

Associate Certified Electronics Technician (CET) Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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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

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1. When a positive voltage is applied to the drain or source and a negative voltage to the gate of an N channel JFET, what happens to the internal resistance?
 - A. It becomes low
 - B. It remains constant
 - C. It becomes high
 - D. It fluctuates
2. If a 12V product dissipates 50W, what is the load resistance it represents?
 - A. 1.5 ohms
 - B. 2.9 ohms
 - C. 5.4 ohms
 - D. 12 ohms
3. A thermistor is a component that:
 - A. Changes capacitance with temperature
 - B. Changes inductance with temperature
 - C. Changes resistance with temperature
 - D. Maintains a constant resistance
4. What are the Common Intermediate Frequencies (IF's) for AM and FM broadcast receivers?
 - A. 500 kHz and 12.5 MHz
 - B. 455 kHz and 10.7 MHz
 - C. 1 MHz and 15 MHz
 - D. 600 kHz and 9.5 MHz
5. Which wire gauge size has the largest diameter?
 - A. 20
 - B. 22
 - C. 24
 - D. 18

- 6. Which of the following components is necessary for smoothing output in a power supply?**
- A. Resistor
 - B. Inductor
 - C. Capacitor
 - D. Transistor
- 7. What is the primary function of a rectifier in a circuit?**
- A. To convert AC to DC
 - B. To amplify signals
 - C. To decrease voltage
 - D. To filter high frequencies
- 8. What parameters does a spectrum analyzer display?**
- A. Intensity and duration
 - B. Magnitude and frequency
 - C. Waveform and distortion
 - D. Phase and amplitude
- 9. If a Zener diode is rated at 6.3V, what does this indicate?**
- A. It can operate at a maximum of 6.3 V
 - B. It conducts to limit voltage across it to 6.3 V
 - C. It can only work with 6.3 V power sources
 - D. It is designed to shunt voltage above 6.3 V
- 10. Class AB operation of an audio amplifier means that current flows through the active device for how many degrees of the input signal wave?**
- A. More than 180 but less than 360 degrees
 - B. Less than 180 degrees
 - C. Exactly 360 degrees
 - D. Between 0 and 180 degrees

Answers

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

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Explanations

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1. When a positive voltage is applied to the drain or source and a negative voltage to the gate of an N channel JFET, what happens to the internal resistance?

- A. It becomes low
- B. It remains constant
- C. It becomes high**
- D. It fluctuates

In an N-channel JFET (Junction Field-Effect Transistor), the gate is reverse-biased when a negative voltage is applied to it while a positive voltage is applied to the drain or source. This reverse bias increases the depletion region at the gate junction, effectively constricting the channel through which current can flow. As the gate voltage becomes more negative, the depletion region widens, which reduces the number of charge carriers (electrons) available in the channel. Since there are fewer carriers in the conduction channel, the resistance across the device increases. Therefore, the internal resistance of the JFET becomes high as a result of this increased depletion region and reduced electron flow. This behavior is a fundamental characteristic of JFETs and differentiates them from other types of transistors, such as bipolar junction transistors (BJTs), which operate through different mechanisms. Understanding this aspect is crucial when designing circuits that utilize JFETs for switching or amplification applications, as the resistance affects the device's efficiency and performance.

2. If a 12V product dissipates 50W, what is the load resistance it represents?

- A. 1.5 ohms
- B. 2.9 ohms**
- C. 5.4 ohms
- D. 12 ohms

To determine the load resistance represented by a product that operates at 12V while dissipating 50W, we can use Ohm's law and the power equation. Power (P) can be calculated using the formula: $P = \frac{V^2}{R}$ Where 'V' is the voltage and 'R' is the resistance. To find the resistance, we can rearrange this formula: $R = \frac{V^2}{P}$ Substituting the given values into the equation, we have: $R = \frac{(12V)^2}{50W} = \frac{144}{50} = 2.88 \text{ ohms}$ When rounded to one decimal place, this value is approximately 2.9 ohms. Therefore, the load resistance it represents is approximately 2.9 ohms, making the calculation consistent with option B. The calculations confirm that the resistance is determined accurately based on the given power and voltage parameters.

