

Electroencephalogram (EEG) Registry 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. In modern Intraoperative Neuromonitoring (IONM) systems, how does the amplifier box ground relate to the IONM instrument ground?**
 - A. They are the same**
 - B. They must be connected directly**
 - C. They are different**
 - D. It depends on the device**

- 2. What sensitivity should be used to resolve the morphology of a 500uV spike discharge?**
 - A. 7uV/mm**
 - B. 50uV/mm**
 - C. 250uV/mm**
 - D. 500uV/mm**

- 3. Syringomyelia is described as what condition?**
 - A. Enlargement of the brain**
 - B. Abnormal cavity or cyst in the spinal cord**
 - C. Degeneration of the spinal nerves**
 - D. Fluid accumulation around the brain**

- 4. Which disorder is characterized by the degeneration of the substantia nigra?**
 - A. Huntington's chorea**
 - B. Alzheimer's disease**
 - C. Parkinsonism**
 - D. Multiple sclerosis**

- 5. In a referential montage, what feature is considered the most valuable for localization?**
 - A. Time duration of discharges**
 - B. Frequency of the rhythm**
 - C. Highest voltage discharge**
 - D. Phase consistency**

- 6. In which condition would you most likely see xanthochromic cerebrospinal fluid?**
- A. Subarachnoid hemorrhage**
 - B. Multiple Sclerosis**
 - C. Parkinson's disease**
 - D. Epilepsy**
- 7. In a referential montage, which feature is most valuable for localizing activity with CZ as the reference?**
- A. Fast frequency oscillation**
 - B. The highest voltage discharge**
 - C. Low frequency waves**
 - D. Continuous background activity**
- 8. When 60Hz interference appears in two adjacent channels with a common electrode, what is the first action to take?**
- A. Recalibrate the entire EEG system**
 - B. Check electrode impedance then reglue or replace**
 - C. Switch to a different power outlet**
 - D. Increase the sensitivity of the channels**
- 9. What type of hormone is LH classified as?**
- A. Peptide hormone**
 - B. Steroid hormone**
 - C. Amino acid derivative**
 - D. Prostaglandin**
- 10. Cheyne-Stokes respiration is indicative of dysfunction in which area of the brain?**
- A. Cerebrum**
 - B. Cerebellum**
 - C. Hypothalamus**
 - D. Diencephalon**

Answers

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

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Explanations

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1. In modern Intraoperative Neuromonitoring (IONM) systems, how does the amplifier box ground relate to the IONM instrument ground?

- A. They are the same
- B. They must be connected directly
- C. They are different**
- D. It depends on the device

In modern Intraoperative Neuromonitoring (IONM) systems, the amplifier box ground and the IONM instrument ground are different to prevent issues such as ground loops, which can introduce noise and artifacts into the recorded signals. The amplifier box serves to amplify the electrical signals from the electrodes placed on the patient's scalp or other areas, while the IONM instrument ground is typically designed to provide a safe reference point for the electronic components within the monitoring system. Having separate grounds allows for improved signal integrity and reduced interference from electrical noise that could affect the accuracy of the monitoring. This distinction is crucial in a surgical setting where precision is essential, as it helps ensure that the monitoring system captures accurate data that reflects the patient's neurological status. In contrast, connecting the grounds directly or treating them as the same could lead to complications, such as potentially hazardous electrical issues or degraded signal quality. Therefore, understanding that these grounds are distinct is vital for professionals working with IONM technologies.

2. What sensitivity should be used to resolve the morphology of a 500uV spike discharge?

- A. 7uV/mm
- B. 50uV/mm**
- C. 250uV/mm
- D. 500uV/mm

The appropriate sensitivity to resolve the morphology of a 500 μV spike discharge is indeed 50 $\mu\text{V}/\text{mm}$. When selecting sensitivity for EEG recordings, the goal is to accurately capture the amplitude and shape of the waves being recorded. At a sensitivity of 50 $\mu\text{V}/\text{mm}$, a 500 μV spike discharge will be represented prominently on the EEG trace, allowing clear visualization of its morphology. This means that the spike will be easily distinguishable from the background activity and other waveforms, enabling proper interpretation. Higher sensitivity settings (such as 7 $\mu\text{V}/\text{mm}$) would result in overly amplified signals that could distort the morphology due to saturation, making it difficult to discern subtle features. Conversely, lower sensitivity settings (like 250 $\mu\text{V}/\text{mm}$ or 500 $\mu\text{V}/\text{mm}$) would compress the amplitude of the spike, risking loss of detail and clarity in the waveform. Thus, 50 $\mu\text{V}/\text{mm}$ strikes the right balance, providing a clear and accurate representation of the spike discharge while maintaining fidelity in the recording.

