RADAR, AIRFIELD, AND WEATHER SYSTEMS (RAWS) CDC VOLUME 3 PRACTICE TEST (SAMPLE)

STUDY GUIDE

SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE

https://rawscdcvol3.examzify.com

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

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

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. **Marker beacons along the approach include Outer Marker, Middle Marker, and Inner Marker; which marker is encountered first?**
   A. Middle Marker.
   B. Outer Marker.
   C. Inner Marker.
   D. None of the above.

2. **Why is the altimeter setting important in METAR/TAF data for runway operations?**
   A. Ensures correct vertical separation measurements for en-route navigation only.
   B. Determines weather type recorded.
   C. Ensures correct altitude readings for approaches and altitude separation, affecting minima and vertical guidance reliability.
   D. Only used for calibrating altimeters on the ground.

3. **The 'M of N' function in PSR serves primarily to eliminate which type of targets?**
   A. Second-time-around targets
   B. First-time targets
   C. Moving targets only
   D. Ground clutter

4. **Which sources provide wind information used during RAWS operations?**
   A. METAR/TAF and on-site sensors
   B. METAR/TAF only
   C. On-site sensors only
   D. Forecast charts only

5. **Which weather radar products indicate hail and microburst potential?**
   A. High-reflectivity patterns
   B. Low-reflectivity patterns
   C. No velocity data
   D. Velocity-only patterns

6. Define wind shear and explain why it is critical during takeoff and landing.

A. A rapid change in wind speed or direction with altitude; can cause sudden loss/gain of airspeed and control issues during approach/departure.

B. A gradual increase in wind speed with altitude; improves lift.

C. A change in humidity with altitude; affects visibility.

D. A static wind condition with no variation.

7. What is the primary purpose of a Primary Surveillance Radar (PSR) in air traffic control?

A. To detect aircraft and provide range and bearing for non-transponder targets, enabling ATC to track all aircraft.

B. To provide meteorological data to ATC for weather avoidance.

C. To identify aircraft solely via transponder replies.

D. To control aircraft autopilot functions from radar.

8. Which component is described as the primary data generator for radar simulations used in testing and training environments?

A. Testing and Training Simulator Equipment/Simulation (TTSE/SIM)

B. Site Support Subsystem

C. Event Engine

D. Inter-facility Message Processor

9. Which statement about altimeter setting and vertical guidance is true?

A. Altimeter setting has no effect on vertical guidance.

B. Altitude readings are unaffected by barometric pressure changes.

C. Correct altimeter setting ensures accurate altitude readings for approaches, affecting minima and vertical guidance reliability.

D. It only matters for en-route flight levels.

10. Which component is considered a supporting component of basic radar operation rather than one of the core subsystems?

A. Antenna

B. Display/Processor

C. Transmitter

D. Receiver

Answers

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

Explanations

1. **Marker beacons along the approach include Outer Marker, Middle Marker, and Inner Marker; which marker is encountered first?**

   A. Middle Marker.

   B. Outer Marker.

   C. Inner Marker.

   D. None of the above.

Marker beacons on an ILS are arranged from farthest to closest to the runway to guide you through the final approach. The Outer Marker is placed farther from the threshold, followed by the Middle Marker, and then the Inner Marker near the runway. Because of this layout, you encounter the Outer Marker first as you descend the approach, then the Middle Marker, and finally the Inner Marker. The markers also have distinct colors and Morse identifiers (Outer Marker, Middle Marker, Inner Marker) to help you recognize which beacon you're crossing. That sequencing is why the first marker you encounter on the approach is the Outer Marker.

2. **Why is the altimeter setting important in METAR/TAF data for runway operations?**

   A. Ensures correct vertical separation measurements for en-route navigation only.

   B. Determines weather type recorded.

   C. Ensures correct altitude readings for approaches and altitude separation, affecting minima and vertical guidance reliability.

