Radar, Airfield, and Weather Systems (RAWS) CDC Volume 2 Practice Test (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

Table of Contents

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. Which type of modulator is described as line-pulsed in typical radar configurations?

A. Spark-gap

B. Traveling-wave

C. Line-pulsed

D. Ring-modulated

2. Which antenna device eliminates precipitation effects on the radar indicator and is used to filter signal?

A. Antenna switch

B. Circulator

C. Polarizer

D. Air compressor

3. In the conical scanning technique, which property of the return signal is used to maintain track?

A. Phase

B. Frequency

C. Amplitude

D. Delay

4. What is the only type of aircraft that can present a single-arc IFF reply on a scope?

A. Civilian

B. Commercial

C. Unmanned

D. Military

5. Which radar subassembly amplifies the weak EM pulses returned from the reflecting object and reproduces them as video pulses?

A. Receiver

B. Transmitter

C. Antenna

D. Power supply

6. How many separate channels does a monopulse receiver have?

A. One

B. Two

C. Three

D. Four

7. What refers to the orientation of the electromagnetic wave as it travels through space?

A. Polarization

B. Scanning Method

C. Conical Scan

D. Multipathing

8. What part of the CRT is tapered and lined with a conductive graphite coating?

A. Aquadag

B. Anode

C. Cathode

D. Screen

9. The waveguide compressor subsystem that monitors and indicates normal or malfunction conditions is categorized as which type?

A. Hydraulic

B. Electrical

C. Pneumatic

D. Mechanical

10. What is used to couple waveguide components and sections to prevent RF leakage?

A. Air compressors

B. Choke joints

C. Polarizers

D. Circulators

Answers

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

Explanations

1. Which type of modulator is described as line-pulsed in typical radar configurations?

A. Spark-gap

B. Traveling-wave

C. Line-pulsed

D. Ring-modulated

A line-pulsed modulator uses a transmission-line pulse-forming network to store energy and release it as a short, high-voltage pulse. In typical radar configurations, this line-based approach provides clean, repeatable pulse widths and fast rise/fall times, which are essential for accurate range measurement and stable operation at the required repetition rates. The energy is held in a capacitor bank and dumped into the line through a fast switch, producing a near-rectangular pulse that travels along the line to the transmitter. This is distinct from spark-gap modulators, which rely on a gas discharge to start conduction and can have less precise timing and stability. Traveling-wave modulators involve control of a wave along a structure and are a different implementation concept, not described as line-pulsed in the same way. Ring-modulated devices are used for other RF modulation tasks rather than generating the main high-power radar pulse.

2. Which antenna device eliminates precipitation effects on the radar indicator and is used to filter signal?

A. Antenna switch

B. Circulator

C. Polarizer

D. Air compressor

Controlling polarization is a key way to filter the radar signal and reduce clutter from precipitation. A polarizer changes the polarization state of the transmitted and received wave, often converting linear polarization to circular. Rain and other precipitation scatter energy in ways that can create unwanted, depolarized reflections, which show up as clutter on the radar display. By filtering to a specific polarization component, the polarizer suppresses much of that stray energy, making the true signal cleaner and easier to interpret. The other devices don't perform this filtering role. An antenna switch simply selects which antenna or feed to use. A circulator helps separate the transmitter and receiver paths to protect them, but it isn't used to filter precipitation clutter. An air compressor has no relevance to RF signal processing.

3. In the conical scanning technique, which property of the return signal is used to maintain track?

A. Phase

B. Frequency

C. Amplitude

D. Delay

In conical scanning, the beam is swept around the target in a circular path, and the phase of the returned echo relative to the transmitted signal carries the directional information needed to keep the radar locked on the target. When the target sits on the boresight, the phase of the echo remains stable as the beam rotates. If the target is off to one side, the rotating beam introduces a phase shift in the received signal that varies predictably with the off-center position. A phase detector uses this phase variation to generate an error signal, which the tracking loop uses to steer the beam back toward center. Amplitude could vary with target strength or range, making it less reliable for indicating bearing, and delay primarily reflects target range rather than pointing error. Frequency isn't the bearing cue used in this method, so phase is the property that provides the consistent, directional information needed to maintain track.

4. What is the only type of aircraft that can present a single-arc IFF reply on a scope?

A. Civilian

B. Commercial

C. Unmanned

D. Military

Interrogating an IFF transponder is how radar systems quickly confirm friend or foe. Military IFF, especially in its secure modes, is designed to provide distinctive identification on the radar display. The single-arc reply is a display cue associated with those military IFF responses, setting them apart from other transponder replies. Civilian and commercial transponders (standard A/C/S responses) produce normal blips and do not generate that single-arc signature on the scope. So, the only type of aircraft that can present a single-arc IFF reply on a scope is military.

