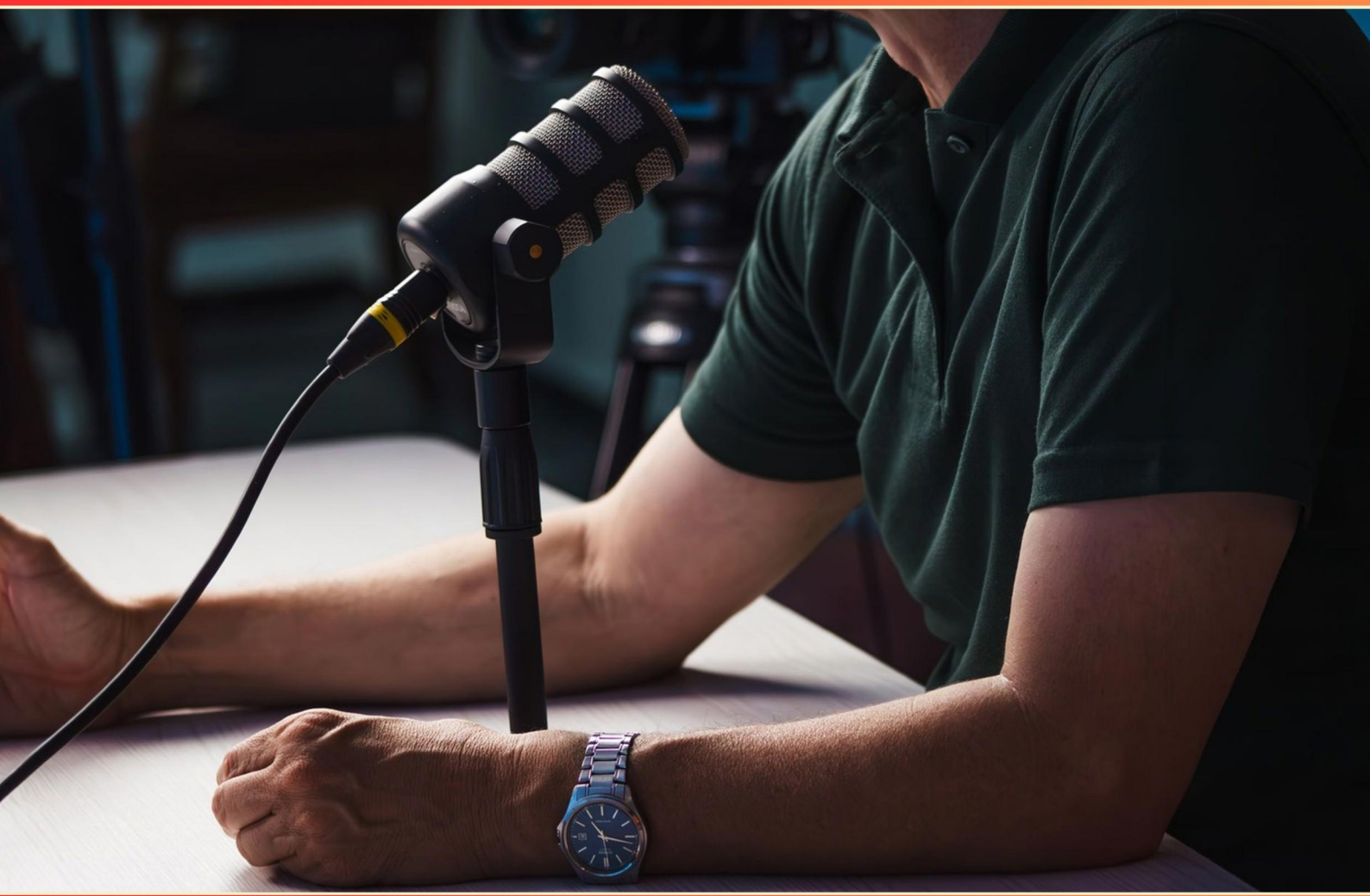
HAM RADIO GENERAL CLASS PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. What is the characteristic impedance of flat ribbon TV type twinlead?