   D. Only used for calibrating altimeters on the ground.

Setting the local altimeter pressure in METAR/TAF is essential to translate atmospheric pressure into accurate altitude readings. For runway operations, precise altitude information is critical during instrument approaches and for maintaining the required vertical separation. The altimeter setting supplied in METAR/TAF (the local QNH) ensures your altimeter reads height above mean sea level correctly, so you can accurately determine your height at key points in an approach, preserve the published minima, and rely on vertical guidance systems like ILS to function as intended. If the setting is incorrect or not updated, your displayed altitude could be too high or too low, which risks undershooting or overshooting minima and can undermine the reliability of vertical guidance. The weather data provide this setting so pilots and air traffic controllers share an accurate, current reference for altitude.

3. The 'M of N' function in PSR serves primarily to eliminate which type of targets?

A. Second-time-around targets

B. First-time targets

C. Moving targets only

D. Ground clutter

The main idea being tested is how the M of N logic works to confirm detections across multiple scans. M of N requires a target to be observed in at least M of N consecutive radar sweeps to be accepted as valid. This makes the system filter out transient or spurious echoes that don't persist across scans. Why this points to eliminating second-time-around targets: false echoes often appear intermittently or only on a secondary pass due to processing artifacts, multipath, or clutter. They don't reliably show up in the required number of scans, so they fail the M of N criterion and are discarded. Real targets, including moving aircraft, tend to be seen in multiple scans, so they survive the test. In short, the M of N filter emphasizes persistence over time, which is why it's most effective at removing second-time-around targets rather than real targets or clutter that would either persist differently or not be the primary issue under this rule.

4. Which sources provide wind information used during RAWS operations?

A. METAR/TAF and on-site sensors

B. METAR/TAF only

C. On-site sensors only

D. Forecast charts only

Wind information in RAWS operations comes from both official weather observations/forecasts and local field measurements. METAR provides the current wind direction and speed observed at the airport, which gives a standardized picture of what the atmosphere is doing at the reporting station. TAF adds forecasted wind trends for planning the next several hours, helping you anticipate changes that could affect runway use, procedures, or scheduling. On-site sensors at the airfield supply real-time, local wind data, capturing how wind behaves right at the field, including gusts, variability, and any terrain or structure-induced effects that might not show up in distant reports. This local input is crucial for decisions made during operations where immediate conditions matter. Relying on forecast charts alone wouldn't reflect current conditions, and using only on-site sensors wouldn't provide the standardized, broader context or forecast guidance. Combining METAR/TAF with on-site sensors gives the most reliable, actionable wind information for RAWS operations.

5. Which weather radar products indicate hail and microburst potential?

A. High-reflectivity patterns

B. Low-reflectivity patterns

C. No velocity data

D. Velocity-only patterns

High-reflectivity patterns on weather radar show where precipitation particles are large and dense, which is a hallmark of hail in a storm. When a storm stacks up a strong core with very high dBZ values, it signals powerful convection capable of lofting hail stones. Those same intense convective cells often produce strong downdrafts and outflow, creating microburst potential as air rapidly descends and spreads outward. Low-reflectivity patterns would indicate lighter precipitation and less likelihood of hail or microbursts. Relying on velocity data alone omits information about particle size and precipitation density, so it doesn't directly reveal hail or microburst potential. Velocity-only patterns don't capture how much precipitation is present, which is key to identifying hail cores and the associated downburst risk. No velocity data would also remove Doppler wind information that can help detect wind shear or microburst signatures, making it harder to assess those threats, whereas high reflectivity directly points to strong convective activity that can produce hail and microbursts.

6. Define wind shear and explain why it is critical during takeoff and landing.

A. A rapid change in wind speed or direction with altitude; can cause sudden loss/gain of airspeed and control issues during approach/departure.

B. A gradual increase in wind speed with altitude; improves lift.

C. A change in humidity with altitude; affects visibility.

D. A static wind condition with no variation.

Wind shear is a rapid change in wind speed or direction over a short distance in the vertical, which creates abrupt changes in the aerodynamic forces on the aircraft. This is especially critical during takeoff and landing because those phases occur at low altitude and near the limits of safe airspeed and maneuverability. If a layer of air presents a sudden decrease in headwind (or a sudden tailwind), the aircraft can lose airspeed and lift faster than the crew expects, increasing the risk of a stall or an unstable approach. Conversely, a sudden gust or increase in headwind can push airspeed higher than desired, affecting pitch and power management. Because pilots have limited time and margin to respond during these phases, wind shear can lead to loss of control authority or an out-of-trim flight path if not handled promptly with proper speed adjustments and corrective actions. The other descriptions don't capture the rapid vertical variation or its immediate impact on airspeed and control during approach and departure.

