Task Group 142 Tolerances Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

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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

1. **The annual enhanced dynamic or gated delivery dose tolerance is described as which of the following?**

   A. 50 MU or expected delivery

   B. 100 MU or expected delivery

   C. 150 MU or expected delivery

   D. 200 MU or expected delivery

2. **Which tolerance requires a cylindrical tolerance zone coaxial with a datum axis?**

   A. Concentricity.

   B. Perpendicularity.

   C. Angularity.

   D. Profile.

3. **What is the effect of the M modifier in a GD&T callout?**

   A. It ties the tolerance to MMC; the tolerance zone is evaluated at the MMC boundary.

   B. It tightens all tolerances uniformly.

   C. It changes the projection height automatically.

   D. It applies only to straightness tolerances.

4. **What is the purpose of MMC in relation to position tolerances?**

   A. To enforce identical sizes for all holes.

   B. To reduce the tolerance zone regardless of size.

   C. To set a fixed, unchanging tolerance regardless of size.

   D. To permit a bonus tolerance when actual size approaches LMC for holes or MMC for shafts, affecting the position tolerance.

5. **Which tolerances govern how far a feature's centerline or surface is from a datum reference?**

   A. Form tolerances

   B. Orientation tolerances

   C. Location tolerances

   D. Runout tolerances

6. Which tolerance is specified for CT number accuracy in water regions?

A. ±2 Hu

B. ±3 Hu

C. ±5 Hu

D. ±7 Hu

7. What is the requirement for the door closing safety system?

A. Non-functional

B. Functional with periodic testing

C. Functional

D. Not required

8. Which tolerance is defined as 2 mm or 1% on a side?

A. 2 mm or 1% on a side

B. 1 mm or 1% on a side

C. 1 mm

D. 2 mm

9. Which modality has the strictest daily laser localization tolerance?

A. Non-IMRT: 2 mm; IMRT: 1.5 mm; SRS-SBRT: 1 mm

B. Non-IMRT: 2 mm; IMRT: 2 mm; SRS-SBRT: 1 mm

C. Non-IMRT: 2 mm; IMRT: 1.5 mm; SRS-SBRT: 1 mm

D. Non-IMRT: 1.5 mm; IMRT: 1.5 mm; SRS-SBRT: 1.5 mm

10. What is the annual SRS arc rotation mode tolerance (range 0.5-10 MU/deg)?

A. Monitor units set vs delivered: 1.0 MU or 2% (whichever is greater); Gantry angle vs delivered: 1° or 2% (whichever is greater)

B. 0.5 MU or 1%; 0.5° or 1%

C. 2.0 MU or 4%; 2° or 4%

D. 1.5 MU or 3%; 2° or 3%

Answers

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

Explanations

1. The annual enhanced dynamic or gated delivery dose tolerance is described as which of the following?

A. 50 MU or expected delivery

B. 100 MU or expected delivery

C. 150 MU or expected delivery

D. 200 MU or expected delivery

The key idea is that this annual tolerance uses monitor units as the measure for gating/dynamic delivery, since both gating windows and dynamic MLC motion can change how many MU are actually delivered. The standard tolerance is 100 MU, or the amount of MU that would be expected to be delivered for the planned treatment, whichever is appropriate. This keeps the QA practical: a fixed 100 MU catches meaningful discrepancies for typical plans, while for plans that are expected to deliver more MU, the tolerance reflects that actual delivery, avoiding unnecessary flags. The fixed values other than 100 MU don't align with how these techniques vary in practice, so 100 MU (or the plan's expected delivery) is the appropriate benchmark.

2. Which tolerance requires a cylindrical tolerance zone coaxial with a datum axis?

A. Concentricity.

B. Perpendicularity.

C. Angularity.

D. Profile.

Concentricity checks how centered a feature's axis is relative to a reference datum axis. When this tolerance is specified, the true axis of the cylindrical or spherical feature must lie inside a cylindrical tolerance zone that is coaxial with the datum axis. In other words, the axis can't drift away from the datum axis beyond the stated amount because the zone around that datum axis defines the allowable deviation. This is different from the others: perpendicularity constrains a surface to be at a right angle to a datum plane, angularity fixes a specific angle between axes, and profile controls the shape of a surface boundary rather than the alignment of centers.

