EVOKED POTENTIAL PRACTICE EXAM (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.

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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!

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Questions

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1. **Which of the following is an effect of temperature on somatosensory evoked potentials?**

   A. Warmer temperatures desensitize nerve endings

   B. Cooler temperatures tend to accelerate central conduction time

   C. Cooler temperatures tend to slow peripheral conduction time

   D. Warmer temperatures desensitize nerve endings

2. **In pattern VEP, which component is used clinically to assess visual pathway integrity and its approximate latency?**

   A. N75; latency 60-80 ms

   B. P300; latency 300-350 ms

   C. P100; latency 90-120 ms

   D. N135; latency 135-170 ms

3. **Pattern reversal visual evoked potential latencies are most significantly affected by which factor?**

   A. Ocular dominance

   B. Refractive errors of less than 20/200

   C. Patient age

   D. Ambient light

4. **Which EP is also called the cognitive EP or oddball paradigm?**

   A. N200

   B. P300

   C. P50

   D. N1

5. **Which of the following best reflects typical filter settings to balance signal preservation and noise reduction for ABR, pattern VEP, and long-latency potentials?**

   A. ABR high-pass ~0.1-1 Hz; low-pass ~100 Hz; pattern VEP high-pass ~0.5 Hz; low-pass ~50 Hz; long-latency potentials 0.2-5 Hz.

   B. ABR high-pass ~30-100 Hz, low-pass ~1500-3000 Hz; pattern VEP high-pass ~1-3 Hz, low-pass ~100-200 Hz; long-latency potentials 0.1-30 Hz.

   C. ABR high-pass ~100-200 Hz; low-pass ~5000 Hz; pattern VEP high-pass ~5 Hz, low-pass ~500 Hz; long-latency potentials 10-40 Hz.

   D. ABR high-pass ~60-120 Hz; low-pass ~1200 Hz; pattern VEP high-pass ~10 Hz; low-pass ~500 Hz; long-latency potentials 0.01-0.5 Hz.

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6. The cochlea generates what EP response?

A. BEAP

B. Echo

C. ECOG

D. EcochG

7. What is the primary purpose of evoked potentials in neurophysiology?

A. They measure the brain's electrical response to a specific sensory or cognitive stimulus to assess the functional integrity of sensory pathways from peripheral nerves to cortex.

B. They map brain structure using MRI signals.

C. They measure neurotransmitter levels in cerebrospinal fluid.

D. They monitor muscle activity during movement.

8. Which parameter is most directly related to safety thresholds in somatosensory electrical stimulation?

A. Current or Voltage Intensities

B. Long Pulse Duration and High Repetition Rates

C. Ground Location

D. Monophasic vs Biphasic Pulses

9. Which parameter is most associated with patient safety concerns during somatosensory electrical stimulation?

A. Ground Location

B. Current or Voltage Intensities

C. Monophasic vs Biphasic Pulses

D. Long Pulse Duration and High Repetition Rates

10. What are common causes of prolonged VEP P100 latency, aside from optic neuritis?

A. Optic trauma alone.

B. Sedation alone.

C. Normal aging.

D. Optic pathway demyelination, compressive lesions, high refractive errors, poor fixation, media opacities, sedation.

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Answers

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

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Explanations

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1. Which of the following is an effect of temperature on somatosensory evoked potentials?

A. Warmer temperatures desensitize nerve endings

B. Cooler temperatures tend to accelerate central conduction time

C. Cooler temperatures tend to slow peripheral conduction time

D. Warmer temperatures desensitize nerve endings

Temperature shifts slow or speed nerve signals, and somatosensory evoked potentials capture those timing changes along the sensory pathway. Warmer conditions speed conduction, so latencies in SSEPs shorten as impulses reach the cortex faster. Cooler conditions do the opposite: they reduce conduction velocity, delaying signals through both peripheral nerves and central pathways, which lengthens the SSEPs latencies. In other words, cooling produces longer central and peripheral conduction times, while warming shortens them. The idea that cooler temperatures accelerate central conduction time isn't supported by physiology, since cooling slows conduction across the pathway.

