MASTERS UPGRADE 100 TON PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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

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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 Rule number is associated with general navigation safety and collision avoidance rules?

A. Rule 1

B. Rule 3

C. Rule 6

D. Rule 10

2. Computed visibility is the visibility determined for a light using which factors?

A. the visibility determined for a light using the light's height, nominal range, and height of eye of the observer

B. the maximum distance at which a light may be seen in perfect visibility by an observer at sea level

C. the geographic range

D. the distance a light can be seen under meteorological conditions

3. Which device on an anchor chain acts as a safety stopper, being lifted to the open position as the chain runs out and closing when the chain is heaved in?

A. Riding pawl

B. Chain stopper

C. Wildcat

D. Locking ring

4. Downflooding leads to which of the following outcomes?

A. Progressive flooding and loss of stability

B. Immediate stability gain

C. Reduced water ingress

D. No effect on stability

5. Icing can affect stability by causing displacement to increase due to what effect?

A. It reduces the ship's weight

B. It adds weight above the center of gravity

C. It moves weight to the low side

D. It reduces freeboard

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6. On a small passenger vessel, if an inlet or discharge pipe is not accessible, its shut off valve _____.

A. must be operable from the weather deck

B. may be operable from any accessible location above the bulkhead deck

C. must be labeled at its operating point to show its identity and direction of closing

D. All of the above

7. What control surface helps offset form drag on a towed vessel?

A. Rudder

B. Propeller

C. Keel

D. Ballast

8. How long is the Certificate of Inspection issued to a 50 gross ton, passenger carrying vessel which is 60 feet long valid?

A. One year.

B. Two years.

C. Five years.

D. Four years.

9. How many portable fire extinguishers are required in the propulsion machinery space of a diesel powered vessel if there is a fixed CO2 system installed onboard?

A. None are required

B. One B-I extinguisher

C. One B-I and one B-II extinguisher

D. Two B-II extinguishers

10. In neutral equilibrium, what is the relationship between the center of gravity G and the transverse metacentre M?

A. g lower than m

B. g higher than m

C. The metacentre lies below the center of gravity

D. CG coincides with the transverse metacentre (M)

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Answers

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

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Explanations

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1. Which Rule number is associated with general navigation safety and collision avoidance rules?

A. Rule 1

B. Rule 3

C. Rule 6

D. Rule 10

The idea being tested is that there is a single rule that sets the broad safety framework for all navigation rules. This rule lays out the scope and applicability of the entire system, making clear that the Rules apply to every vessel on the water and that safe operation and collision avoidance are the overarching goals. Because it establishes the general safety framework rather than a specific maneuver, definition, or area, it best matches the notion of general navigation safety and collision avoidance. The other provisions cover more particular topics—definitions of terms, specific equipment or light configurations, or rules for vessels in designated traffic areas—but they don't by themselves establish that broad safety framework.

2. Computed visibility is the visibility determined for a light using which factors?

A. the visibility determined for a light using the light's height, nominal range, and height of eye of the observer

B. the maximum distance at which a light may be seen in perfect visibility by an observer at sea level

C. the geographic range

D. the distance a light can be seen under meteorological conditions

Computed visibility is the distance a light can be seen based on the geometry of the Earth and the heights involved. It corresponds to the geographic range—the line-of-sight distance determined by how high the light is above the water and how high the observer's eye is. Weather and light intensity don't enter this calculation; it's purely about the curvature of the Earth and the two heights. In practice, you estimate it by adding the horizon distance from the light's height to the horizon distance from the observer's eye height. For example, higher lights or higher observer eyes push the visible distance farther. This differs from the luminous range, which depends on meteorological visibility, and from nominal range, which is the distance a light can be seen under standard meteorological conditions.

3. Which device on an anchor chain acts as a safety stopper, being lifted to the open position as the chain runs out and closing when the chain is heaved in?

A. Riding pawl

B. Chain stopper

C. Wildcat

D. Locking ring

A riding pawl. This spring-loaded lever works with the windlass chain and acts as a one-way safety device. As the chain pays out, the pawl rides up and clears, allowing the chain to run out. When you heave in, tension on the chain forces the pawl into engagement, stopping further movement and acting as a safety stopper. The wildcat is the wheel the chain sits on, the chain stopper is a separate deck device to hold chain when not paying out, and the locking ring is another fitting used to secure parts—none of these provide the dynamic one-way stop that the riding pawl does.

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4. Downflooding leads to which of the following outcomes?

