REHABILITATION ENGINEERING PRACTICE EXAM (SAMPLE)

STUDY GUIDE

SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. Define reliability, maintainability, and MTBF in the context of rehab devices, and why they matter.

A. MTBF is the probability that a device will never fail.

B. Reliability is the ability to function under unknown conditions.

C. Maintainability measures how easy it is to service.

D. Reliability is the probability of functioning under expected use; maintainability is ease of service; MTBF is mean time between failures.

2. Which term describes a control method that uses surface EMG signals from muscles to operate an externally powered prosthetic arm?

A. Body-powered control

B. Myoelectric control

C. Brain-computer interface

D. Hydraulic control

3. In risk management, what is the next step after identifying hazards and evaluating risks?

A. Implement controls.

B. Market device.

C. Publicize results.

D. Remove all documentation.

4. Which of the following is a factor that drives recovery after neurological injury?

A. Inactivity and lack of stimulation.

B. Reversal of injury-related factors (like edema).

C. Random chance alone.

D. Excessive rest without therapy.

5. Which option is not typically a component of EMC testing per IEC 60601-1-2?

A. Radiated emissions

B. Conducted emissions

C. Immunity tests

D. Software usability testing

6. Post-market surveillance involves which primary activity?

A. Only initial design validation

B. Marketing analysis

C. Supply chain risk assessment only

D. Collecting and acting on information about device performance and safety after launch

7. What is a Software Bill of Materials (SBOM) and why is it important?

A. A list of all medical devices currently on the market.

B. A catalog of clinical trial results and patient outcomes.

C. A list of all software components, libraries, and licenses used; important for security, licensing, vulnerability management, and regulatory audits.

D. A summary of user interface design decisions.

8. What is the main advantage of wearable sensors compared to camera-based motion capture systems?

A. They are not limited to laboratory settings and can be used for continuous monitoring in natural environments.

B. They require larger and more expensive equipment.

C. They provide higher spatial resolution than MOCAP in all scenarios.

D. They are less accurate for any measurements.

9. What is the purpose of a Design History File (DHF) in medical device development?

A. To document the production batch records for manufacturing.

B. To store user manuals.

C. To document the design process, decisions, verifications, and validations showing how the device meets requirements through development.

D. To plan marketing campaigns.

10. What does IEC 60601-1-2 address and why is it important for rehab devices?

A. It covers electromagnetic compatibility (EMC) requirements, ensuring medical devices operate safely in the presence of electromagnetic interference and do not affect other equipment.

B. It defines labeling requirements for medical devices.

C. It prescribes clinical data requirements.

D. It governs packaging and sterilization.

Answers

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

Explanations

1. Define reliability, maintainability, and MTBF in the context of rehab devices, and why they matter.

A. MTBF is the probability that a device will never fail.

B. Reliability is the ability to function under unknown conditions.

C. Maintainability measures how easy it is to service.

D. Reliability is the probability of functioning under expected use; maintainability is ease of service; MTBF is mean time between failures.

Reliability, maintainability, and MTBF describe how robust and serviceable rehab devices are during patient use. Reliability is the probability that the device will function as intended for a defined period under the expected use conditions. In rehab settings, that means during typical therapy sessions, under normal loads, power, and environmental factors. This matters because patient safety and therapy effectiveness depend on equipment performing reliably, minimizing interruptions and risk. Maintainability is about how easily and quickly a device can be serviced and restored to operation after a fault. It includes how easy diagnostics are, how modular the design is, and how readily spare parts and skilled service are available. In rehab devices, good maintainability reduces downtime, keeps therapy on track, and lowers maintenance costs. MTBF, or mean time between failures, is the average amount of operating time between failures under normal use. It helps plan preventive maintenance and predict downtime, so coverage and scheduling for repairs can be arranged to keep devices ready when needed. The statement that best fits these definitions says reliability is the probability of functioning under expected use; maintainability is ease of service; MTBF is mean time between failures. This aligns with how rehab devices are used and sustained in the field. The other options either misstate reliability or MTBF, or only partially capture maintainability without addressing the full concept.