A. 50 ohms

B. 75 ohms

C. 100 ohms

D. 300 ohms

2. Which of the following might indicate that signals on the HF bands are being received via scatter propagation?

A. The communication is during a sunspot maximum

B. The communication is during a sudden ionospheric disturbance

C. The signal is heard on a frequency below the Maximum Usable Frequency

D. The signal is heard on a frequency above the Maximum Usable Frequency

3. What is the peak-inverse-voltage across the rectifiers in a full-wave bridge power supply?

A. One-quarter the normal output voltage of the power supply

B. Half the normal output voltage of the power supply

C. Double the normal peak output voltage of the power supply

D. Equal to the normal peak output voltage of the power supply

4. What is the most common frequency shift for RTTY emissions in the amateur HF bands?

A. 85 Hz

B. 170 Hz

C. 425 Hz

D. 850 Hz

5. Which of the following is an effect of over-modulation?

A. Insufficient audio

B. Insufficient bandwidth

C. Frequency drift

D. Excessive bandwidth

6. What is meant by flat-topping of a single-sideband phone transmission?

A. Signal distortion caused by insufficient collector current

B. The transmitter's automatic level control is properly adjusted

C. Signal distortion caused by excessive drive

D. The transmitter's carrier is properly suppressed

7. Which unit is used to measure impedance in an electrical circuit?

A. Volt

B. Ohm

C. Ampere

D. Watt

8. Which of the following might be a use for a field strength meter?

A. Close-in radio direction-finding

B. A modulation monitor for a frequency or phase modulation transmitter

C. An overmodulation indicator for a SSB transmitter

D. A keying indicator for a RTTY or packet transmitter

9. Which of the following is an advantage of a receiver Digital Signal Processor IF filter as compared to an analog filter?

A. A wide range of filter bandwidths and shapes can be created

B. Fewer digital components are required

C. Mixing products are greatly reduced

D. The DSP filter is much more effective at VHF frequencies

10. What precaution should be taken when installing a ground-mounted antenna?

A. It should not be installed higher than you can reach

B. It should not be installed in a wet area

C. It should limited to 10 feet in height

D. It should be installed so no one can be exposed to RF radiation in excess of maximum permissible limits

Answers

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

Explanations

1. What is the characteristic impedance of flat ribbon TV type twinlead?

A. 50 ohms

B. 75 ohms

C. 100 ohms

D. 300 ohms

Flat ribbon TV type twinlead has a characteristic impedance of 300 ohms. This type of cable is often used in television antenna installations and is designed to efficiently carry radio frequency (RF) signals. The impedance value is crucial in matching the antenna to the transmission line and the receiver to minimize signal reflections and power loss. In contrast, other types of cables, such as coaxial cables, typically have lower characteristic impedances, such as 50 ohms used for many RF applications in ham radio, or 75 ohms which is commonly used in domestic television systems and cable TV installations. The use of 300 ohm twinlead in antennas is particularly beneficial when connecting antennas that are designed for high-impedance feeds, making it suitable for applications in ham radio where efficient signal transmission is important. This makes the correct answer relevant to understanding how different types of cables interact within radio frequency systems.

2. Which of the following might indicate that signals on the HF bands are being received via scatter propagation?

A. The communication is during a sunspot maximum

B. The communication is during a sudden ionospheric disturbance

C. The signal is heard on a frequency below the Maximum Usable Frequency

D. The signal is heard on a frequency above the Maximum Usable Frequency

Receiving signals on a frequency above the Maximum Usable Frequency (MUF) likely indicates that the signals are being received via scatter propagation. This is because the MUF is the highest frequency at which a radio wave can be transmitted between two points via the ionosphere under normal conditions. When signals are heard above this frequency, it typically suggests that the propagation conditions are atypical, often resulting from phenomena such as scatter from atmospheric irregularities or other non-standard ionospheric conditions. In scatter propagation scenarios, such as when signals are reflected off meteor trails or other irregularities in the atmosphere, it is possible for signals to reach a receiver even at frequencies that exceed the predetermined MUF. The occurrence of this kind of propagation is not limited to any specific solar activity or ionospheric disturbances. The presence of these signals indicates that transmission paths may be reflecting or refracting in ways typical signals would not under more stable conditions. The other options focus on different phenomena not directly indicative of scatter propagation. For instance, communications during a sunspot maximum may enhance HF band propagation generally but do not specifically relate to scatter. Sudden ionospheric disturbances can cause unpredictable propagation effects but do not specifically confirm scatter. Lastly, signals heard below the MUF typically indicate standard propagation