A. Progressive flooding and loss of stability

B. Immediate stability gain

C. Reduced water ingress

D. No effect on stability

Downflooding is water entering into spaces that are below the waterline, which immediately adds weight to the vessel and reduces the reserve buoyancy that keeps it upright. As more water accumulates in these lower compartments, the ship's weight increases and the ability to resist heeling diminishes, causing stability to deteriorate. This creates a dangerous feedback loop: more flooding makes the ship less stable, so it takes on even more water and can capsize if unchecked. That's why the outcome is progressive flooding and loss of stability. The other possibilities don't fit. Gaining stability would require removing water or shifting weight favorably, which isn't what downflooding does. Reducing water ingress contradicts the process—the event itself is about water entering. And saying there's no effect on stability ignores the direct impact of added mass and reduced buoyancy on the vessel's balance.

5. Icing can affect stability by causing displacement to increase due to what effect?

A. It reduces the ship's weight

B. It adds weight above the center of gravity

C. It moves weight to the low side

D. It reduces freeboard

Icing increases the ship's total weight, and the place that weight sits matters for both displacement and stability. When ice collects on upper parts of the vessel, it adds mass above the center of gravity. That higher weight lifts the center of gravity, which lowers the metacentric height and the righting arm, making the ship less stable. At the same time, the total weight must be supported by water, so displacement increases to balance the extra load. The key point is that the added ice sits above the center of gravity, causing both a rise in G and an increase in displacement.

6. On a small passenger vessel, if an inlet or discharge pipe is not accessible, its shut off valve _____.

A. must be operable from the weather deck

B. may be operable from any accessible location above the bulkhead deck

C. must be labeled at its operating point to show its identity and direction of closing

D. All of the above

The essential idea is to ensure quick and safe isolation of piping even when a valve isn't right at hand. If the inlet or discharge pipe isn't accessible, the shut-off valve should still be reachable and operable from a safe location. Making it operable from the weather deck ensures a person can shut off the flow without entering potentially hazardous spaces. There can also be an alternative operable location as long as it's above the bulkhead deck, giving flexibility in design and access. In addition, the valve must be labeled at its operating point to show what it controls and the direction to close it, preventing confusion during an emergency. When you put these requirements together, the appropriate practice is to have a valve that is operable from the weather deck, may be operable from any accessible location above the bulkhead deck, and is labeled at its operating point.

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7. What control surface helps offset form drag on a towed vessel?

A. Rudder

B. Propeller

C. Keel

D. Ballast

Controlling how water flows around a towed vessel is key to managing drag, and the rudder is the surface that does this directly. By deflecting water, the rudder creates a side force that helps keep the tow in line with the pulling vessel and counteracts tendencies to yaw or drift. When the tow is kept on a straight path and properly aligned with the towing vessel, the flow around the towed hull remains more streamlined, reducing the form drag caused by flow separation and cross-flow. A propeller mainly provides thrust and doesn't directly manipulate the flow over the towed hull to offset drag. A keel is fixed and primarily contributes to directional stability, not active drag reduction, and ballast changes weight rather than water flow.

8. How long is the Certificate of Inspection issued to a 50 gross ton, passenger carrying vessel which is 60 feet long valid?

A. One year.

B. Two years.

C. Five years.

D. Four years.

For Coast Guard inspected passenger vessels, the Certificate of Inspection is issued for a five-year period. This vessel's size and tonnage put it in the standard five-year cycle, so the COI remains valid for five years as long as the vessel continues to meet all safety and inspection requirements. Between the five-year cycle, there are annual or periodic checks to verify ongoing compliance, and any major changes to capacity or equipment would trigger reevaluation. Therefore, the correct duration is five years.

9. How many portable fire extinguishers are required in the propulsion machinery space of a diesel powered vessel if there is a fixed CO2 system installed onboard?

A. None are required

B. One B-I extinguisher

C. One B-I and one B-II extinguisher

D. Two B-II extinguishers

When a fixed CO2 fire suppression system is installed in an enclosed propulsion machinery space, that space is considered covered by a dedicated extinguishing method. The fixed system is designed to detect and suppress fires within the engine room, so carrying or needing portable extinguishers inside that space is not required. The purpose is to rely on the automatic system to handle fires in that space, while portable extinguishers would be used in areas not protected by a fixed system or during initial attack in other spaces. Thus, no portable extinguishers are mandated inside the propulsion machinery space when a fixed CO2 system is in place.

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10. In neutral equilibrium, what is the relationship between the center of gravity G and the transverse metacentre M?

A. g lower than m

B. g higher than m

C. The metacentre lies below the center of gravity

D. CG coincides with the transverse metacentre (M)

Neutral equilibrium occurs when the point about which the body can rotate (the transverse metacentre) sits right at the center of gravity. In a small heel, the buoyant force shifts, but if the metacentre and gravity line up at the same point, the weight and buoyancy produce no turning moment. That means there is neither a restoring force to bring the body back upright nor a overturning tendency to topple it—the body stays in its new position after a small tilt. If the metacentre were above the center of gravity, a restoring moment would appear (stable); if it were below, the tilt would grow (unstable). So, in neutral equilibrium, the center of gravity coincides with the transverse metacentre.

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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://mastersupgrade100ton.examzify.com

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

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