

NYCC NEURO I PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	15

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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. Pre- and postganglionic terminals release neuropeptides that function directly onto the target tissue or have a modulatory role.**
 - A. Acetylcholine as the sole transmitter
 - B. Norepinephrine as the primary transmitter
 - C. Neuropeptides that function directly onto the target tissue or have a modulatory role
 - D. Gamma-aminobutyric acid as an inhibitory transmitter
- 2. Which structures are part of the limbic system and involved in feeding, reproduction, emotion, and memory?**
 - A. Caudate nucleus, putamen, globus pallidus
 - B. Cerebellum, brainstem, thalamus
 - C. Parahippocampal gyrus, hippocampal formation, and amygdala
 - D. Frontal lobe, parietal lobe, temporal lobe
- 3. Match the zone with its primary temperature regulation function.**
 - A. Anterior zone — heat dissipation via sweating; Posterior zone — heat conservation via shivering
 - B. Anterior zone — heat conservation; Posterior zone — heat dissipation
 - C. Anterior zone — appetite control; Posterior zone — thirst regulation
 - D. Anterior zone — circadian control; Posterior zone — circadian control
- 4. Which structure connects the two cerebral hemispheres, as commonly described in neuroanatomy?**
 - A. Thalamus
 - B. Cerebellum
 - C. Corpus callosum
 - D. Amygdala
- 5. Kinesthesia is the sense of what?**
 - A. Movement of limbs
 - B. Taste
 - C. Color vision
 - D. Hearing

- 6. Which neurotransmitter released by C fibers activates NMDA receptors during central sensitization?**
- A. GABA.
 - B. Glycine.
 - C. Substance P.
 - D. Glutamate.
- 7. Pulvinar receives fibers from?**
- A. Retina and superior colliculus
 - B. Cerebellum
 - C. Spinal cord
 - D. Olfactory bulb
- 8. Broca's area is found in the posterior portion of which gyrus?**
- A. Inferior frontal gyrus
 - B. Superior frontal gyrus
 - C. Precentral gyrus
 - D. Postcentral gyrus
- 9. What is the function of the Ventral Anterior and Ventral Lateral nuclei?**
- A. Sensory relay
 - B. Language processing
 - C. Motor integration and maintenance of consciousness
 - D. Visual processing
- 10. Which parameter is associated with hypothalamic function in maintaining physiological homeostasis such as blood pressure and osmolarity?**
- A. Digestion of Fats
 - B. Blood Pressure And Osmolarity
 - C. Visual Processing
 - D. Olfactory Identification

Answers

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

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Explanations

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1. Pre- and postganglionic terminals release neuropeptides that function directly onto the target tissue or have a modulatory role.

- A. Acetylcholine as the sole transmitter
- B. Norepinephrine as the primary transmitter
- C. Neuropeptides that function directly onto the target tissue or have a modulatory role**
- D. Gamma-aminobutyric acid as an inhibitory transmitter

The question hinges on co-transmission in autonomic neurons. Pre- and postganglionic terminals don't rely solely on a single fast transmitter; they can release neuropeptides that act directly on the target tissue or modulate the effect of the classical transmitter. These neuropeptides are stored in dense-core vesicles and are released with higher-frequency activity, producing slower, longer-lasting responses via metabotropic receptors. Examples include neuropeptides that accompany norepinephrine to enhance or prolong vasoconstriction, or peptides that accompany acetylcholine to shape glandular or smooth muscle responses. This combination of direct tissue effects and modulatory roles is why the statement about neuropeptides functioning directly on target tissue or modulating transmission best captures what happens at these terminals. The other options describe only a single classic transmitter or a transmitter not typical of autonomic peripheral neurons, and thus don't reflect the co-transmission reality.

2. Which structures are part of the limbic system and involved in feeding, reproduction, emotion, and memory?

- A. Caudate nucleus, putamen, globus pallidus
- B. Cerebellum, brainstem, thalamus
- C. Parahippocampal gyrus, hippocampal formation, and amygdala**
- D. Frontal lobe, parietal lobe, temporal lobe

A key set of structures in the limbic system handles emotion, memory, and related drives. The hippocampal formation is central to forming and retrieving memories and spatial context. The parahippocampal gyrus supports memory encoding and contextual associations around the hippocampus. The amygdala assigns emotional significance to stimuli, influences emotional responses, and modulates memory consolidation—especially for emotionally charged events. Together, these regions link memory with affect and drives, helping regulate behaviors like feeding and reproduction by integrating past experiences and current emotional states with motivational needs, via connections to other limbic and hypothalamic circuits. The other options don't fit as well because they involve regions not primarily part of the limbic system or not the main players in memory and emotion: the basal ganglia (caudate, putamen, globus pallidus) are mainly motor control circuits; the cerebellum, brainstem, and thalamus have broader roles in movement coordination and relay functions; the frontal, parietal, and temporal lobes are large cortical areas, not the specific limbic structures responsible for memory and emotion.

3. Match the zone with its primary temperature regulation function.

- A. Anterior zone – heat dissipation via sweating; Posterior zone – heat conservation via shivering
- B. Anterior zone – heat conservation; Posterior zone – heat dissipation
- C. Anterior zone – appetite control; Posterior zone – thirst regulation
- D. Anterior zone – circadian control; Posterior zone – circadian control

Thermoregulation is controlled by hypothalamic zones, with the anterior area acting as the heat-dissipation center. When core temperature rises, this region triggers cooling mechanisms like sweating and vasodilation to shed heat. The posterior region serves as the heat-conservation and heat-production center, activating shivering and vasoconstriction to preserve or generate warmth. So pairing the anterior zone with heat dissipation via sweating and the posterior zone with heat conservation via shivering matches the physiological roles of these areas. The other options mix in functions like appetite, thirst, or circadian control, which aren't the primary temperature-regulating roles of these zones.