3. Syringomyelia is described as what condition?

- A. Enlargement of the brain
- B. Abnormal cavity or cyst in the spinal cord**
- C. Degeneration of the spinal nerves
- D. Fluid accumulation around the brain

Syringomyelia is characterized by the formation of an abnormal cavity or cyst within the spinal cord, typically filled with cerebrospinal fluid (CSF). This condition often results from a blockage of the normal flow of CSF, leading to the accumulation of fluid that expands the cyst. The presence of this cyst can disrupt normal spinal cord function, potentially resulting in various neurological symptoms such as pain, weakness, or loss of sensation. The distinction of syringomyelia as a condition involving a cyst specifically within the spinal cord is crucial for understanding its implications and management. Other options describe different medical conditions that do not accurately represent syringomyelia; for instance, enlargement of the brain refers to conditions like hydrocephalus, degeneration of spinal nerves pertains to conditions like amyotrophic lateral sclerosis, and fluid accumulation around the brain is more indicative of conditions such as meningitis or subdural hematomas. Thus, the description of syringomyelia as an abnormal cavity or cyst in the spinal cord is the most precise.

4. Which disorder is characterized by the degeneration of the substantia nigra?

- A. Huntington's chorea
- B. Alzheimer's disease
- C. Parkinsonism**
- D. Multiple sclerosis

The degeneration of the substantia nigra is specifically linked to Parkinsonism, making it the correct answer. The substantia nigra is a critical part of the basal ganglia in the brain that plays an essential role in movement control and coordination. In Parkinson's disease, a common form of Parkinsonism, the loss of dopamine-producing neurons in this area leads to the hallmark symptoms such as tremors, rigidity, bradykinesia (slow movement), and postural instability. In contrast, Huntington's chorea is a genetic disorder characterized by the degeneration of neurons in various areas of the brain, particularly the basal ganglia, but it does not specifically target the substantia nigra. Alzheimer's disease primarily involves the degeneration of neurons in the cortex and leads to cognitive decline rather than direct motor symptomatology linked to the substantia nigra. Multiple sclerosis is an autoimmune disease that affects nerve communication in the central nervous system and does not specifically involve degeneration in the substantia nigra. Thus, Parkinsonism is distinguished by its direct association with the degeneration of the substantia nigra, which underpins the motor symptoms characteristic of the disorder.

5. In a referential montage, what feature is considered the most valuable for localization?

- A. Time duration of discharges**
- B. Frequency of the rhythm**
- C. Highest voltage discharge**
- D. Phase consistency**

In a referential montage, the most valuable feature for localization is the highest voltage discharge. This is because the highest voltage recorded in a particular electrode can indicate the source of electrical activity in the brain, helping to pinpoint the area where a potential seizure or abnormality is occurring. The amplitude of the electrical signals reflects the neural activity's strength and can be crucial in determining the precise location of brain function or dysfunction. In referential montages, a common reference point is used, and the comparison of voltages recorded at different electrode sites can reveal significant information about the lateralization and localization of brain activity. A higher voltage may suggest a greater concentration of neural activity emanating from that region, making it an essential aspect in EEG analysis for identifying the origin of pathological spikes or seizures. The other features listed, while they may provide some additional context about the brain's activity, do not offer the same level of localization precision as voltage amplitude. For instance, time duration may indicate how long an event lasts, frequency provides information about the oscillatory patterns present, and phase consistency could suggest synchronization, but none specifically point to the area of activity as definitively as the highest voltage discharge.

6. In which condition would you most likely see xanthochromic cerebrospinal fluid?

- A. Subarachnoid hemorrhage**
- B. Multiple Sclerosis**
- C. Parkinson's disease**
- D. Epilepsy**

Xanthochromic cerebrospinal fluid (CSF) is characterized by a yellow discoloration, which occurs due to the breakdown of hemoglobin and the presence of bilirubin in the fluid. This finding is most commonly associated with a subarachnoid hemorrhage, where blood enters the cerebrospinal fluid space, leading to the breakdown of red blood cells. As these cells lyse, their contents, including hemoglobin, are released, resulting in the characteristic yellow color of the CSF over time. In the context of subarachnoid hemorrhage, the presence of xanthochromia indicates that there has been bleeding into the CSF, often due to a ruptured aneurysm or vascular malformation. Clinicians often analyze CSF for xanthochromia when they suspect subarachnoid hemorrhage, as this can help confirm the diagnosis, especially if the hemorrhage occurred some time prior to the CSF analysis. The other conditions listed do not typically present with xanthochromic cerebrospinal fluid. For instance, multiple sclerosis may show oligoclonal bands in the CSF but not xanthochromia. Parkinson's disease is a neurodegenerative disorder primarily affecting movement and the basal gang

