

SPECIAL MISSIONS AVIATION (SMA) BLOCK 1 PRACTICE TEST (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

<https://smablock1.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. Which IFF transponder mode provides altitude reporting?**
 - A. Mode C
 - B. Mode A
 - C. Mode S
 - D. Mode 4

- 2. In an open circuit:**
 - A. The circuit self-cleans
 - B. The voltage doubles
 - C. The circuit is broken so that current is no longer able to pass
 - D. Current flows normally in a loop

- 3. The tail rotor primarily serves what purpose on a helicopter?**
 - A. Lift
 - B. Anti-Torque
 - C. Propulsion
 - D. Stability during Hover

- 4. Which component transmits rotational energy to its respective gearboxes?**
 - A. Clutches
 - B. Bearings
 - C. Drive shafts
 - D. Transmission fluid

- 5. Which battery type is described as 'works like a car battery' and is used on Hueys?**
 - A. Nickel-Cadmium Battery
 - B. Dry Cell Battery
 - C. Lead Acid Battery
 - D. Lithium-Ion Battery

- 6. Which component is used to limit system pressure to a safe maximum?**
 - A. Relief valve
 - B. Accumulator
 - C. Selector Valve
 - D. Filter

7. What Tactical Data Link system is an encrypted line-of-sight system that has transmit and receive capabilities for full motion video?
- A. LINK 16
 - B. PACWIND
 - C. JSTARS
 - D. TACWIN
8. If voltage remains constant and resistance doubles, what happens to current?
- A. It doubles
 - B. It stays the same
 - C. It halves
 - D. It increases more slowly
9. What is the function of the negative pressure relief valve?
- A. To limit cabin altitude rise
 - B. To vent cabin air to the outside
 - C. To prevent fuselage external pressure from exceeding the fuselage internal pressure
 - D. To provide emergency oxygen
10. Which EM wave has the longest wavelength?
- A. Radio waves
 - B. Microwaves
 - C. Infrared light
 - D. Ultraviolet light

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. Which IFF transponder mode provides altitude reporting?

- A. Mode C**
- B. Mode A
- C. Mode S
- D. Mode 4

Altitude reporting is a function of Mode C. When interrogated, the transponder replies with an encoded altitude value (pressure altitude), allowing ATC to see your aircraft's altitude on the radar display. Mode A only provides an identification code with no altitude data. Mode S carries more data and can include altitude, but the standard, textbook way to obtain an aircraft's altitude in many civilian operations is through Mode C. Mode 4 is a military, encrypted code and does not provide altitude information.

2. In an open circuit:

- A. The circuit self-cleans
- B. The voltage doubles
- C. The circuit is broken so that current is no longer able to pass**
- D. Current flows normally in a loop

An open circuit means there is a break in the conducting path so the loop isn't completed. Because there's no closed path, current has no route to follow, so it cannot flow—even when a voltage source is connected. The voltage can still exist across the gap, but the current is effectively zero since the path's resistance is infinite at the break. This aligns with $I = V/R$: with the path broken, current cannot pass. The other statements imply a closed loop or active current flow, which isn't the case in an open circuit.

3. The tail rotor primarily serves what purpose on a helicopter?

- A. Lift
- B. Anti-Torque**
- C. Propulsion
- D. Stability during Hover

The main idea is that the tail rotor provides anti-torque to counter the twisting effect of the main rotor. In a single-rotor helicopter, the engine turns the large rotor, and by Newton's third law the fuselage tends to spin in the opposite direction. The tail rotor pushes or pulls on the air to create a counteracting torque, keeping the helicopter from spinning and giving the pilot control of yaw by adjusting how much tail rotor thrust is produced. Lift and propulsion come from the main rotor and the drive system, respectively, while hover stability is achieved through this anti-torque action plus pilot input. In short, the tail rotor's job is to cancel the main rotor's torque so the aircraft can be steered and held steady.

4. Which component transmits rotational energy to its respective gearboxes?

- A. Clutches
- B. Bearings
- C. Drive shafts**
- D. Transmission fluid

The key idea is identifying the component that physically carries torque from the engine to the gearbox input. Drive shafts are designed to transmit rotational energy between connected parts, delivering power to each gearbox. They are the continuous link that makes the gearbox input rotate with the engine's output. Clutches control engagement but aren't the fixed power path to the gearbox. Bearings support rotating parts but don't transfer torque. Transmission fluid lubricates and cools, not transmit power. Therefore, the drive shaft is the component that transmits rotational energy to its respective gearboxes.