7. What is the primary purpose of a Primary Surveillance Radar (PSR) in air traffic control?

A. To detect aircraft and provide range and bearing for non-transponder targets, enabling ATC to track all aircraft.

B. To provide meteorological data to ATC for weather avoidance.

C. To identify aircraft solely via transponder replies.

D. To control aircraft autopilot functions from radar.

The main idea is that a primary surveillance radar detects aircraft regardless of whether they transmit a transponder, giving controllers the range and bearing needed to track all targets. It does this by sending radar pulses and measuring the round-trip time to determine distance, while the rotating antenna provides the bearing. This allows visibility of non-transponder or non-cooperative aircraft, which is crucial for maintaining situational awareness and broad airspace surveillance. Weather data comes from separate weather radar systems, not PSR. Transponder-based identification and altitude information are handled by secondary surveillance radar, which relies on replies from aircraft rather than primary echoes. Autopilot control is not a radar function.

8. Which component is described as the primary data generator for radar simulations used in testing and training environments?

A. Testing and Training Simulator Equipment/Simulation (TTSE/SIM)

B. Site Support Subsystem

C. Event Engine

D. Inter-facility Message Processor

Generating the radar scene data for testing and training environments is driven by the Testing and Training Simulator Equipment/Simulation. This component creates the radar data stream that researchers and trainees interact with—synthetic target returns, background clutter, noise, weather effects, and sensor models—providing realistic radar feeds that drive the entire scenario. It's the central source of data that everything else in the simulation relies on. The other parts play supportive roles: the Site Support Subsystem maintains the hardware and environment to keep the simulation running smoothly; the Event Engine orchestrates the sequence and timing of scenario elements; and the Inter-facility Message Processor handles data exchange between different facilities. They enable and coordinate the simulation but do not generate the primary radar data themselves.

9. Which statement about altimeter setting and vertical guidance is true?

A. Altimeter setting has no effect on vertical guidance.

B. Altitude readings are unaffected by barometric pressure changes.

C. Correct altimeter setting ensures accurate altitude readings for approaches, affecting minima and vertical guidance reliability.

D. It only matters for en-route flight levels.

Setting the altimeter to the local pressure calibrates your altitude readout to the actual air pressure at the surface. That calibration is what vertical guidance and instrument approaches depend on, because the glidepath, decision altitude/height, and other minima are all tied to the aircraft's indicated altitude. If the altimeter isn't set correctly, your indicated altitude will be off, so you could intercept or follow the glidepath at the wrong height and violate published minima or lose reliable vertical guidance. This is why choosing the statement about correct altimeter setting ensuring accurate altitude readings for approaches, and thus affecting minima and vertical guidance reliability, is the right one. Barometric pressure changes do affect indicated altitude unless you update the setting, so altitude readings aren't inherently constant. And the importance of altimeter setting isn't limited to en-route flight levels; it's essential for approaches as well, where precise vertical information is critical.

10. Which component is considered a supporting component of basic radar operation rather than one of the core subsystems?

A. Antenna

B. Display/Processor

C. Transmitter

D. Receiver

The main idea is distinguishing what actually handles generating and detecting the radar signal from what handles using and presenting the results. In basic radar operation, the essential parts are the transmitter, the antenna, and the receiver. The transmitter creates the RF energy, the antenna radiates it and then collects the echoes, and the receiver amplifies and converts those echoes into a form the system can use. The display and processor don't participate in generating or detecting the RF signal; instead, they interpret and present the data from the receiver so the operator can understand what was detected. That makes the display/processor a supporting component, while the antenna, transmitter, and receiver are the core subsystems.

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://rawscdcvol3.examzify.com

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