Introduction to Electrotherapy Practice Test (Sample)

Study Guide

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. Type 3 nerve injury is characterized by what?

A. Conduction Block

B. Axonotmesis

C. Demyelination

D. Neurotmesis

2. After axonal degeneration, what happens to motor units?

A. They become hyperactive

B. They regenerate spontaneously

C. They become denervated

D. They increase in size

3. What is the primary functional goal of functional electrical stimulation for CP as described?

A. Improve walking by lifting the foot during swing

B. Cure cerebral palsy

C. Increase leg strength only

D. Eliminate need for physical therapy

4. Pulse duration for re-ed?

A. 50-100 usec

B. 500-1000 usec

C. 150-300 usec

D. 1000-2000 usec

5. What principle should you follow when using NMES to strengthen muscle?

A. Underload principle

B. Adaptation principle

C. Equal-load principle

D. Overload principle

6. Overall, functional electrical stimulation in CP is described as:

A. Enhancing walking by enabling foot lift during swing

B. Reversing cerebral palsy

C. Building muscle mass without functional gains

D. Replacing physical therapy

7. Which sensors are used by the walk aid to time stimulation?

A. Gyroscope and accelerometer

B. Tilt sensor and accelerometer

C. Heart rate monitor

D. Pressure sensors

8. If the distance between the electrodes is far apart, the stimulation tends to be:

A. Deeper and Weaker

B. Shallower and Stronger

C. Unchanged Depth

D. Increased Heat

9. Which is a precaution involving damaged skin or open areas?

A. Without intact sensation

B. Unable to communicate

C. Uncontrolled cardiac issues

D. Over damaged skin or open areas

10. Do electrode leads or polarity matter for producing a motor response?

A. Yes

B. No

C. Only With Direct Current

D. Only With Alternating Current

Answers

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

Explanations

1. Type 3 nerve injury is characterized by what?

A. Conduction Block

B. Axonotmesis

C. Demyelination

D. Neurotmesis

Type 3 nerve injury is characterized by axonotmesis with disruption of the endoneurial tubes while the perineurium remains intact. This means the axon and its myelin are damaged and distal degeneration occurs, but the protective fascicular coverings are still present to guide some axonal regrowth. It's distinct from conduction block or demyelination (neuropraxia) and from a complete nerve transection (neurotmesis). The preserved scaffolding means recovery is possible, though more limited than when endoneurial structures are intact.

2. After axonal degeneration, what happens to motor units?

A. They become hyperactive

B. They regenerate spontaneously

C. They become denervated

D. They increase in size

Motor units are a motor neuron together with all the muscle fibers it controls. When the axon degenerates, its connection to those muscle fibers is lost, so the fibers no longer receive neural input. Those fibers become denervated and cannot be activated by that neuron anymore. Over time, if nearby nerves sprout to reinnervate them, reinnervation can occur and motor units may change in size, but immediately after axonal degeneration the key change is denervation.

3. What is the primary functional goal of functional electrical stimulation for CP as described?

A. Improve walking by lifting the foot during swing

B. Cure cerebral palsy

C. Increase leg strength only

D. Eliminate need for physical therapy

Functional electrical stimulation for cerebral palsy is used to improve walking by lifting the foot during the swing phase, providing foot clearance so the toe doesn't drag. It works by electrically activating the muscles that lift the foot (the dorsiflexors, like the tibialis anterior) at the right moment in the gait cycle, so as the leg swings forward the foot clears the ground. This leads to a more stable, efficient gait and reduces the risk of tripping. It's not a cure for CP, it doesn't simply increase leg strength on its own, and it doesn't eliminate the need for physical therapy; instead, it acts as a functional assist that's often used in conjunction with therapy to practice and reinforce improved walking patterns.

4. Pulse duration for re-ed?

A. 50-100 usec

B. 500-1000 usec

C. 150-300 usec

D. 1000-2000 usec

Pulse duration for re-education is about choosing a pulse length that reliably depolarizes motor neurons in an innervated muscle to produce a functional contraction without causing undue discomfort. A duration in the mid-range, around 150–300 microseconds, is typically best because it is long enough to recruit motor units effectively and generate a smooth, tetanic contraction that supports repetitive practice of movement patterns. If the pulse duration is too short, such as 50–100 microseconds, the contraction may be weak or inconsistent, making it hard to use the muscle for training tasks. If it's too long, like 1000–2000 microseconds, the total charge per pulse increases, which can heighten skin irritation and discomfort and may recruit more sensory fibers and fatigue rather than improve motor learning. Therefore, the 150–300 microsecond range provides an effective balance for re-education.