3. A thermistor is a component that:

- A. Changes capacitance with temperature
- B. Changes inductance with temperature
- C. Changes resistance with temperature**
- D. Maintains a constant resistance

A thermistor is a type of resistor whose resistance varies significantly with temperature. This characteristic makes thermistors very useful in temperature sensing applications. They are made of semiconductor materials, and their resistance can either increase or decrease with changes in temperature, depending on the type of thermistor. For instance, negative temperature coefficient (NTC) thermistors decrease in resistance as temperature increases, while positive temperature coefficient (PTC) thermistors increase in resistance as temperature rises. This fundamental property is what allows thermistors to be used for precise temperature measurements and control in various electronic circuits. Their ability to provide a measurable change in resistance with temperature means they can be effectively used in applications such as temperature sensors, temperature compensation, and circuit protection. In contrast, components that change capacitance with temperature, such as capacitive temperature sensors, and those that change inductance, like certain types of inductors, do not classify as thermistors. Maintaining a constant resistance would contradict the defining feature of a thermistor, as it is precisely the variable resistance that enables its function in temperature measurement and control.

4. What are the Common Intermediate Frequencies (IF's) for AM and FM broadcast receivers?

- A. 500 kHz and 12.5 MHz
- B. 455 kHz and 10.7 MHz**
- C. 1 MHz and 15 MHz
- D. 600 kHz and 9.5 MHz

The common intermediate frequencies (IFs) for AM and FM broadcast receivers are significant because they represent the frequencies to which the incoming radio signals are converted for processing. For AM broadcasts, the standard IF is typically 455 kHz. This frequency is chosen because it effectively passes the AM signal while minimizing interference and distortion. For FM broadcasts, the common IF is 10.7 MHz. This higher frequency serves to accommodate the wider bandwidth of FM signals, allowing for better fidelity and sound quality. These IFs are standardized in the industry, making it easier for equipment manufacturers to design receivers that can effectively demodulate both AM and FM signals. The specific frequencies of 455 kHz and 10.7 MHz have been established based on technical performance criteria, including the ability to handle signal processing and achieve optimal sound quality. Understanding these frequencies is crucial for a technician, as they are foundational to the design and repair of broadcasting equipment. Thus, selecting the correct IF values, which in this case are 455 kHz for AM and 10.7 MHz for FM, ensures that receivers function correctly and reliably in their intended applications.

5. Which wire gauge size has the largest diameter?

- A. 20
- B. 22
- C. 24
- D. 18**

The wire gauge size with the largest diameter is indeed the 18 gauge. In the American Wire Gauge (AWG) system, the gauge number is inversely proportional to the wire diameter; as the gauge number decreases, the diameter of the wire increases. Therefore, an 18 gauge wire is thicker than a 20, 22, or 24 gauge wire. This is important because thicker wires (lower gauge numbers) can carry more current and are generally better for applications that require higher power transmission, while thinner wires (higher gauge numbers) are more suitable for low-current applications. Understanding wire gauge sizes and their implications is crucial for safe and effective wiring in electronic and electrical projects.

6. Which of the following components is necessary for smoothing output in a power supply?

- A. Resistor
- B. Inductor
- C. Capacitor**
- D. Transistor

In a power supply, a capacitor plays a crucial role in smoothing the output. After rectifying the AC voltage into DC (which often results in a fluctuating voltage), a capacitor helps to smooth out these ripples in the voltage waveform. It charges during the peaks of the voltage and discharges during the dips, effectively providing a more stable and continuous output voltage. The smoothing process is essential for various electronic devices, as they typically require a consistent DC voltage for proper operation. Capacitors are particularly effective in this application due to their ability to store and release electrical energy quickly, which helps to maintain a steady output voltage under varying load conditions. While resistors can be used in power supplies for limiting current or forming voltage dividers, they do not contribute to smoothing. Inductors can also be used in power supplies, specifically in filtering applications but are not as common as capacitors in straightforward smoothing tasks. Transistors are essential for switching and amplifying signals in power supplies but do not directly smooth the output voltage.

