolerances typically address just a single aspect—either a linear distance or an angular measurement—without combining both, so they don't include both components.

8. What is the annual enhanced dynamic or gated delivery dose tolerance expressed as?

- A. 100 MU or expected delivery**
- B. 200 MU or expected delivery
- C. 50 MU or expected delivery
- D. 10 MU or expected delivery

In dynamic or gated delivery QA, the dose tolerance is expressed in monitor units (MU) because MU directly corresponds to the delivered dose and can account for changes in dose rate during motion management. The annual tolerance is 100 MU, meaning the measured MU for the dynamic or gated delivery should match the planned (expected) MU within ± 100 MU. This fixed MU threshold provides a straightforward check that isn't tied to percent values, which can be misleading when the amount of MU varies widely across fields or during gating. For example, if a gated segment is planned for 300 MU, the delivered MU should fall roughly within 200–400 MU. The 100 MU figure is a practical margin that covers typical variations in dynamic/gated delivery without being overly permissive. The other options would either be too tight or too loose for standard annual checks.

9. What does the term 'datum axis' refer to in GD&T?

- A. A measurement of surface roughness.
- B. The axis of a datum feature used as reference.**
- C. The color of the part.
- D. A dimension line.

In GD&T, datums establish a reference frame for measurement. The datum axis is the axis of a datum feature used as that reference. For cylindrical features like holes or shafts, this axis is the true geometric line that runs through the center and defines how the part is oriented and located within the datum frame. This axis constrains rotation and translation when applying tolerances, ensuring consistent positioning relative to the datums. It's not about surface roughness, color, or simply a dimension line.

10. What is the monthly photon beam profile constancy tolerance?

- A. 0.5%
- B. 0.8%
- C. 1.2%
- D. 1%**

Monthly checks verify that the photon beam's shape across the field stays consistent over time. The tolerance used for this constancy is 1%, meaning when you compare the current profile to the baseline, the relative dose at any point in the profile should not differ by more than $\pm 1\%$ after normalizing (typically to the central axis or peak value). This value strikes a balance between catching meaningful changes in the beam's flatness or symmetry and not overreacting to normal measurement noise or minor fluctuations. Values tighter than 1% would often flag normal variations as problems, while looser values would allow drift that could affect patient dose distributions.

SAMPLE

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://tg142tolerances.examzify.com>

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

SAMPLE