AXON TYPES PRACTICE TEST (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. NOT true about F-waves?

A. They are late evoked responses.

B. They provide information about proximal conduction.

C. They involve antidromic activation.

D. They measure distal sensory nerve conduction.

2. The axons in the ophthalmic division of the trigeminal nerve (V1) are of which modality?

A. GVE-S

B. GVE-P

C. GSA

D. GVA

3. Which of the following is NOT a branch of the nasociliary nerve?

A. Anterior ethmoidal

B. Posterior ethmoidal

C. Infratrochlear

D. Zygomaticotemporal

4. Which nerve innervates the cricothyroid muscle?

A. External laryngeal nerve

B. Recurrent laryngeal nerve

C. Internal laryngeal nerve

D. Superior laryngeal nerve

5. The infratrochlear nerve provides sensory innervation to which areas?

A. Medial eyelid and nose

B. Lateral canthus and temple

C. Forehead and cheek

D. Upper lip

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6. After peripheral nerve injury, if the environment is favorable, what process may occur?

A. Remyelination by Schwann cells if the environment is favorable after peripheral nerve injury

B. Axon regrowth without any support

C. Degeneration of the neuron cell body

D. Persistent demyelination with no recovery

7. Injury to the recurrent laryngeal nerve results in which deficit?

A. Diplopia and head tilt away from the affected side

B. Loss of parotid secretion

C. Tongue deviation toward lesion

D. Hoarseness from paralysis of most intrinsic laryngeal muscles; bilateral injury can cause aphonia and inspiratory stridor

8. How does demyelination affect the length constant and time constant of an axon?

A. Increases lambda and increases tau

B. Decreases lambda and increases tau

C. Increases lambda and decreases tau

D. Decreases lambda and decreases tau

9. The deep petrosal nerve contains which axons?

A. GVE-P

B. GVA

C. SVE

D. Postganglionic GVE-S from superior cervical ganglion pass through PPG without synapsing and distribute of V2

10. What is the afterhyperpolarization and what ionic mechanism underlies it?

A. It is a brief hyperpolarization following repolarization due to continued K+ efflux through specific K+ channels.

B. It is caused by Ca2+ influx.

C. It is a depolarizing phase.

D. It occurs before repolarization.

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Answers

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

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Explanations

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1. NOT true about F-waves?

A. They are late evoked responses.

B. They provide information about proximal conduction.

C. They involve antidromic activation.

D. They measure distal sensory nerve conduction.

F-waves are late motor responses that appear after the initial M-wave when a nerve is stimulated supramaximally. They happen because the stimulus travels antidromically up the motor nerve to the spinal cord, where occasional motor neurons backfire and send impulses orthodromically back to the muscle, producing the late response. This back-and-forth process means F-waves reflect conduction along the proximal motor pathway—from the muscle back to the spinal cord and back out—so they provide information about proximal conduction and the integrity of the motor neuron pathway. They do involve antidromic activation, which is a defining feature of how F-waves are generated. However, they do not measure distal sensory nerve conduction. Sensory conduction is assessed with sensory nerve action potentials, not F-waves, which are motor-centric. Thus, the statement claiming they measure distal sensory nerve conduction is not true.

2. The axons in the ophthalmic division of the trigeminal nerve (V1) are of which modality?

A. GVE-S

B. GVE-P

C. GSA

D. GVA

V1 carries somatic sensory information from the face, so its axons are general somatic afferent. The ophthalmic division supplies sensation from areas like the forehead, scalp, upper eyelid, conjunctiva, cornea, and nasal mucosa, all of which are somatic structures whose sensory input is conveyed by GSA fibers. Other modalities describe autonomic or visceral pathways and do not apply here, and the motor component for muscles of mastication comes from a different division. So the fibers in V1 are GSA.

3. Which of the following is NOT a branch of the nasociliary nerve?

A. Anterior ethmoidal

B. Posterior ethmoidal

C. Infratrochlear

D. Zygomaticotemporal

Zygomaticotemporal is not a branch of the nasociliary nerve. The nasociliary nerve, a branch of the ophthalmic division (V1) of the trigeminal nerve, gives branches such as the anterior and posterior ethmoidal nerves and the infratrochlear nerve, which supply the nasal cavity, ethmoidal air cells, and medial canthus. The zygomaticotemporal nerve, however, comes from the zygomatic nerve of the maxillary division (V2) and supplies temple skin, with a communication to the lacrimal nerve for lacrimal secretion. So it is not part of the nasociliary nerve's branches.

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4. Which nerve innervates the cricothyroid muscle?

A. External laryngeal nerve

B. Recurrent laryngeal nerve

C. Internal laryngeal nerve

D. Superior laryngeal nerve

Cricothyroid gets its motor signal from the external branch of the superior laryngeal nerve, often called the external laryngeal nerve. This branch is the one that directly innervates this muscle, allowing it to tense the vocal cords and adjust pitch. The recurrent laryngeal nerve supplies all the other intrinsic laryngeal muscles and is mainly motor to them, not to cricothyroid. The internal laryngeal nerve provides sensory feeling to the mucosa above the vocal cords, not motor control. So, the external laryngeal nerve is the correct innervation for cricothyroid.

