

NERVOUS SYSTEM A&P PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE**

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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. Which cranial nerve is involved in controlling the muscles of the tongue?**
 - A. Hypoglossal (XII)
 - B. Vagus (X)
 - C. Auditory (VIII)
 - D. Facial (VII)
- 2. What type of tracts are responsible for sending impulses to the brain?**
 - A. Descending tracts
 - B. Peripheral tracts
 - C. Cranial tracts
 - D. Ascending tracts
- 3. How many pairs of cranial nerves are present in the human body?**
 - A. 10
 - B. 12
 - C. 14
 - D. 16
- 4. Which brain region is primarily involved in coordination of balance and motor learning?**
 - A. Thalamus
 - B. Hypothalamus
 - C. Cerebellum
 - D. Hippocampus
- 5. Which mechanism best describes how metabotropic receptors produce slower, longer-lasting effects?**
 - A. They form ion channels directly.
 - B. They activate G proteins and second messenger cascades.
 - C. They are fast ligand-gated channels.
 - D. They cause immediate depolarization through Na^+ influx.

- 6. What structure of a neuron receives impulses from other neurons?**
- A. Axon
 - B. Soma
 - C. Dendrites
 - D. Synapse
- 7. What functions does the hypothalamus perform?**
- A. Regulates heart rhythms
 - B. Exerts control over all internal organs and regulates hormones
 - C. Processes visual information
 - D. Coordinates muscle movements
- 8. What is the generator potential and how does it relate to action potential initiation?**
- A. A short, all-or-none signal in a neuron.
 - B. A hyperpolarizing event that prevents firing.
 - C. A chemical signal released by receptor cells.
 - D. A graded depolarization in a sensory neuron that may trigger an action potential if threshold is reached.
- 9. Which nerve has three branches that supply the cornea, upper face, ear, and muscles for chewing?**
- A. Facial (VII)
 - B. Trigeminal (V)
 - C. Vagus (X)
 - D. Spinal Accessory (XI)
- 10. What is the effect of excitatory neurotransmitters on a postsynaptic neuron?**
- A. They increase the likelihood of an action potential.
 - B. They decrease the likelihood of an action potential.
 - C. They have no effect.
 - D. They destroy the postsynaptic neuron.

Answers

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

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Explanations

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1. Which cranial nerve is involved in controlling the muscles of the tongue?

A. Hypoglossal (XII)

B. Vagus (X)

C. Auditory (VIII)

D. Facial (VII)

The hypoglossal nerve, also known as cranial nerve XII, is primarily responsible for controlling the movements of the tongue. This nerve innervates the intrinsic and extrinsic muscles of the tongue, allowing for various functions such as speech, swallowing, and manipulating food. Its motor fibers enable precise control over the tongue's movements, making it crucial for articulation and proper oral motor function. In contrast, the vagus nerve primarily regulates functions of the heart, lungs, and digestive tract, rather than controlling tongue movement. The auditory nerve is focused on hearing and balance, playing no role in tongue function. Lastly, while the facial nerve has some involvement with the muscles related to facial expressions and the glandular secretions of the mouth, it does not control the muscles of the tongue directly. Thus, the hypoglossal nerve is the clear and correct answer in this context.

2. What type of tracts are responsible for sending impulses to the brain?

A. Descending tracts

B. Peripheral tracts

C. Cranial tracts

D. Ascending tracts

Ascending tracts are responsible for sending impulses to the brain. These tracts carry sensory information from the body up to the central nervous system, specifically to various areas of the brain where this information can be processed and interpreted. For example, sensory information related to touch, temperature, pain, and proprioception travels via ascending pathways to reach areas responsible for sensory perception, such as the somatosensory cortex. This ensures that the brain receives constant updates about the external and internal conditions of the body. In contrast, descending tracts are involved in transmitting motor commands from the brain to the body. Peripheral and cranial tracts are not standard terms commonly used to describe pathways in the central nervous system. Therefore, ascending tracts are specifically designated for sensory transmission to the brain, making them the correct choice in this context.