7. What is the primary function of a rectifier in a circuit?

- A. To convert AC to DC**
- B. To amplify signals
- C. To decrease voltage
- D. To filter high frequencies

The primary function of a rectifier in a circuit is to convert alternating current (AC) into direct current (DC). Rectifiers achieve this by allowing current to flow in only one direction, thereby transforming the bidirectional AC voltage into a unidirectional DC voltage. This process is crucial in many electronic applications where devices operate on DC power, such as in power supplies for electronic circuits and devices. The ability of a rectifier to convert AC to DC enables the functionality of numerous electronic systems, making it an essential component in the field of electronics. Amplifying signals, decreasing voltage, and filtering high frequencies are roles fulfilled by other components in electronic circuits, such as amplifiers, transformers, and filters, respectively, but are not the primary purpose of rectifiers.

8. What parameters does a spectrum analyzer display?

- A. Intensity and duration
- B. Magnitude and frequency**
- C. Waveform and distortion
- D. Phase and amplitude

A spectrum analyzer primarily displays the relationship between the magnitude (or power) of signals and their frequency components. This allows users to visualize how various frequencies contribute to the overall signal. The horizontal axis of the display typically represents frequency, while the vertical axis indicates the magnitude, often measured in decibels (dB). Understanding this is crucial for evaluating and troubleshooting signals in electronics. For instance, being able to see which frequencies are present and their strength enables technicians to diagnose issues like interference or to ensure that a signal meets specified performance criteria. Thus, focusing on magnitude and frequency allows for a precise analysis of signals across a wide range of applications, such as communications, audio testing, and RF design. Other options focus on parameters that don't specifically relate to the functions of a spectrum analyzer. Intensity and duration, for example, relate more to temporal characteristics rather than frequency analysis. Waveform and distortion are associated with oscilloscopes, which visualize the time-domain representation of signals, while phase and amplitude involve more specific measurements often relevant in contexts like modulation and signal processing, but less so in displaying the spectrum of frequencies.

9. If a Zener diode is rated at 6.3V, what does this indicate?

- A. It can operate at a maximum of 6.3 V
- B. It conducts to limit voltage across it to 6.3 V**
- C. It can only work with 6.3 V power sources
- D. It is designed to shunt voltage above 6.3 V

The rating of a Zener diode at 6.3V indicates that it is designed to conduct in the reverse direction once the voltage across it exceeds 6.3V, effectively limiting the voltage across itself to that value. This unique property makes Zener diodes invaluable in voltage regulation applications. When the voltage rises above 6.3V, the Zener diode will allow current to flow through it in reverse bias, thereby preventing the voltage from exceeding this threshold. This function enables the diode to stabilize voltage in a circuit, ensuring that connected components receive a safe operating voltage and protecting them from over-voltage conditions. Hence, the rated value signifies both a voltage reference and a clamping action, which is essential for applications requiring precise voltage levels.

10. Class AB operation of an audio amplifier means that current flows through the active device for how many degrees of the input signal wave?

A. More than 180 but less than 360 degrees

B. Less than 180 degrees

C. Exactly 360 degrees

D. Between 0 and 180 degrees

Class AB operation of an audio amplifier is characterized by the way the active devices, typically transistors, conduct current in relation to the input signal wave. In Class AB operation, the active devices are designed to conduct for more than half of the input signal cycle, which is more than 180 degrees but less than the full 360 degrees of the cycle. This operation allows the amplifier to combine the efficiency of Class B with the linearity of Class A. When the signal is small, one of the transistors is turned on just enough to conduct, while the other remains off, meaning that current flows through the active device for a portion of the waveform. As the signal level increases, both devices may become active, covering even more of the waveform's cycle, but the key aspect is that they never fully turn on for the entire 360 degrees. Instead, they operate in a way that reduces distortion for typical input signals, thus improving the sound quality of the audio output while maintaining reasonable efficiency. This behavior is what distinguishes Class AB amplifiers from those operating in Class A, where current flows continuously for the entire 360 degrees of the cycle, and Class B, where current flows for exactly 180 degrees.

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://associatecertifiedelectronicstechnician.examzify.com>

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

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