2. Which term describes a control method that uses surface EMG signals from muscles to operate an externally powered prosthetic arm?

A. Body-powered control

B. Myoelectric control

C. Brain-computer interface

D. Hydraulic control

Myoelectric control uses surface EMG signals from muscles to operate an externally powered prosthetic arm. Electrodes placed on the skin pick up the electrical activity generated when a user contracts residual or nearby muscles. The prosthetic's controller analyzes the signal's strength and patterns and translates them into movement commands for the powered joints and gripper. This makes control intuitive because the user's muscle activations directly drive the device, similar to natural movement, but via electrical signals rather than mechanical force. This approach differs from body-powered control, which relies on a harness and cables to convert the wearer's body movements into prosthetic actions, without using electrical muscle signals. It also differs from brain-computer interfaces, which use brain-derived signals rather than peripheral muscle activity, and from hydraulic control, which describes how the prosthesis is actuated rather than how it is controlled.

3. In risk management, what is the next step after identifying hazards and evaluating risks?

A. Implement controls.

B. Market device.

C. Publicize results.

D. Remove all documentation.

After hazards are identified and risks evaluated, the next step is to implement controls to reduce risk to an acceptable level. This is the risk control phase, where you put in place measures such as engineering changes, safer procedures, training, warning labels, or protective equipment to lower either how likely the hazard is, how severe an accident would be, or both. Once these controls are in place, you monitor their effectiveness and verify that residual risk remains acceptable. The other options don't fit the risk-management sequence: marketing the device isn't about mitigating risk, publicizing results isn't the immediate next action, and removing documentation would undermine safety management.

4. Which of the following is a factor that drives recovery after neurological injury?

A. Inactivity and lack of stimulation.

B. Reversal of injury-related factors (like edema).

C. Random chance alone.

D. Excessive rest without therapy.

Recovery after neurological injury is driven by removing factors that worsen injury and create a better environment for healing. Reversing injury-related factors such as edema is central because edema raises pressure, reduces blood flow, and can expand secondary damage. When edema is controlled, perfusion improves and the tissue environment becomes more conducive to the surviving neurons' recovery and to rehabilitation-driven reorganization of neural networks. This makes recovery more achievable as therapy helps harness that healthier environment to promote adaptive changes. Inactivity and lack of stimulation don't promote recovery, random chance isn't reliable, and excessive rest without therapy misses the opportunity to drive meaningful functional gains through guided rehabilitation.

5. Which option is not typically a component of EMC testing per IEC 60601-1-2?

A. Radiated emissions

B. Conducted emissions

C. Immunity tests

D. Software usability testing

In EMC testing for medical equipment under IEC 60601-1-2, the focus is on how the device emits electromagnetic energy and how well it withstands external electromagnetic disturbances. Radiated emissions measure the device's energy emitted through the air, while conducted emissions look at energy on power and other connected lines. Immunity tests assess the device's tolerance to external EMI, such as electrostatic discharge or RF fields, ensuring it continues to operate safely in real environments. Software usability testing, on the other hand, does not address electromagnetic behavior. It evaluates how easy and safe the software is to use, which is a usability concern rather than an EMC concern. Therefore, software usability testing is not typically a component of EMC testing per IEC 60601-1-2.

6. Post-market surveillance involves which primary activity?

A. Only initial design validation

B. Marketing analysis

C. Supply chain risk assessment only

D. Collecting and acting on information about device performance and safety after launch

Post-market surveillance is the ongoing process of monitoring a medical device after it reaches the market, collecting real-world data on how the device performs and whether any safety concerns arise, and then acting on that information. This means gathering reports from users and clinicians, analyzing trends in performance and adverse events, and implementing changes such as updated labeling, instructions for use, or corrective actions to reduce risk. It's about lifecycle management after launch, not activities done before release like initial design validation or exploring market fit. Supply chain risk assessment focuses on procurement and manufacturing risks, not on post-launch performance in users, so it doesn't describe ongoing surveillance of device safety and performance.