3. What is the effect of the M modifier in a GD&T callout?

A. It ties the tolerance to MMC; the tolerance zone is evaluated at the MMC boundary.

B. It tightens all tolerances uniformly.

C. It changes the projection height automatically.

D. It applies only to straightness tolerances.

The important idea here is that the M modifier stands for Maximum Material Condition and it anchors a tolerance to that extreme size. When a tolerance callout includes M, the specified tolerance is interpreted at the feature's MMC — the size at which the feature contains the maximum material (external features at their largest size; internal features at their smallest size). What this means in practice is that the tolerance zone is defined relative to the MMC boundary, and as the actual size moves away from MMC, the tolerance can effectively relax or "bonus" accordingly. So, for a callout with M, you evaluate whether the feature meets the tolerance at the MMC size. If the feature size changes away from MMC, you don't re-derive the tolerance from scratch; instead, the MMC relationship governs how the tolerance is applied, often allowing more variation than if MMC weren't specified. That's why it ties the tolerance to MMC and the tolerance zone is evaluated at the MMC boundary. The other options don't fit because this modifier doesn't uniformly tighten all tolerances, doesn't automatically change projection height, and isn't limited to straightness—it applies to the tolerance in the context of MMC for the given feature.

4. What is the purpose of MMC in relation to position tolerances?

A. To enforce identical sizes for all holes.

B. To reduce the tolerance zone regardless of size.

C. To set a fixed, unchanging tolerance regardless of size.

D. To permit a bonus tolerance when actual size approaches LMC for holes or MMC for shafts, affecting the position tolerance.

The idea behind MMC in relation to position tolerances is to allow a bonus in the positional tolerance based on how far the actual feature size is from its most restrictive material condition. For holes, when the hole size moves toward the largest allowed (toward the least material around the hole), you get extra latitude in how far the axis can be from its true position. For shafts, when the size moves toward the largest allowed (toward MMC), you also gain that additional allowance. In other words, the position tolerance isn't fixed; it expands as the size of the feature approaches the less restrictive extreme, making it easier to assemble parts without violating the tolerance. This explains why a MMC modifier can increase the permissible positional error beyond the basic tolerance, reflecting that more misalignment can be tolerated when the feature size itself is more permissive.

5. Which tolerances govern how far a feature's centerline or surface is from a datum reference?

A. Form tolerances

B. Orientation tolerances

C. Location tolerances

D. Runout tolerances

In GD&T, the tolerance that governs how far a feature’s centerline or surface can deviate from datum references is the location tolerance. This type of tolerance defines a zone where the true position of the feature must lie relative to the datums, effectively controlling the feature’s distance from those reference frames. For a hole, that zone is often a cylindrical region around the true position, ensuring the hole’s center stays within a specific distance from the datum references. This is different from form tolerances, which only constrain the shape (like straightness or flatness); orientation tolerances, which control angular relationships; and runout tolerances, which measure variation as the part rotates. So, when you need to specify how far the feature’s center or surface can be from datum references, location tolerances are the one that does that.

6. Which tolerance is specified for CT number accuracy in water regions?

A. ±2 Hu

B. ±3 Hu

C. ±5 Hu

D. ±7 Hu

In CT number accuracy testing, water is the reference point because its CT number is defined as 0 HU. The goal is to ensure the measured CT number within a water region stays very close to zero despite normal system variations. A tolerance of ±5 HU accommodates typical day-to-day fluctuations from calibration drift, reconstruction algorithms, and noise, while still keeping the baseline reliable for distinguishing tissues. Choosing ±2 or ±3 HU would be too tight for routine operation, and ±7 HU would be more permissive than standard practice. The widely accepted tolerance that balances accuracy and practicality is ±5 HU.

