

BIOMEDICAL EQUIPMENT TECHNICIAN (BMET) CDC SET A VOLUME 3 PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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

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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. In an up-counter, which flip-flop is incremented by one when a trigger is applied?**
 - A. Most significant digit (MSD) flip-flop
 - B. Least significant digit (LSD) flip-flop
 - C. Master reset (MR) flip-flop
 - D. Clock pulse (CP) flip-flop

- 2. What combination of both number and letter designation would be used to identify a diode and semiconductor device?**
 - A. 1N
 - B. 2N
 - C. 3N
 - D. 4N

- 3. What is a key characteristic of an autotransformer?**
 - A. Contains only one winding
 - B. Contains more than two windings
 - C. Can only be used in a step-up configuration
 - D. Can only be used in a step-down configuration

- 4. The process of creating a magnetic field through current is termed?**
 - A. Paramagnetism
 - B. Ferromagnetism
 - C. Electromagnetism
 - D. Natural magnetism

- 5. Total electrical energy expended in an electrical circuit can be defined as the product of which two factors?**
 - A. Resistance and power
 - B. Current and voltage
 - C. Time and power
 - D. Time and current

- 6. Which regulatory body is responsible for overseeing medical device safety and effectiveness in the United States?**
- A. Centers for Disease Control and Prevention (CDC)
 - B. Federal Trade Commission (FTC)
 - C. Food and Drug Administration (FDA)
 - D. National Institutes of Health (NIH)
- 7. What is the resistance level characteristic of a short circuit?**
- A. Low
 - B. High
 - C. Infinite
 - D. Medium
- 8. When servicing a sterilizer, which component is critical to inspect for proper operation?**
- A. Temperature gauge
 - B. The sealing mechanism for chamber integrity
 - C. Control panel lights
 - D. Drainage system
- 9. If a transformer has a turns ratio of 3:1 and a primary voltage of 120 volts, what will be the secondary voltage?**
- A. 20 volts
 - B. 40 volts
 - C. 80 volts
 - D. 100 volts
- 10. What does a circle (negation symbol) on the output of a gate represent in positive logic?**
- A. The output will always be a low.
 - B. The output will always be a high.
 - C. When activated, the output will be a low.
 - D. When activated, the output will be a high.

Answers

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

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Explanations

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1. In an up-counter, which flip-flop is incremented by one when a trigger is applied?

- A. Most significant digit (MSD) flip-flop
- B. Least significant digit (LSD) flip-flop**
- C. Master reset (MR) flip-flop
- D. Clock pulse (CP) flip-flop

The least significant digit (LSD) flip-flop is the correct choice as it is the first in the sequence of flip-flops to be incremented when a trigger is applied in an up-counter. An up-counter operates by adding one to its current count each time it receives a clock pulse (the triggering signal). In this counting mechanism, the LSD is responsible for the incrementing action first because it represents the lowest binary place value. When a clock pulse is applied to the LSD flip-flop, it toggles between its two states (0 and 1) based on the incoming pulses. The changes in the LSD will affect the subsequent flip-flops in the counting sequence as they reach their trigger thresholds, but the primary increment initiated by the clock action occurs at the LSD. This characteristic allows the flip-flops to accurately count in binary as each subsequent flip-flop corresponds to a higher value. In contrast, the other flip-flops mentioned serve different functions: the most significant digit (MSD) flip-flop represents the highest place value and is only toggled based on the state of the LSD and other flip-flops, the master reset flip-flop is used to reset the counter to a predefined state, and the clock pulse

2. What combination of both number and letter designation would be used to identify a diode and semiconductor device?

- A. 1N**
- B. 2N
- C. 3N
- D. 4N

The correct combination used to identify a diode and semiconductor device is 1N. This designation specifically indicates a single junction diode. The "1" before the "N" signifies that it is a single device, while the "N" signifies that it is a semiconductor device, specifically a diode. Diodes are commonly identified using this convention, where the numeral indicates the primary series of the device. For example, in the 1N series, you will find various component numbers that further define the characteristics of specific diodes. In contrast, the 2N, 3N, and 4N designations are typically used to designate bipolar junction transistors (BJTs) or other semiconductor devices, where the numeral indicates different types or categories of these devices. Therefore, understanding these conventions helps in recognizing the specific functionalities and applications of diodes versus transistors in electronic circuits.