3. What is the peak-inverse-voltage across the rectifiers in a full-wave bridge power supply?

A. One-quarter the normal output voltage of the power supply

B. Half the normal output voltage of the power supply

C. Double the normal peak output voltage of the power supply

D. Equal to the normal peak output voltage of the power supply

In a full-wave bridge power supply configuration, the peak-inverse-voltage (PIV) across the rectifiers is a critical parameter that refers to the maximum voltage that each diode in the bridge must withstand in the reverse direction when it is not conducting. During operation, two diodes conduct at any given time while the other two do not. The PIV is the peak voltage that can appear across each non-conducting diode when the output voltage of the power supply reaches its maximum peak. The output voltage in a full-wave bridge rectifier is equal to the peak voltage of the input AC signal. Therefore, when two diodes are conducting, the full AC voltage peak from the transformer is applied across the two diodes that are not conducting, creating the need for each diode to withstand a voltage equal to the peak output voltage. This means that the PIV rating must be not only equal to the maximum output voltage but should also comfortably cover this value depending on the design and reliability principles applied. Therefore, in a well-designed rectifier circuit, the peak-inverse voltage is indeed equal to the normal peak output voltage of the power supply, which justifies the selection of this response.

4. What is the most common frequency shift for RTTY emissions in the amateur HF bands?

A. 85 Hz

B. 170 Hz

C. 425 Hz

D. 850 Hz

The most common frequency shift for RTTY (Radio Teletype) emissions in the amateur HF bands is 170 Hz. This frequency shift is standard for most RTTY operations because it effectively allows for the reliable transmission of data while minimizing interference between signals. RTTY uses frequency modulation (FSK), sending information through shifts in frequency. The 170 Hz shift strikes a balance between sufficient separation to prevent overlap of signals (which causes interference) and maintaining a compact bandwidth that is efficient for transmission over HF. In contrast, other shifts like 85 Hz are less common, as they may not provide enough separation between signals, leading to potential cross-talk. Higher shifts, such as 425 Hz or 850 Hz, are used in some other types of digital modes or in specialized applications but are not typically standard for RTTY in the amateur bands, as they could require more bandwidth and be less efficient for standard transmissions. Thus, the choice of 170 Hz reflects a widely accepted standard in amateur radio practice for RTTY communication.

5. Which of the following is an effect of over-modulation?

A. Insufficient audio

B. Insufficient bandwidth

C. Frequency drift

D. Excessive bandwidth

Over-modulation occurs when the input audio signal level is too high for the modulation system, leading to distortion in the transmitted signal. This distortion can cause the amplitude of the transmitted waveform to exceed the limits of the transmitter's capacity. When this happens, it results in additional frequencies that are not present in the original audio signal. As a consequence, the effective bandwidth of the signal increases since the excessive audio peaks create harmonics and sidebands beyond the intended limits. This is why excessive bandwidth is a direct effect of over-modulation. When the modulation is excessive, more energy is spread out across a wider range of frequencies than intended, potentially interfering with adjacent channels and causing signal quality issues for both the transmitter and receiver. It is important to control modulation to prevent this scenario to maintain signal integrity and adhere to regulatory bandwidth limitations.

6. What is meant by flat-topping of a single-sideband phone transmission?

A. Signal distortion caused by insufficient collector current

B. The transmitter's automatic level control is properly adjusted

C. Signal distortion caused by excessive drive

D. The transmitter's carrier is properly suppressed

Flat-topping refers to a specific type of signal distortion that occurs in a single-sideband (SSB) phone transmission when the modulation exceeds the linear operating range of the transmitter. This is characterized by the waveform of the audio signal becoming "flat" at the peaks, which leads to loss of fidelity and introduces unwanted harmonics into the signal. In the context of option C, when excessive drive is applied to the transmitter, it forces the output signal beyond its intended amplitude level. This causes the peaks of the audio waveform to flatten out, resulting in distortion that compromises the quality of the transmitted signal. Flat-topping can impact not only the sound quality for listeners but also the signal's effectiveness over long distances due to the introduction of spurious emissions. The other options refer to different phenomena: the insufficient collector current is more about the circuitry being underused and doesn't specifically relate to modulation levels; proper adjustment of the automatic level control (ALC) helps manage output levels but is not the sole cause of flat-topping; and while proper suppression of the carrier is important in SSB transmission, it does not address the distortion caused by excessive drive. Therefore, recognizing that excessive drive leads to signal distortion is crucial in understanding flat-topping and maintaining transmission quality