5. What principle should you follow when using NMES to strengthen muscle?

A. Underload principle

B. Adaptation principle

C. Equal-load principle

D. Overload principle

Push beyond what the muscle is used to. When using NMES to build strength, you create a stimulus stronger than the muscle's current workload by increasing the electrical parameters (intensity, pulse duration, frequency) and/or the number of contractions. This higher demand forces more motor units to work and drives adaptation, leading to stronger muscle over time. If you stay at the same level, you won't elicit further gains. The idea of adaptation explains what happens after a challenge, but the plan to gain strength relies on applying an overload.

6. Overall, functional electrical stimulation in CP is described as:

A. Enhancing walking by enabling foot lift during swing

B. Reversing cerebral palsy

C. Building muscle mass without functional gains

D. Replacing physical therapy

Functional electrical stimulation helps walking by delivering timed electrical pulses to the muscles that lift the foot when needed during the swing phase. In cerebral palsy, weakness or poor control of the dorsiflexor muscles, especially the tibialis anterior, can cause foot drop and toe drag, making it hard to clear the foot from the ground. By stimulating these muscles at the correct moment as the leg moves forward, the foot dorsiflexes enough to clear the ground, improving step length, safety, and overall gait efficiency. This is a supportive, functional aid that works with rehabilitation to improve walking, not a cure for CP, not a way to build muscle mass without functional benefit, and not a replacement for physical therapy.

7. Which sensors are used by the walk aid to time stimulation?

A. Gyroscope and accelerometer

B. Tilt sensor and accelerometer

C. Heart rate monitor

D. Pressure sensors

Timing the stimulation in a walk aid hinges on understanding how the leg is moving and where it is oriented. A tilt sensor tells the device the leg's angle relative to gravity, helping distinguish when the leg is standing or swinging. An accelerometer measures changes in speed and direction, capturing the start of a step, the swing progression, and the cadence. Together, they provide real-time cues about the gait phase, allowing stimulation to be triggered at the right moment in the cycle. This combination works well because it covers both static posture and dynamic movement, offering robust timing across different speeds and strides. A gyroscope adds rotational data but isn't as directly tied to gravity-based orientation; heart rate monitors track effort rather than immediate leg timing, and pressure sensors alone mainly reflect foot contact but can miss precise timing in variable steps.

8. If the distance between the electrodes is far apart, the stimulation tends to be:

A. Deeper and Weaker

B. Shallower and Stronger

C. Unchanged Depth

D. Increased Heat

Spacing between the electrodes controls where the electric field is strongest and how concentrated the current is at the surface versus deeper tissues. When the electrodes are far apart, the current path must pass through more tissue and the field becomes more spread out. This lowers the current density under any single surface point, so the sensation at the skin is weaker, but the electric field penetrates deeper, producing stimulation in deeper tissues. If the electrodes are placed close together, the current density is higher near the surface, giving stronger, more superficial stimulation. Increased heat tends to come with high surface current density, which is less with wide spacing.

9. Which is a precaution involving damaged skin or open areas?

A. Without intact sensation

B. Unable to communicate

C. Uncontrolled cardiac issues

D. Over damaged skin or open areas

Damaged skin or open areas require avoiding electrical stimulation over them because the skin barrier is compromised and tissue impedance becomes unpredictable. When current is applied to damaged skin, there is a higher risk of burns, irritation, and infection, and the current can concentrate at wound edges in ways that further injure the tissue. So, the precaution is to place electrodes on intact skin and avoid direct application over damaged or open areas. If contact with a damaged area is unavoidable, protective barriers and clinician guidance are essential to minimize risk. The other safety considerations—like knowing the patient can feel sensations, can communicate discomfort, or has stable cardiac status—are important in general, but they don't address the specific risk associated with applying stimulation to damaged skin or open wounds.

10. Do electrode leads or polarity matter for producing a motor response?

A. Yes

B. No

C. Only With Direct Current

D. Only With Alternating Current

Motor contractions happen when the nerve fibers near the active electrode reach their excitation threshold from the applied current. In most therapeutic stimulators, the current is biphasic or alternating, so polarity reverses with each pulse and there's no net charge. That means which lead is positive or negative doesn't change whether a motor response can be produced—the key factors are the current's amplitude and pulse duration, and where the electrodes are placed to target the right nerves. You can swap the leads and still get the same contraction if you keep the same path and parameters. Using direct current with a single polarity can affect skin comfort and electrode interface, but it doesn't change the basic ability to evoke a motor response in the standard biphasic/alternating setups.

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://introtoelectrotherapy.examzify.com

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