

HEMISPHERES 3.0 – LEVEL I BRAIN ANATOMY AND PHYSIOLOGY 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.

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. Identify the structure described as a gray matter collection located under the temporal lobe and shaped like a seahorse.**
 - A. Almond-shaped mass of grey matter located in the temporal lobe
 - B. A brain region involved in balance
 - C. Gray matter collection located under the temporal lobe and shaped like a seahorse
 - D. A white matter tract within the occipital lobe
- 2. Which association fiber connects the parietal, temporal, occipital and frontal lobes?**
 - A. Superior Longitudinal Fasciculus
 - B. Arcuate Fasciculus
 - C. Uncinate Fasciculus
 - D. Corona Radiata
- 3. The average CSF circulatory volume is approximately how many milliliters?**
 - A. 10-20 ml
 - B. 500-750 ml
 - C. 200-300 ml
 - D. 100-150 ml
- 4. Which ventricle is located between the pons, medulla, and cerebellum and continues to the central canal of the spinal cord?**
 - A. Third ventricle
 - B. Fourth ventricle
 - C. Lateral ventricle
 - D. Cerebral aqueduct
- 5. Which structure connects the two hemispheres of the cerebellum?**
 - A. Vermis of cerebellum
 - B. Flocculonodular lobe
 - C. Cerebellar peduncles
 - D. Cerebellar cortex

- 6. Between capillaries and interstitial fluid, what structure regulates which substances reach brain tissue?**
- A. Blood-brain barrier
 - B. Blood-CSF barrier
 - C. Dural folds
 - D. Choroid Plexus Structures
- 7. Which structure separates the cerebellum from the occipital lobes?**
- A. Dural Folds
 - B. Falx Cerebri
 - C. Tentorium Cerebelli
 - D. Foramen of Monro
- 8. What is the normal circulating CSF volume in adults?**
- A. 50 mL
 - B. 100 mL
 - C. 150 mL
 - D. 200 mL
- 9. Which nerve is primarily responsible for sensation of the face and motor functions for mastication?**
- A. Trigeminal (CN V)
 - B. Vestibulocochlear (CN VIII)
 - C. Facial (CN VII)
 - D. Accessory (XI)
- 10. Which term describes the mental image of sounds of a word before speaking?**
- A. Primary visual cortex
 - B. Visual association area
 - C. Occipital lobe
 - D. Phonologic retrieval

Answers

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

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Explanations

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1. Identify the structure described as a gray matter collection located under the temporal lobe and shaped like a seahorse.

- A. Almond-shaped mass of grey matter located in the temporal lobe
- B. A brain region involved in balance
- C. Gray matter collection located under the temporal lobe and shaped like a seahorse**
- D. A white matter tract within the occipital lobe

The seahorse-shaped gray matter structure under the temporal lobe is the hippocampus. It sits in the medial temporal lobe as part of the limbic system, curling along the floor of the lateral ventricle. The hippocampal formation—comprising the hippocampus proper, dentate gyrus, and subiculum—is made of gray matter and has that distinctive curved shape seen in coronal views. This region is essential for forming new memories and for spatial navigation, helping convert short-term memories into long-term ones. The almond-shaped mass in the temporal lobe is the amygdala, more involved with emotions, not seahorse-shaped. A brain area tied to balance points to the cerebellum or vestibular systems, and a white matter tract in the occipital lobe wouldn't be gray matter in this location. So the described structure is the hippocampus.

2. Which association fiber connects the parietal, temporal, occipital and frontal lobes?

- A. Superior Longitudinal Fasciculus**
- B. Arcuate Fasciculus
- C. Uncinate Fasciculus
- D. Corona Radiata

Long-range association fibers that interconnect different cortical regions within one hemisphere enable integration of information across lobes. The superior longitudinal fasciculus is the major dorsal association pathway that runs along the lateral white matter and links the frontal lobe with parietal, temporal, and extending toward occipital regions. This connectivity allows communication among these lobes for tasks like attention, language, and visuospatial processing, which is why it best fits connecting all four lobes. The arcuate fasciculus, by contrast, primarily connects frontal and temporal language areas, not spanning the occipital or parietal lobes in the same broad way. The uncinate fasciculus links the frontal lobe with the anterior temporal lobe, not across all four lobes. The corona radiata consists of projection fibers to and from the cortex rather than a long intrahemispheric association tract connecting multiple lobes.

3. The average CSF circulatory volume is approximately how many milliliters?

- A. 10-20 ml
- B. 500-750 ml
- C. 200-300 ml
- D. 100-150 ml**

In adults, the total CSF volume that fills the ventricles and subarachnoid space is about 150 milliliters. This circulating reservoir stays roughly stable because CSF is continuously produced and then reabsorbed into the venous system. Production is about 0.3–0.4 mL per minute (roughly 500 mL per day), so the system turns over rather than accumulates, keeping the overall volume around that 100–150 mL range. Among the options, 100–150 mL best matches the actual circulating CSF volume. The other ranges either reflect production totals rather than the reservoir size or are far too small or large to represent the typical CSF volume.

4. Which ventricle is located between the pons, medulla, and cerebellum and continues to the central canal of the spinal cord?