2. In pattern VEP, which component is used clinically to assess visual pathway integrity and its approximate latency?

A. N75; latency 60-80 ms

B. P300; latency 300-350 ms

C. P100; latency 90-120 ms

D. N135; latency 135-170 ms

Pattern VEPs test how the visual pathway conducts signals from the retina to the occipital cortex by recording the brain's response to a patterned visual stimulus. The component used clinically to assess pathway integrity is the P100, a positive deflection that appears about 100 ms after the stimulus starts. Its latency is typically in the range of 90–120 ms in healthy adults. Why this one is best: P100 is notably stable in timing and relatively consistent across individuals, making its latency a reliable marker of conduction along the visual pathways. A delay in P100 latency suggests slowed transmission, which can occur with optic nerve disease or demyelinating conditions like optic neuritis or multiple sclerosis. Because earlier components (like the N75) can be more variable and influenced by non-pathological factors, and later components (like the P300) reflect cognitive processing rather than primary visual conduction, the P100 stands out as the most practical clinical indicator for pathway integrity. In short, the clinically useful pattern VEP measure is P100 with about 90–120 ms latency.

3. Pattern reversal visual evoked potential latencies are most significantly affected by which factor?

A. Ocular dominance

B. Refractive errors of less than 20/200

C. Patient age

D. Ambient light

Pattern reversal VEP latency reflects how fast signals travel through the visual pathway and how quickly the cortex can respond to a rapidly changing stimulus. The timing of the main response depends on neural conduction speed and the synchrony of processing along the entire route from retina to occipital cortex. Age is the factor that most strongly modulates this timing. In early life, ongoing myelination and maturation slow conduction, so latencies are longer and decrease as the system matures. In healthy adults, latencies are relatively stable. In older individuals, age-related slowing and reduced efficiency lengthen latencies again. Other factors like ocular dominance or refractive errors, when the stimulus is properly corrected and testing conditions are controlled, have far less impact on latency. Ambient light is standardized during testing and likewise does not drive significant changes in timing.

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4. Which EP is also called the cognitive EP or oddball paradigm?

A. N200

B. P300

C. P50

D. N1

The main idea is the P300, the brain's cognitive evoked potential that is most clearly demonstrated in an oddball task. In this paradigm, you present a high frequency of one type of stimulus and a low frequency of a target stimulus. When the rare target appears, attention is drawn and the brain updates its representation of the context, producing a positive deflection about 300 ms after the target, typically largest over parietal sites. This reflects cognitive processing—attention and working memory updating—rather than early sensory processing. Other components like N200, P50, and N1 occur earlier and relate to different sensory or mismatch processes, not the cognitive evaluative response highlighted by the oddball paradigm.

5. Which of the following best reflects typical filter settings to balance signal preservation and noise reduction for ABR, pattern VEP, and long-latency potentials?

A. ABR high-pass ~0.1-1 Hz; low-pass ~100 Hz; pattern VEP high-pass ~0.5 Hz; low-pass ~50 Hz; long-latency potentials 0.2-5 Hz.

B. ABR high-pass ~30-100 Hz, low-pass ~1500-3000 Hz; pattern VEP high-pass ~1-3 Hz, low-pass ~100-200 Hz; long-latency potentials 0.1-30 Hz.

C. ABR high-pass ~100-200 Hz; low-pass ~5000 Hz; pattern VEP high-pass ~5 Hz, low-pass ~500 Hz; long-latency potentials 10-40 Hz.

D. ABR high-pass ~60-120 Hz; low-pass ~1200 Hz; pattern VEP high-pass ~10 Hz; low-pass ~500 Hz; long-latency potentials 0.01-0.5 Hz.

Balancing signal preservation and noise reduction hinges on matching filter bandwidth to the frequency content of each evoked potential. Auditory brainstem responses are very fast and rely on high-frequency details, so you remove only the slow drift with a high-pass around 30–100 Hz and allow higher frequencies to pass with a low-pass around 1.5–3 kHz. Pattern reversal visual evoked potentials sit in between: you want to suppress slow drift but keep the mid-to-fast components, so a modest high-pass around 1–3 Hz and a low-pass around 100–200 Hz is appropriate. Long-latency potentials are slow, so you preserve the slow dynamics by using a low high-pass, about 0.1–0.5 Hz, and a low-pass around 30 Hz to minimize high-frequency noise while keeping the slow waveform features intact. This combination best reflects the typical frequency content and noise considerations for each modality, giving clear waveforms for ABR, pattern VEP, and long-latency potentials without distorting crucial features. Other options either cut into essential waveform components or fail to adequately suppress noise for one or more measures.

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6. The cochlea generates what EP response?

A. BEAP

B. Echo

C. ECOG

D. EcochG

Cochlear electrical activity in response to sound is captured by electrocochleography. This technique records the potentials generated within the cochlea, including the cochlear microphonic (hair cell transduction), the summating potential (the envelope of hair cell receptor activity), and the compound action potential of the auditory nerve. When stimulated, these cochlear-generated signals are picked up by electrodes placed near the cochlea or tympanic membrane and summarized as an EcochG trace. This is distinct from brainstem evoked responses, which reflect higher levels of the auditory pathway, and from terms that don't describe cochlear electrical activity. So, the cochlea's response is best represented by an electrocochleography recording.