7. What is the requirement for the door closing safety system?

A. Non-functional

B. Functional with periodic testing

C. Functional

D. Not required

The essential requirement is that the door closing safety system must be functional. Its purpose is to automatically close the door to maintain the safety barrier and prevent hazards from spreading when needed. If the system were non-functional, the door could stay open, defeating the safety barrier and increasing risk. While periodic testing is important for verifying continued performance, the fundamental requirement described here is that the system is capable of performing its safety role—that is, it is functional. The other options either imply no safety capability or add maintenance wording beyond the basic requirement.

8. Which tolerance is defined as 2 mm or 1% on a side?

A. 2 mm or 1% on a side

B. 1 mm or 1% on a side

C. 1 mm

D. 2 mm

This tests your ability to read a mixed absolute/relative tolerance that is applied per side. When a spec says "2 mm or 1% on a side," the deviation allowed for each side of the dimension is governed by both criteria: a fixed amount (2 mm) and a percentage of the nominal size (1%). The per-side wording means you consider the allowance on the positive and negative directions from the nominal separately, not as a single total tolerance. This exact phrasing is the best match because it communicates both the fixed and the relative control and that it applies per side. Other options that give only a single value or omit the "on a side" detail don't capture the same mixed, per-side tolerance.

9. Which modality has the strictest daily laser localization tolerance?

A. Non-IMRT: 2 mm; IMRT: 1.5 mm; SRS-SBRT: 1 mm

B. Non-IMRT: 2 mm; IMRT: 2 mm; SRS-SBRT: 1 mm

C. Non-IMRT: 2 mm; IMRT: 1.5 mm; SRS-SBRT: 1 mm

D. Non-IMRT: 1.5 mm; IMRT: 1.5 mm; SRS-SBRT: 1.5 mm

The daily laser localization tolerance is about how precisely the patient must be aligned before treatment using laser references to the planned position. The smaller the tolerance, the tighter the setup must be, because even a tiny shift can significantly affect the dose delivery. For high-dose, small-target treatments like SRS-SBRT, precision is critical. A millimeter of misalignment can move the high-dose region away from the tumor or into nearby healthy tissue, which is why the tolerance is the strictest. That modality is associated with the smallest allowable misalignment, typically 1 mm. Conventional non-IMRT plans use larger fields and margins, so a 2 mm tolerance is acceptable. IMRT improves dose conformity but still tolerates a bit more setup error than SRS-SBRT, around 1.5 mm. Since SRS-SBRT requires the tightest control to protect normal tissue while hitting a very small target, it will have the strictest daily localization tolerance.

10. What is the annual SRS arc rotation mode tolerance (range 0.5-10 MU/deg)?

A. Monitor units set vs delivered: 1.0 MU or 2% (whichever is greater); Gantry angle vs delivered: 1° or 2% (whichever is greater)

B. 0.5 MU or 1%; 0.5° or 1%

C. 2.0 MU or 4%; 2° or 4%

D. 1.5 MU or 3%; 2° or 3%

SRS arc rotation mode tolerances are set by two checks against the treatment plan: the difference between the monitor units delivered and the monitor units planned, and the difference between the gantry angle delivered and the gantry angle planned. Each check uses a rule of "the greater of a fixed value or a percentage" to keep the tolerance sensible across different dose levels and rotation speeds. For annual QA in SRS arc rotation, a common and appropriate pairing is 1.0 MU (or 2%, whichever is greater) for the MU comparison, and 1° (or 2%, whichever is greater) for the gantry angle comparison. This combination ensures that both small absolute MU discrepancies and proportional percentage discrepancies are controlled, and that angular accuracy remains acceptable even at low doses or steep dose gradients. The other options propose different fixed values or omit the "whichever is greater" approach, which would not align with the standard practice of applying a dual-criterion tolerance that scales with dose and rotation. This is why the pairing with 1.0 MU or 2% and 1° or 2% is the best match for the stated range.

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!