3. What is a key characteristic of an autotransformer?

- A. Contains only one winding**
- B. Contains more than two windings
- C. Can only be used in a step-up configuration
- D. Can only be used in a step-down configuration

An autotransformer is characterized by having only one winding, which serves both as the primary and secondary winding. This unique design allows the transformer to efficiently vary voltage levels while requiring less material than a conventional transformer that has separate windings for primary and secondary. The single winding is tap-connected at different points to provide a range of voltage outputs, enabling both step-up and step-down transformations depending on how the taps are utilized. This flexibility in usage is a distinguishing feature of autotransformers, distinguishing them from traditional transformers that have isolated windings.

4. The process of creating a magnetic field through current is termed?

- A. Paramagnetism
- B. Ferromagnetism
- C. Electromagnetism**
- D. Natural magnetism

The process of creating a magnetic field through current is termed electromagnetism. This phenomenon arises when electric current flows through a conductor, generating a magnetic field around it. The relationship between electricity and magnetism is fundamental in many applications, including electric motors, generators, and transformers, and is governed by Maxwell's equations, which describe how electric and magnetic fields interact. In electromagnetism, the strength and direction of the magnetic field can be altered by changing the amount of current flowing through the conductor or by modifying its configuration, such as by wrapping the conductor into a coil. This principle is widely utilized in various biomedical equipment, such as MRI machines and electrosurgical devices, where controlled magnetic fields enhance functionality. The other phenomena, such as paramagnetism and ferromagnetism, refer to the inherent magnetic properties of materials under magnetic fields but do not explain the generation of a magnetic field through electric current. Natural magnetism pertains to the magnetic properties found in certain minerals and does not involve the process of generating magnetic fields using electrical current.

5. Total electrical energy expended in an electrical circuit can be defined as the product of which two factors?

- A. Resistance and power
- B. Current and voltage
- C. Time and power**
- D. Time and current

The total electrical energy expended in an electrical circuit is defined as the product of time and power. Power in an electrical circuit can be expressed using the formula: $P = IV$ where P is power, I is current, and V is voltage. Power represents the rate at which energy is consumed or generated in the circuit. To find the total energy expended over a period, you multiply the power by the time during which the power is being used. Therefore, using the equation: $\text{Energy} = P \times t$ where t is time, reinforces the concept that energy is indeed related to both time and power. This relationship is crucial for understanding how long a device operates and how much energy it consumes during that time frame. While other combinations of factors related to electric circuits (like current and voltage, or resistance and power) are important for calculating specific parameters or understanding circuit functionality, they do not directly define the total energy. Thus, the relationship of time and power most accurately represents the total electrical energy expended in the circuit.

6. Which regulatory body is responsible for overseeing medical device safety and effectiveness in the United States?

- A. Centers for Disease Control and Prevention (CDC)
- B. Federal Trade Commission (FTC)
- C. Food and Drug Administration (FDA)**
- D. National Institutes of Health (NIH)

The Food and Drug Administration (FDA) is the regulatory body responsible for overseeing medical device safety and effectiveness in the United States. This agency ensures that medical devices are properly evaluated before they can be marketed to the public, requiring rigorous testing and clinical trials to establish their safety and efficacy. The FDA regulates various aspects of medical devices, including their design, manufacturing processes, and post-market surveillance. The FDA also categorizes devices based on their level of risk, which determines the regulatory requirements they must meet. This structured oversight helps protect public health by ensuring that only those devices that have been shown to be safe and effective can be used in clinical settings. In contrast, the other organizations mentioned have different roles: the CDC focuses on public health and disease prevention, the FTC regulates advertising and prevents deceptive marketing practices, and the NIH conducts biomedical research. Each of these organizations plays a vital role in healthcare, but it is the FDA that specifically addresses the safety and effectiveness of medical devices.