3. How many pairs of cranial nerves are present in the human body?

A. 10

B. 12

C. 14

D. 16

The human body has a total of 12 pairs of cranial nerves, which emerge directly from the brain and brainstem. These cranial nerves are essential for various functions, including sensory and motor capabilities related to the head and neck, as well as some autonomic functions. The numbering of cranial nerves goes from I to XII, with each nerve responsible for specific functions such as vision, smell, taste, and movement of the eyes and face. Understanding that there are 12 cranial nerves is fundamental in neuroanatomy and is crucial for clinical assessments and diagnoses related to neurological function.

4. Which brain region is primarily involved in coordination of balance and motor learning?

- A. Thalamus
- B. Hypothalamus
- C. Cerebellum**
- D. Hippocampus

Balance and motor learning are coordinated by the cerebellum. It receives vestibular input for balance, proprioceptive feedback from muscles and joints, and visual information, then uses this data to fine-tune movements. The cerebellum compares what you intend to do with what your body is actually doing and sends corrective signals through deep cerebellar nuclei to motor pathways in the brainstem and to the cortex. This timing and error-correction process lets movements be smooth and allows skills to improve with practice. Damage here disrupts these processes, leading to ataxia and uncoordinated movement rather than memory formation or autonomic regulation. The thalamus mainly relays signals, the hypothalamus governs autonomic/endocrine functions, and the hippocampus handles memory.

5. Which mechanism best describes how metabotropic receptors produce slower, longer-lasting effects?

- A. They form ion channels directly.
- B. They activate G proteins and second messenger cascades.**
- C. They are fast ligand-gated channels.
- D. They cause immediate depolarization through Na⁺ influx.

Metabotropic receptors produce slower, longer-lasting effects because they work through intracellular signaling rather than forming an ion channel themselves. When a neurotransmitter binds, the receptor activates a G protein, which then triggers second messenger cascades such as cAMP or IP3/DAG. These messengers modulate enzymes, open or close ion channels indirectly, and can alter gene expression, leading to effects that develop over seconds to minutes and can last longer. This contrasts with ionotropic receptors, which are ligand-gated ion channels that open quickly to produce fast depolarizing or hyperpolarizing currents. So the best description is the activation of G proteins and second messenger cascades.

6. What structure of a neuron receives impulses from other neurons?

- A. Axon
- B. Soma
- C. Dendrites**
- D. Synapse

The structure of a neuron that receives impulses from other neurons is the dendrites. Dendrites are branching extensions of the neuron that function to increase the surface area for receiving signals. They are equipped with receptors that bind to neurotransmitters released by other neurons, allowing the neuron to receive and process incoming information. This makes dendrites crucial for the communication between neurons, as they facilitate the transmission of signals toward the soma (cell body) of the neuron. The axon, while also an essential part of the neuron, is primarily responsible for transmitting impulses away from the cell body to other neurons or target tissues, not for receiving them. The soma contains the nucleus and other organelles, playing a more central role in maintaining cell health and processing information but not in receiving signals directly. The synapse is the junction between two neurons where neurotransmitter release occurs, but it is not a structure that receives impulses; rather, it is the space where communication happens. This functional distinction makes dendrites the correct answer for the structure that receives impulses from other neurons.