7. In a referential montage, which feature is most valuable for localizing activity with CZ as the reference?

- A. Fast frequency oscillation**
- B. The highest voltage discharge**
- C. Low frequency waves**
- D. Continuous background activity**

In a referential montage, using CZ as the reference provides a specific point to which all other electrodes' activity is compared. The highest voltage discharge is particularly valuable for localizing activity because it indicates where there is a significant electrical event in relation to the reference electrode. When analyzing EEG data, the presence of a high voltage discharge suggests that activity is localized near the electrode that is showing this discharge, making it easier to identify the source of that activity in the brain. This is crucial for clinical applications like identifying seizure foci or other abnormal brain activities, as it enhances the ability to pinpoint where significant events are occurring in relation to CZ. Other features, such as fast frequency oscillation, low frequency waves, or continuous background activity, may provide useful information about brain state or function, but they do not necessarily indicate a localized electrical event as clearly as a high voltage discharge does. Therefore, the observation of the highest voltage discharge stands out as the most practical and effective feature for localization in a referential montage with CZ as the reference.

8. When 60Hz interference appears in two adjacent channels with a common electrode, what is the first action to take?

- A. Recalibrate the entire EEG system**
- B. Check electrode impedance then reglue or replace**
- C. Switch to a different power outlet**
- D. Increase the sensitivity of the channels**

When 60Hz interference occurs in two adjacent channels with a common electrode, the appropriate first action is to check the electrode impedance and then reglue or replace the electrode. This is crucial because 60Hz interference, often a result of electrical noise from devices such as fluorescent lights or power supplies, can negatively affect the quality of the EEG signal. If the impedance of the electrodes is too high or if there is poor contact with the scalp, it can exacerbate the interference issue, making it difficult to obtain a clean EEG reading. By checking the impedance, you ensure that the electrodes are functioning correctly and maintain good conductivity with the skin. If the impedance is found to be out of range, reglueing or replacing the electrode helps re-establish a proper connection, thereby minimizing interference and improving the clarity of the recording. While recalibrating the entire EEG system, switching power outlets, or adjusting sensitivity settings could potentially address noise problems, these actions do not directly target the specific issue of electrode connectivity that is likely causing the interference in adjacent channels. Therefore, confirming and addressing electrode impedance is a straightforward and effective first step in troubleshooting the situation.

9. What type of hormone is LH classified as?

- A. Peptide hormone**
- B. Steroid hormone**
- C. Amino acid derivative**
- D. Prostaglandin**

Luteinizing hormone (LH) is classified as a peptide hormone because it is composed of a chain of amino acids, specifically it consists of 204 amino acids. Peptide hormones are typically synthesized and secreted by endocrine glands, and they play various roles in regulating physiological processes in the body, including the reproductive system, which is where LH is crucial for regulating ovulation in females and testosterone production in males. The structure and function of LH as a peptide hormone allow it to bind to specific receptors on target cells to exert its effects, which is characteristic of peptide hormones. The correct classification is important for understanding how LH interacts with other hormones and the overall regulation of reproductive functions in the body.

10. Cheyne-Stokes respiration is indicative of dysfunction in which area of the brain?

- A. Cerebrum**
- B. Cerebellum**
- C. Hypothalamus**
- D. Diencephalon**

Cheyne-Stokes respiration is characterized by a pattern of breathing that alternates between periods of deep, rapid breaths and periods of apnea. This type of respiration is often associated with specific forms of brain dysfunction, particularly involving regulatory centers. The correct answer points to the diencephalon, a crucial region of the brain that includes structures such as the thalamus and hypothalamus. These areas play a pivotal role in the regulation of autonomic functions, including breathing patterns. Dysfunction within the diencephalon can disrupt the normal rhythm and mechanics of breathing, leading to the Cheyne-Stokes pattern. This condition is frequently observed in scenarios such as congestive heart failure or increased intracranial pressure, where the body's need for oxygen and the brain's ability to regulate respiration can become compromised. In contrast, the cerebrum, while involved in many higher-level functions, is less directly linked to the basic autonomic control of respiration that is primarily managed by the diencephalon. The cerebellum is mainly associated with coordination and balance and does not have a direct role in the regulatory mechanisms of breathing. While the hypothalamus, which is part of the diencephalon, is involved in various autonomic functions, the more comprehensive

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://eegregistry.examzify.com>

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

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