7. What is the resistance level characteristic of a short circuit?

- A. Low**
- B. High
- C. Infinite
- D. Medium

The characteristic of a short circuit is defined by having a low resistance level. In a short circuit situation, a direct connection is made between two points in an electrical circuit, typically resulting in a very low resistance pathway. This allows a high amount of current to flow, often leading to potential hazards such as overheating or equipment damage. In comparison to other conditions, a short circuit does not require a significant resistance to allow current to pass; instead, the low resistance facilitates excessive current flow, which is why it is crucial to monitor for such occurrences in electrical systems. Understanding this characteristic helps in diagnosing electrical issues and implementing appropriate safety measures to prevent circuit overloads and failures.

8. When servicing a sterilizer, which component is critical to inspect for proper operation?

- A. Temperature gauge
- B. The sealing mechanism for chamber integrity**
- C. Control panel lights
- D. Drainage system

The inspection of the sealing mechanism for chamber integrity is critical when servicing a sterilizer. A sterilizer operates by creating a sealed environment to ensure that the sterilization process is effective. If there is any leakage or inadequacy in the sealing mechanism, it can compromise the vacuum or pressure within the chamber, leading to insufficient sterilization of instruments or materials. This could result in retained microorganisms and ultimately affect patient safety. The integrity of the seal ensures that the temperature and pressure within the chamber can be maintained at the necessary levels for the required duration, allowing for effective steam penetration and sterilization. If this seal fails, it not only impacts the sterilization efficacy but may also pose safety risks during the operation of the sterilizer. While other components such as the temperature gauge, control panel lights, and drainage system contribute to the overall functionality of the sterilizer, they do not directly impact the fundamental process of sterilization as significantly as the sealing mechanism does. Therefore, ensuring that the sealing mechanism is functioning properly is paramount for optimal operation and safety.

9. If a transformer has a turns ratio of 3:1 and a primary voltage of 120 volts, what will be the secondary voltage?

- A. 20 volts
- B. 40 volts**
- C. 80 volts
- D. 100 volts

To determine the secondary voltage of a transformer based on its turns ratio and primary voltage, we can use the formula related to transformers:
$$\text{Secondary Voltage} = \text{Primary Voltage} \times \left(\frac{\text{Number of Turns in Secondary}}{\text{Number of Turns in Primary}} \right)$$
 In the case mentioned, the turns ratio is 3:1, where the primary has 3 turns, and the secondary has 1 turn. This indicates that for every 3 turns on the primary winding, there is 1 turn on the secondary winding. Given that the primary voltage is 120 volts, you would set up your calculation as follows:
$$\text{Secondary Voltage} = 120 \text{ volts} \times \left(\frac{1}{3} \right) = 120 \text{ volts} \div 3 = 40 \text{ volts}$$
 Because the turns ratio indicates a step-down transformer (as the primary has more turns than the secondary), the secondary voltage can be accurately calculated at 40 volts. This reflects the relationship inherent in the transformer design, confirming that the

10. What does a circle (negation symbol) on the output of a gate represent in positive logic?

- A. The output will always be a low.
- B. The output will always be a high.
- C. When activated, the output will be a low.**
- D. When activated, the output will be a high.

In positive logic, a circle at the output of a gate typically indicates that the output is inverted. This means that when the gate is activated or receives a high input (logic level '1'), the output will produce a low (logic level '0'). Therefore, the presence of the negation symbol signifies that the output reflects the opposite state of the input. In this scenario, "when activated" refers to the condition under which the gate functions, producing a low output despite a high input. You would see this behavior in gates like NOT gates or in scenarios with NAND gates, where the presence of a circle indicates the output will always result in an inversion of the input signal.

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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://bmetcdcsetavol3.examzify.com>

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

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