7. What is the primary purpose of evoked potentials in neurophysiology?

A. They measure the brain's electrical response to a specific sensory or cognitive stimulus to assess the functional integrity of sensory pathways from peripheral nerves to cortex.

B. They map brain structure using MRI signals.

C. They measure neurotransmitter levels in cerebrospinal fluid.

D. They monitor muscle activity during movement.

Evoked potentials measure the brain's electrical response to a specific sensory stimulus, and that response is used to judge the functional integrity of the entire sensory pathway from the peripheral nerves up to the cortex. A controlled stimulus—visual, auditory, or somatosensory—triggers a cascade of neural activity through peripheral nerves, brainstem, thalamus, and into cortex. By averaging many trials, a reliable waveform emerges whose timing (latency) and size (amplitude) tell us how quickly and synchronously signals are conducting along that pathway. If latencies are delayed or amplitudes reduced, it points to conduction problems such as demyelination or other pathway dysfunction. This approach focuses on function rather than structure, unlike MRI which maps anatomy, or biochemical tests that measure substances in CSF. It also remains distinct from monitoring muscle activity, which is the realm of EMG or motor evoked potentials.

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8. Which parameter is most directly related to safety thresholds in somatosensory electrical stimulation?

A. Current or Voltage Intensities

B. Long Pulse Duration and High Repetition Rates

C. Ground Location

D. Monophasic vs Biphasic Pulses

Safety thresholds in somatosensory electrical stimulation are set by how much charge is delivered to the tissue, and the amount of charge per pulse is determined primarily by the stimulation intensity—the current (and the corresponding voltage across the tissue impedance) you apply. In practice, keeping the current amplitude within established limits (often described per electrode area and pulse width) directly controls the risk of tissue heating, nerve injury, or unwanted activation. Pulse width and electrode characteristics shape how much charge each pulse carries, but the knob you adjust to stay within safe bounds is the current (or voltage) intensity. Other factors modulate how the charge translates to effects—longer pulse durations and higher repetition rates increase the total charge delivered over time, and waveform type affects charge balance and safety margins. Ground location mainly influences the current path rather than the safety threshold itself, and monophasic vs biphasic pulses change the risk of net charge buildup, but the fundamental safety ceiling is tied most directly to how strong the current is per pulse.

9. Which parameter is most associated with patient safety concerns during somatosensory electrical stimulation?

A. Ground Location

B. Current or Voltage Intensities

C. Monophasic vs Biphasic Pulses

D. Long Pulse Duration and High Repetition Rates

The main safety issue in somatosensory electrical stimulation is how much energy gets delivered to tissue over time. That energy is set by the duty cycle, which comes from how long each pulse lasts and how frequently pulses are delivered. Longer pulse durations deliver more charge per pulse, and higher repetition rates deliver more pulses per second; together they increase the total charge and heat deposited at the electrode–skin interface and within underlying tissues. This elevated energy raises the risk of skin burns, electrode polarization, electrochemical reactions, nerve or muscle irritation, and potential injury if limits aren't respected. Ground location and waveform shape (monophasic vs biphasic) matter for safety in their own right, but the combination of long pulse duration with high repetition rates is the parameter most strongly linked to unsafe energy delivery.

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10. What are common causes of prolonged VEP P100 latency, aside from optic neuritis?

A. Optic trauma alone.

B. Sedation alone.

C. Normal aging.

D. Optic pathway demyelination, compressive lesions, high refractive errors, poor fixation, media opacities, sedation.

Prolonged P100 latency reflects slower conduction along the visual pathway, and there are several common non-optic-neuritis factors that can produce this delay. Demyelination along any part of the optic pathway slows nerve transmission, so conditions such as demyelinating diseases can lengthen the P100 even without optic neuritis. Compressive lesions—tumors or other masses pressing on the optic nerve or chiasm—physically impede signal flow and delay the response. If the visual stimulus isn't presented or perceived optimally, high refractive errors blur or defocus the image, changing how the retina and cortex synchronize the response and lengthening the latency. Poor fixation disrupts stable retinotopic stimulation, leading to a delayed cortical response. Media opacities like cataracts or corneal issues reduce the quality of light reaching the retina, degrading the signal and delaying the cortical response. Sedation can slow neural processing and affect timing, contributing to longer latencies. Together, these factors explain why the P100 latency can be prolonged even when optic neuritis is not involved.

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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://evokedpotential.examzify.com

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

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