5. Which radar subassembly amplifies the weak EM pulses returned from the reflecting object and reproduces them as video pulses?

A. Receiver

B. Transmitter

C. Antenna

D. Power supply

The radar receiver is the part that handles the faint echoes and turns them into displayable video pulses. After a pulse bounces off a target, the returning signal is incredibly weak, so the receiver first amplifies it with a low-noise amplifier to preserve as much of the signal-to-noise ratio as possible. It then downconverts/detects the signal to produce a video waveform that represents the target's range and strength, which can be shown on the radar display. The transmitter, antenna, and power supply each have different roles—sending out the pulse, acting as the radiating/receiving aperture, and supplying power—whereas only the receiver processes the weak echoes into video pulses for viewing.

6. How many separate channels does a monopulse receiver have?

A. One

B. Two

C. Three

D. Four

Monopulse angle estimation works by forming multiple reference patterns from the received signal at the same time and comparing them to determine target position. To do this efficiently, the receiver processes the signal in three independent paths: a sum channel that combines all array elements to form the main beam, an azimuth-difference channel that provides an error signal across azimuth, and an elevation-difference channel that provides an error signal across elevation. The sum channel establishes the baseline, while the two difference channels translate the relative signal strength into precise angular errors in the two axes. With these three channels, you can compute the target's azimuth and elevation in real time from a single pulse. Additional channels are unnecessary for the basic angle measurement, though they might be added for extra capabilities like polarization or range processing.

7. What refers to the orientation of the electromagnetic wave as it travels through space?

A. Polarization

B. Scanning Method

C. Conical Scan

D. Multipathing

Polarization describes the orientation of the electric field of an electromagnetic wave as it travels through space. It tells you the direction in which the wave's electric field oscillates, which can be linear (fixed direction), circular, or elliptical depending on how the orthogonal components combine. This concept matters in radar because matching the wave's polarization to the target and the receiving antenna maximizes signal strength and minimizes losses. The other terms refer to different ideas: scanning methods describe how the antenna or beam is steered; conical scan is a specific scanning pattern; multipathing refers to signals taking multiple paths due to reflections, not the wave's orientation.

8. What part of the CRT is tapered and lined with a conductive graphite coating?

A. Aquadag

B. Anode

C. Cathode

D. Screen

In a CRT, the inner surface of the tube, especially the tapered funnel area, is coated with a conductive graphite material called Aquadag. This coating provides a uniform electrical path along the inside of the tube, draining away static charges and helping to shape and stabilize the electric field that directs the electron beam. By keeping the potential along the inner surface well-defined, it aids beam focusing and deflection accuracy. The other parts mentioned—anode, cathode, and screen—serve different roles. The anode is the high-voltage plate that attracts electrons; the cathode is the heated emitter of electrons; and the screen is the phosphor-coated front face that displays the image. None of these are the tapered, graphite-coated region described.

9. The waveguide compressor subsystem that monitors and indicates normal or malfunction conditions is categorized as which type?

A. Hydraulic

B. Electrical

C. Pneumatic

D. Mechanical

Monitoring and indicating status relies on sensors, signal processing, and annunciation—functions that are characteristic of electrical/electronic subsystems. A subsystem designed to detect whether conditions are normal or malfunctioning and then display or alert that state uses electrical signals, alarms, and indicators to communicate with operators or other control systems. In contrast, hydraulic and pneumatic subsystems focus on moving parts and controlling fluid or air pressures, while mechanical subsystems deal with physical components and structures. So, for a waveguide compressor that checks its condition and reports it, the electrical category is the best fit.

10. What is used to couple waveguide components and sections to prevent RF leakage?

A. Air compressors

B. Choke joints

C. Polarizers

D. Circulators

Choke joints are used. In waveguide systems, the seam where two sections meet can allow RF energy to leak out. A choke joint adds a quarter-wavelength RF choke around the joint, creating a very high impedance path to the RF at the operating frequency. This effectively blocks the current along the seam, keeping the energy inside the waveguide and preventing leakage. The other options don't serve this sealing function: air compressors are for pneumatics, polarizers control polarization, and circulators route or isolate signals rather than sealing joints against leakage.

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://rawscdcvol2.examzify.com

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