5. The infratrochlear nerve provides sensory innervation to which areas?

A. Medial eyelid and nose

B. Lateral canthus and temple

C. Forehead and cheek

D. Upper lip

The infratrochlear nerve is a branch of the nasociliary nerve (a continuation of the ophthalmic division, V1) and supplies sensation to the medial canthus area. Its distribution includes the medial eyelid and the adjacent nose region at the root, around the medial aspect of the eye and the lacrimal caruncle. This explains why the medial eyelid and nose is the correct area. The lateral canthus and temple are supplied by nerves serving the lateral orbit (such as the lacrimal/zygomatic branches), not the infratrochlear. The forehead and cheek are served by the frontal nerves (supraorbital and supratrochlear for the forehead) and infraorbital nerve for the cheek, while the upper lip is supplied by the infraorbital nerve.

6. After peripheral nerve injury, if the environment is favorable, what process may occur?

A. Remyelination by Schwann cells if the environment is favorable after peripheral nerve injury

B. Axon regrowth without any support

C. Degeneration of the neuron cell body

D. Persistent demyelination with no recovery

In the peripheral nervous system, a favorable environment after injury allows the axon to regrow and be remyelinated by Schwann cells. Proximal axon segments can sprout, and Schwann cells align into Bands of Büngner, creating guiding pathways through the distal stump. They clear debris, secrete growth factors, and support the growing axon, which, once it reaches its target, is remyelinated by Schwann cells to restore conduction. The neuron's cell body is not typically lost under these conditions; it may show some transient stress responses, but overall survival supports regeneration.

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7. Injury to the recurrent laryngeal nerve results in which deficit?

A. Diplopia and head tilt away from the affected side

B. Loss of parotid secretion

C. Tongue deviation toward lesion

D. Hoarseness from paralysis of most intrinsic laryngeal muscles; bilateral injury can cause aphonia and inspiratory stridor

The recurrent laryngeal nerve provides motor control to most of the intrinsic muscles of the larynx, which move the vocal cords. The key muscle for opening (abducting) the vocal cords is the posterior cricoarytenoid, and this nerve carries the nerves to that muscle as well as the muscles that adduct the cords. When the nerve is injured on one side, the affected vocal cord can't move properly, so it stays near the midline and the voice becomes hoarse or breathy because the two cords don't close normally for clear phonation. If the injury is on both sides, neither vocal cord can move, leading to complete loss of voice (aphonia) and a narrowed airway that can cause inspiratory stridor. This explains why the deficit described—hoarseness from paralysis of most intrinsic laryngeal muscles, with potential aphonia and inspiratory stridor if both sides are damaged—is the best choice. Other options describe problems with different nerves: diplopia with head tilt is a cranial nerve IV issue, loss of parotid secretion is a parasympathetic issue to the parotid gland, and tongue deviation points to hypoglossal nerve injury.

8. How does demyelination affect the length constant and time constant of an axon?

A. Increases lambda and increases tau

B. Decreases lambda and increases tau

C. Increases lambda and decreases tau

D. Decreases lambda and decreases tau

Demyelination reduces the length constant and increases the time constant of an axon. The length constant, lambda, depends on membrane resistance: lambda is proportional to the square root of the membrane resistance over the internal resistance. Myelin acts as a strong insulator, boosting membrane resistance and limiting leakiness, so a normally myelinated axon has a relatively large lambda. When myelin is stripped away, the membrane becomes leakier (lower membrane resistance), so more current leaks out and the signal attenuates more quickly along the length, decreasing lambda. The time constant, tau, equals the membrane resistance times the membrane capacitance (tau = Rm · Cm). Myelin also reduces membrane capacitance and increases membrane resistance. Removing myelin does the opposite: membrane resistance falls and membrane capacitance rises, and the product tends to increase, making the membrane charge and respond more slowly to changes in current. This slows the rise and fall of voltage, increasing tau and slowing conduction.

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9. The deep petrosal nerve contains which axons?

A. GVE-P

B. GVA

C. SVE

D. Postganglionic GVE-S from superior cervical ganglion pass through PPG without synapsing and distribute of V2

The deep petrosal nerve carries postganglionic sympathetic (GVE-S) fibers originating from the superior cervical ganglion. These fibers travel with the internal carotid plexus and join the greater petrosal nerve to form the nerve of the pterygoid canal. In the pterygopalatine ganglion, the sympathetic fibers pass through without synapsing and then distribute with branches of the maxillary nerve (V2) to target structures such as the lacrimal gland and nasal mucosa. This is why the best description is postganglionic sympathetic fibers from the superior cervical ganglion that pass through the pterygopalatine ganglion without synapsing and distribute with V2. The deep petrosal nerve does not carry parasympathetic preganglionic fibers, general visceral afferent fibers, or somatic motor fibers, which is why the other options don't fit.

10. What is the afterhyperpolarization and what ionic mechanism underlies it?

A. It is a brief hyperpolarization following repolarization due to continued K+ efflux through specific K+ channels.

B. It is caused by Ca2+ influx.

C. It is a depolarizing phase.

D. It occurs before repolarization.

Afterhyperpolarization is the brief hyperpolarization that follows an action potential. It happens because potassium channels opened during the spike remain open as the cell repolarizes, so K+ continues to flow out of the neuron. This outward K+ current drives the membrane potential to a more negative level than the resting potential for a short time, lowering the likelihood of another spike right away. In many cells, calcium entering during the action potential activates calcium-activated K+ channels, which can shape how strong and how long the AHP lasts. This mechanism explains why the AHP is a hyperpolarizing event that occurs after repolarization, not before, and not a depolarizing phase.

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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://axontypes.examzify.com

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

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