7. Which unit is used to measure impedance in an electrical circuit?

A. Volt

B. Ohm

C. Ampere

D. Watt

Impedance in an electrical circuit is measured in ohms. Impedance is a complex quantity that combines resistance with reactance, and it describes how much a circuit opposes the flow of alternating current (AC). The concept of impedance extends beyond mere resistance by incorporating the effects of inductance and capacitance, which are vital in AC circuits because they introduce phase differences between voltage and current. While volts, amperes, and watts are crucial electrical units, they pertain to different aspects of electrical circuits. Volts measure electric potential or voltage, amperes measure electrical current or the flow of charge, and watts measure electrical power (the rate at which energy is consumed or produced). Each of these units serves a specific purpose, but when it comes to measuring how much a circuit resists the flow of AC, ohms is the only appropriate choice.

8. Which of the following might be a use for a field strength meter?

A. Close-in radio direction-finding

B. A modulation monitor for a frequency or phase modulation transmitter

C. An overmodulation indicator for a SSB transmitter

D. A keying indicator for a RTTY or packet transmitter

A field strength meter is primarily used to measure the strength of radio signals in a specific area. This tool is particularly valuable for close-in radio direction-finding because it helps an operator determine the direction from which a radio signal is coming. The field strength meter provides a direct indication of the signal's strength, allowing the user to adjust their receiving equipment or antenna and to pinpoint the source of the transmission more accurately. In terms of the other options, while a field strength meter could provide some indirect insight into aspects of modulation or keying, it is not specifically designed for those functions. For instance, a modulation monitor is better suited for evaluating the quality and characteristics of signals in frequency or phase modulation. Similarly, indicators for overmodulation in SSB or keying indicators for RTTY and packet transmissions require specific parameters that a field strength meter does not measure. Therefore, the primary and most precise application of a field strength meter is indeed in close-in radio direction-finding.

9. Which of the following is an advantage of a receiver Digital Signal Processor IF filter as compared to an analog filter?

A. A wide range of filter bandwidths and shapes can be created

B. Fewer digital components are required

C. Mixing products are greatly reduced

D. The DSP filter is much more effective at VHF frequencies

A receiver Digital Signal Processor (DSP) IF filter offers the significant advantage of creating a wide range of filter bandwidths and shapes when compared to an analog filter. This flexibility stems from the inherent capabilities of digital signal processing, which allows for the implementation of complex algorithms that can dynamically adjust the filter characteristics based on the current needs of the signal being processed. Digital filters can be designed to have sharp cutoffs, different types of filter responses (such as Butterworth, Chebyshev, or elliptical), and even to perform adaptive filtering in real time. This adaptability is particularly useful for handling various interference and noise conditions that can vary from one moment to the next. In contrast, analog filters are limited by design to fixed bandwidths and shapes, making them less versatile. Once an analog filter is constructed, altering its characteristics typically requires physical changes to components, which can be time-consuming and impractical. The other options offered are less advantageous when comparing DSP IF filters to analog filters; for instance, while digital filters may sometimes require fewer components for certain configurations, this is not a guaranteed or inherent benefit of digital filtering across the board. Additionally, while DSPs can help manage mixing products with suitable algorithms, this is not primarily a defining advantage over analog filters. Finally

10. What precaution should be taken when installing a ground-mounted antenna?

A. It should not be installed higher than you can reach

B. It should not be installed in a wet area

C. It should limited to 10 feet in height

D. It should be installed so no one can be exposed to RF radiation in excess of maximum permissible limits

The correct choice emphasizes the importance of safety in the installation of ground-mounted antennas, particularly regarding radio frequency (RF) radiation exposure. When installing an antenna, it is crucial to consider the potential RF radiation levels that the antenna may emit during operation. Proper installation means ensuring that the antenna is positioned in a way that minimizes public exposure to RF energy. By adhering to guidelines that prevent anyone, including bystanders, from being exposed to RF radiation above permissible limits, operators can safeguard public health and comply with regulations. This consideration goes beyond typical physical installation concerns like location, height, or accessibility. It directly addresses the health implications associated with radio waves, underscoring the operator's responsibility to maintain a safe environment. In contrast, the other choices focus on practical aspects of antenna installation, such as height and location. While those factors are certainly relevant for accessibility and possible antenna performance, they do not carry the same weight when it comes to safety and regulatory compliance regarding RF exposure. Therefore, ensuring compliance with RF exposure limits is essential and is why this choice stands out as the best precaution to follow.

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://hamradio-generalclass.examzify.com

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