4. Which structure connects the two cerebral hemispheres, as commonly described in neuroanatomy?

- A. Thalamus
- B. Cerebellum
- C. Corpus callosum
- D. Amygdala

The key idea is how the brain wires the two halves together. The corpus callosum is the major white matter tract that spans the midline, linking the left and right cerebral hemispheres so they can share information. It's the largest bundle of commissural fibers in the brain, enabling rapid transfer of sensory, motor, and cognitive signals between hemispheres. The other structures have different roles: the thalamus acts as a relay within a hemisphere, the cerebellum coordinates movement and sits with connections to the brainstem and cortex, and the amygdala handles emotion processing within a hemisphere. So the corpus callosum best fits the description of connecting the two hemispheres.

5. Kinesthesia is the sense of what?

- A. Movement of limbs
- B. Taste
- C. Color vision
- D. Hearing

Kinesthesia is the sense of limb movement and position. Proprioceptors in muscles, tendons, and joints detect stretch and movement and send signals to the brain, letting you know where your limbs are and how they're moving, even without looking. This distinguishes it from tastes, colors, and sounds, which are gustatory, visual, and auditory modalities.

6. Which neurotransmitter released by C fibers activates NMDA receptors during central sensitization?

- A. GABA.
- B. Glycine.
- C. Substance P.
- D. Glutamate.**

Central sensitization relies on NMDA receptor activation in the dorsal horn by the excitatory transmitter released from C fibers. Glutamate is released by these C fibers and binds to NMDA receptors on the postsynaptic neuron. NMDA receptors need both glutamate binding and a depolarized membrane to relieve Mg²⁺ block, so repeated or intense input from C fibers allows calcium to flood into the cell through these receptors. That calcium influx triggers intracellular signaling that strengthens synaptic transmission, producing the heightened pain sensitivity characteristic of central sensitization. While substance P from C fibers can boost this process by enhancing excitability via NK1 receptors, the direct activator of NMDA receptors in this context is glutamate. In contrast, GABA and glycine are inhibitory or, in the case of glycine, a co-agonist not specifically released by C fibers to drive NMDA activation.

7. Pulvinar receives fibers from?

- A. Retina and superior colliculus**
- B. Cerebellum
- C. Spinal cord
- D. Olfactory bulb

The main idea is that the pulvinar acts as a visual hub that integrates information from early visual pathways, helping to route and modulate visual signals for broader cortical processing and attention. It receives direct input from the retina (retinopulvinar pathway) and it also gets substantial input from the superior colliculus, which is involved in reflexive orienting to visual stimuli. This combination lets the pulvinar help coordinate activity across visual cortical areas and support visual attention. The other options don't fit because the cerebellum mainly projects to motor-related thalamic nuclei (like the ventral lateral and ventral anterior), not the pulvinar; the spinal cord sends somatosensory and pain information to nuclei such as the ventral posterior nuclei, not primarily to the pulvinar; and the olfactory bulb projects to olfactory cortical and limbic regions, not to the pulvinar.

8. Broca's area is found in the posterior portion of which gyrus?

- A. Inferior frontal gyrus**
- B. Superior frontal gyrus
- C. Precentral gyrus
- D. Postcentral gyrus

Broca's area sits in the posterior portion of the inferior frontal gyrus of the dominant hemisphere, typically the left. This region, particularly the pars opercularis and pars triangularis (Brodmann areas 44 and 45), is key for language production and speech planning. The other gyri map to different functions: the superior frontal gyrus is more about higher cognitive and executive tasks, the precentral gyrus is the primary motor cortex, and the postcentral gyrus is the primary somatosensory cortex. So, the posterior part of the inferior frontal gyrus is the correct site for Broca's area.

9. What is the function of the Ventral Anterior and Ventral Lateral nuclei?

- A. Sensory relay
- B. Language processing
- C. Motor integration and maintenance of consciousness**
- D. Visual processing

These thalamic nuclei act as motor relay and integration hubs. They receive processed motor information from the basal ganglia and cerebellum and send it to the motor and premotor cortex, helping to coordinate planning, initiation, and execution of movement. That makes their function best described as motor integration rather than sensory processing or language/visual processing. Visual processing is handled by the lateral geniculate nucleus, sensory relay is the job of the ventral posterior nuclei, and consciousness/arousal involves other thalamic nuclei, not these motor relay centers.

10. Which parameter is associated with hypothalamic function in maintaining physiological homeostasis such as blood pressure and osmolarity?

- A. Digestion of Fats
- B. Blood Pressure And Osmolarity**
- C. Visual Processing
- D. Olfactory Identification

The hypothalamus coordinates basic body balance by sensing and adjusting fluid status and vascular tone. It has osmoreceptors that detect plasma osmolarity and, when needed, triggers thirst and the release of antidiuretic hormone from the posterior pituitary. ADH acts on the kidneys to conserve water, helping to keep osmolarity within a narrow range and maintain blood volume. For blood pressure, the hypothalamus influences autonomic output and can promote ADH release to support vascular tone and circulating volume, alongside activating thirst to restore adequate fluid levels. Because of these roles, the parameter tied to hypothalamic control in maintaining physiological homeostasis like blood pressure and osmolarity is those two measures together. Other options describe functions handled by different brain regions and systems.

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://nycneuro1.examzify.com>

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

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