5. Which battery type is described as 'works like a car battery' and is used on Hueys?

- A. Nickel-Cadmium Battery
- B. Dry Cell Battery
- C. Lead Acid Battery**
- D. Lithium-Ion Battery

The idea is recognizing which chemistry behaves most like a typical car battery—providing a strong, high current surge for engine cranking and being robust in the aviation environment. Hueys rely on a lead-acid battery for starting because it delivers the large burst of current needed to crank the engine, and it's rugged, reliable, and easy to recharge with the aircraft's electrical system. Lead-acid cells are built with lead plates in a sulfuric acid electrolyte, a proven combination for starter duties and heavy vibration where a helicopter operates. The other chemistries don't fit that car-battery performance profile: nickel-cadmium is lighter and has different discharge characteristics, dry cells aren't capable of delivering the high current required for starting, and lithium-ion, while energy-dense, wasn't the standard starter battery for Hueys and isn't described as "works like a car battery."

6. Which component is used to limit system pressure to a safe maximum?

- A. Relief valve**
- B. Accumulator
- C. Selector Valve
- D. Filter

Pressure control in hydraulic and pneumatic systems is achieved with a device that acts as a safety valve. The relief valve is a spring-loaded device that stays closed while system pressure is below its preset limit. When pressure climbs to that limit, the valve opens and diverts fluid back to the reservoir or to another part of the circuit, preventing the pressure from rising further. This keeps the entire system within safe operating limits and protects pumps, hoses, seals, and actuators from overpressure. Other components serve different roles. An accumulator stores energy and helps smooth pressure changes but does not actively cap the system pressure. A selector valve changes where fluid flows, not how much pressure the system is allowed to develop. A filter removes contaminants, with no direct role in limiting pressure.

7. What Tactical Data Link system is an encrypted line-of-sight system that has transmit and receive capabilities for full motion video?

- A. LINK 16
- B. PACWIND**
- C. JSTARS
- D. TACWIN

The key idea here is recognizing a data link system that provides secure, line-of-sight two-way communication specifically capable of carrying full-motion video. PACWIND is a tactical data link designed for encrypted line-of-sight transmission, and it supports both transmit and receive of high-bandwidth video streams. That combination—secure LOS connectivity with FMV capability—fits the description exactly, making PACWIND the best match. Link 16 is a widely used encrypted, line-of-sight data link, but its primary role is general data exchange in a TDMA network rather than dedicated full-motion video; JSTARS is an airborne platform that uses data links but isn't itself a data-link system; TACWIN is an older LOS data link with different use cases and doesn't align as directly with FMV transmission.

8. If voltage remains constant and resistance doubles, what happens to current?

- A. It doubles
- B. It stays the same
- C. It halves**
- D. It increases more slowly

Current is set by Ohm's law: $I = V/R$. When the voltage stays constant, the current is inversely proportional to the resistance. If resistance doubles, the current becomes half of what it was before. For example, with 12 volts and 4 ohms, the current is 3 amps. If the resistance increases to 8 ohms, the current drops to 1.5 amps, which is half of 3 amps. Doubling the current would require either reducing the resistance or increasing the voltage; keeping voltage fixed and increasing resistance cannot keep the current the same or increase it.

9. What is the function of the negative pressure relief valve?

- A. To limit cabin altitude rise
- B. To vent cabin air to the outside
- C. To prevent fuselage external pressure from exceeding the fuselage internal pressure**
- D. To provide emergency oxygen

The key idea is protecting the structure from a negative pressure differential. A negative pressure relief valve opens when the cabin pressure becomes lower than the outside air pressure by a set amount. In that situation, it allows outside air to flow into the cabin to raise internal pressure and prevent the fuselage from being stressed or crushed by the higher external pressure. It's not about venting cabin air to the outside, and it doesn't supply oxygen—the emergency oxygen system does that separately.

10. Which EM wave has the longest wavelength?

- A. Radio waves**
- B. Microwaves**
- C. Infrared light**
- D. Ultraviolet light**

The length of a wave increases as its wavelength grows, while frequency drops, since wavelength and frequency are inversely related. Among these options, radio waves sit at the far end of the spectrum with the longest wavelengths—ranging from millimeters up to kilometers—much longer than the others. Microwaves have shorter wavelengths (centimeters to millimeters), infrared is even shorter (roughly micrometers to millimeters), and ultraviolet is much shorter still (nanometers). Because radio waves have the lowest frequency and the longest wavelength in this group, they are the longest-wavelength EM waves shown.

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://smablock1.examzify.com>

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

SAMPLE