7. What is a Software Bill of Materials (SBOM) and why is it important?

A. A list of all medical devices currently on the market.

B. A catalog of clinical trial results and patient outcomes.

C. A list of all software components, libraries, and licenses used; important for security, licensing, vulnerability management, and regulatory audits.

D. A summary of user interface design decisions.

A Software Bill of Materials is a formal, structured list of every software component in a product—open-source libraries, third-party binaries, and in-house code—along with details like version numbers and licenses. This makes the software supply chain visible, which is essential for security, licensing, vulnerability management, and regulatory audits. By knowing exactly which components are present, you can map each one to known vulnerabilities, prioritize patches, and assess risk. It also helps ensure license compliance and avoid legal issues when redistributing software, and it supports audits and regulatory checks that require transparency about what components are included and where they come from. The other options describe unrelated things: a catalog of medical devices, clinical trial results, or UI design decisions, none of which cover the software components and licenses that SBOM documents.

8. What is the main advantage of wearable sensors compared to camera-based motion capture systems?

A. They are not limited to laboratory settings and can be used for continuous monitoring in natural environments.

B. They require larger and more expensive equipment.

C. They provide higher spatial resolution than MOCAP in all scenarios.

D. They are less accurate for any measurements.

Wearable sensors shine because they aren't tied to a laboratory setup. They let you monitor movement continuously in real-world environments, across daily activities, sports, and long-term rehabilitation follow-up. This mobility comes from compact, battery-powered sensors that can be worn or placed on the body, so data can be collected outside a controlled capture space without worrying about line-of-sight or markers and specialized camera rigs. In contrast, camera-based motion capture needs a dedicated space with proper lighting, many cameras, markers, and careful calibration to avoid occlusion and missing data. That makes it great for detailed, lab-grade measurements, but limits when and where measurements can be taken. While wearable sensors can be highly accurate for certain metrics like timing, orientation, and gait phases, they don't inherently provide the same dense, global spatial detail that camera systems can offer in a controlled setting. They're complementary tools, each with strengths, but the portable, natural-environment capability is the standout advantage of wearables.

9. What is the purpose of a Design History File (DHF) in medical device development?

A. To document the production batch records for manufacturing.

B. To store user manuals.

C. To document the design process, decisions, verifications, and validations showing how the device meets requirements through development.

D. To plan marketing campaigns.

The Design History File is where the entire design process is documented to show how the device evolves from concept to final design and how it meets all requirements through development. It includes records of design inputs and outputs, design reviews, verification and validation activities, risk management, and any design changes, tying every step back to the requirements. This collection provides traceability from what was needed to what was created, and demonstrates that design controls were followed and the device is capable of meeting its intended use. This isn't about production batch records, user manuals, or marketing plans. Those belong in other files or documentation areas. The DHF focuses specifically on the design side—proving, with evidence, that the device was designed properly and validated to meet the specified needs.

10. What does IEC 60601-1-2 address and why is it important for rehab devices?

A. It covers electromagnetic compatibility (EMC) requirements, ensuring medical devices operate safely in the presence of electromagnetic interference and do not affect other equipment.

B. It defines labeling requirements for medical devices.

C. It prescribes clinical data requirements.

D. It governs packaging and sterilization.

EMC is what this standard addresses: it sets limits on how much electromagnetic energy a medical electrical device can emit and, just as importantly, how well it resists external electromagnetic disturbances. In rehab devices, this matters because therapy and monitoring systems often operate alongside other medical equipment and a variety of electronic devices in clinics or home environments. If a device emits too much interference or is overly sensitive to EMI, it could misbehave, deliver incorrect therapy, or disrupt other equipment, compromising patient safety and effectiveness. This standard is not primarily about labeling, clinical data requirements, or packaging and sterilization. Those areas are handled by other standards or sections, while IEC 60601-1-2 specifically ensures safe and reliable operation in the presence of electromagnetic fields.

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://rehabengineering.examzify.com

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