7. What functions does the hypothalamus perform?

- A. Regulates heart rhythms
- B. Exerts control over all internal organs and regulates hormones**
- C. Processes visual information
- D. Coordinates muscle movements

The hypothalamus plays a crucial role in maintaining homeostasis within the body by exerting control over a wide range of autonomic functions and regulating various hormones. It acts as a critical link between the nervous system and the endocrine system, thereby influencing bodily functions such as temperature regulation, thirst, hunger, sleep-wake cycles, and emotional responses. One of its primary functions is the regulation of the pituitary gland, which releases hormones that can affect growth, metabolism, and reproductive functions. By controlling the release of these hormones, the hypothalamus helps ensure that the body's internal environment remains stable despite external changes. This regulatory capacity is vital for overall health and well-being. The other options, while related to different aspects of bodily functions, do not accurately describe the primary functions of the hypothalamus. Regulating heart rhythms is more associated with the medulla oblongata and the autonomic nervous system. Processing visual information is primarily the role of the occipital lobe of the brain, while coordinating muscle movements is largely managed by areas such as the cerebellum and the motor cortex. Thus, the correct understanding of the hypothalamus emphasizes its integrative role in hormone regulation and internal organ control.

8. What is the generator potential and how does it relate to action potential initiation?

- A. A short, all-or-none signal in a neuron.
- B. A hyperpolarizing event that prevents firing.
- C. A chemical signal released by receptor cells.
- D. A graded depolarization in a sensory neuron that may trigger an action potential if threshold is reached.**

The main idea is that a generator potential is a graded depolarization produced by a sensory receptor in response to a stimulus, and it can trigger an action potential if it reaches threshold. This depolarization varies in size with the strength of the stimulus, unlike an action potential, which is a uniform all-or-none event. When the generator potential is large enough to reach the axon hillock, voltage-gated Na⁺ channels open and an action potential is initiated and then propagates along the neuron. If the generator potential doesn't reach threshold, no action potential occurs. This concept sits between the initial, local depolarization at the receptor and the all-or-none spike that carries the signal.

9. Which nerve has three branches that supply the cornea, upper face, ear, and muscles for chewing?

- A. Facial (VII)
- B. Trigeminal (V)**
- C. Vagus (X)
- D. Spinal Accessory (XI)

The trigeminal nerve is the fifth cranial nerve and is primarily responsible for sensation in the face and motor functions such as biting and chewing. It has three major branches: the ophthalmic, maxillary, and mandibular nerves, each serving distinct regions. The ophthalmic branch supplies sensory innervation to the cornea, upper face, and scalp. This is essential for protective reflexes like blinking when the cornea is touched. The maxillary branch provides sensory information from the mid-facial region, including parts of the nose, cheeks, and upper lip. The mandibular branch is unique in that it also carries motor fibers that innervate the muscles responsible for chewing, making it a crucial component for mastication. The other nerves listed do not fulfill this specific combination of roles. The facial nerve primarily controls muscles of facial expression and provides taste sensations, the vagus nerve controls vital involuntary functions, and the spinal accessory primarily innervates the muscles involved in head movement. Therefore, the trigeminal nerve's structure and function make it the correct answer for the described roles of corneal sensation, upper face sensory supply, auditory areas, and mastication.

10. What is the effect of excitatory neurotransmitters on a postsynaptic neuron?

- A. They increase the likelihood of an action potential.**
- B. They decrease the likelihood of an action potential.
- C. They have no effect.
- D. They destroy the postsynaptic neuron.

Excitatory neurotransmitters play a crucial role in enhancing neuronal communication within the nervous system. When these neurotransmitters bind to receptors on the postsynaptic neuron, they typically lead to an influx of positively charged ions, such as sodium (Na⁺), into the neuron. This influx causes depolarization, which increases the membrane potential towards the threshold needed to trigger an action potential. The key aspect here is that the binding of excitatory neurotransmitters raises the likelihood of the postsynaptic neuron reaching that critical threshold, thereby making it more likely that an action potential will occur. This is essential for the propagation of signals through neuronal networks, allowing for processes such as muscle contraction, reflexes, and complex behaviors. In contrast, options suggesting a decrease in the likelihood of an action potential, having no effect, or destroying the neuron do not align with the known function of excitatory neurotransmitters. They do not serve to inhibit neuronal signaling or damage the neuron under normal physiological conditions, as their primary role is to facilitate and stimulate activity within the nervous system.

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:

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

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