- A. Third ventricle
- B. Fourth ventricle**
- C. Lateral ventricle
- D. Cerebral aqueduct

The ventricle that sits between the pons and medulla in front of the cerebellum and continues downward as the central canal of the spinal cord is the fourth ventricle. It occupies the posterior aspect of the brainstem region, tucked between the lower brainstem and the cerebellum, and, inferiorly, its space narrows to become the central canal that runs through the spinal cord. The fourth ventricle connects upward to the third ventricle via the cerebral aqueduct, and its CSF can flow outward into the subarachnoid space through the openings around it. This positioning and connection explain why it is described as between those structures and continuous with the spinal canal.

5. Which structure connects the two hemispheres of the cerebellum?

- A. Vermis of cerebellum**
- B. Flocculonodular lobe
- C. Cerebellar peduncles
- D. Cerebellar cortex

The midline structure that links the two cerebellar hemispheres is the vermis. It runs along the brain's midline, acting as a central bridge that fuses left and right cerebellar sides so they can coordinate together. The vermis is especially important for coordinating trunk and proximal limb movements, reflecting its role as the axis between the hemispheres. In contrast, the flocculonodular lobe sits at a different region and mainly handles balance and eye movements, the cerebellar peduncles are bundles of fibers that connect the cerebellum to the brainstem and transmit signals, and the cerebellar cortex is the outer gray matter layer where processing occurs—none of these form the connecting bridge between the two hemispheres.

6. Between capillaries and interstitial fluid, what structure regulates which substances reach brain tissue?

- A. Blood-brain barrier**
- B. Blood-CSF barrier
- C. Dural folds
- D. Choroid Plexus Structures

The structure that regulates what moves from brain capillaries into the brain tissue is the blood-brain barrier. It's built from tight junctions between the endothelial cells lining brain capillaries, reinforced by support from astrocyte end-feet and pericytes. Those tight junctions dramatically limit paracellular diffusion, so most substances must cross endothelial cells through highly selective transport mechanisms. This creates a controlled environment, allowing essential nutrients (like glucose via specific transporters) to enter while keeping out many toxins and fluctuations in ions and other molecules that could disrupt neural function. Lipid-soluble substances can diffuse more readily, but many polar or large molecules require specific transporters or are actively effluxed. In contrast, the blood-CSF barrier at the choroid plexus regulates exchange between blood and cerebrospinal fluid, not directly with brain interstitial fluid. Dural folds are merely folds of protective dura mater and don't govern molecular traffic to brain tissue. Choroid plexus structures mainly produce CSF and participate in CSF composition, rather than forming the primary barrier between capillaries and brain interstitial fluid.

7. Which structure separates the cerebellum from the occipital lobes?

- A. Dural Folds
- B. Falx Cerebri
- C. Tentorium Cerebelli**
- D. Foramen of Monro

A dural partition called the tentorium cerebelli separates the cerebellum from the occipital lobes. It is a horizontal fold of dura mater that forms a tent-like roof over the cerebellum, creating a boundary between the cerebellar region below and the occipital lobes of the cerebrum above. This arrangement helps compartmentalize the brain. In contrast, the falx cerebri lies between the cerebral hemispheres, not between cerebellum and occipital lobes; the falx cerebelli divides the two cerebellar hemispheres; and the foramen of Monro is a ventricular passage, not a separating barrier.

8. What is the normal circulating CSF volume in adults?

- A. 50 mL
- B. 100 mL
- C. 150 mL**
- D. 200 mL

In adults, the cerebrospinal fluid (CSF) reservoir sits around 150 mL. CSF is produced continuously and circulates through the ventricles and subarachnoid space, being turned over several times a day, but the total volume maintained in the system at any one time is about 125–150 mL. This balance keeps the brain buoyant and maintains the chemical environment needed for neurons. The other options (much smaller or larger volumes) don't match the typical CSF volume stored in the adult system, so roughly 150 mL is the standard circulating amount.

9. Which nerve is primarily responsible for sensation of the face and motor functions for mastication?

- A. Trigeminal (CN V)
- B. Vestibulocochlear (CN VIII)**
- C. Facial (CN VII)
- D. Accessory (XI)

The sensation of the face and the ability to chew are carried by the trigeminal nerve. This nerve (cranial nerve V) has three divisions: the first two are purely sensory and supply sensation to different facial regions, while the third division provides both sensory input from the lower face and motor output to the muscles used in mastication (masseter, temporalis, and the pterygoids). The other nerves do not handle both of these roles: the vestibulocochlear nerve handles hearing and balance, the facial nerve mainly controls facial expressions and taste, and the accessory nerve innervates neck muscles. So the trigeminal nerve best fits the described functions.

10. Which term describes the mental image of sounds of a word before speaking?

- A. Primary visual cortex
- B. Visual association area
- C. Occipital lobe

D. Phonologic retrieval

Phonologic retrieval is the process of pulling up the phonemic form of a word from memory to guide speech. When you prepare to say a word, your brain accesses the sequence of sounds it should be pronounced, forming a mental image of those sounds before articulation. The other options involve visual processing regions (primary visual cortex, visual association area, occipital lobe), which relate to seeing rather than producing spoken sounds, so they don't fit the scenario.

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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://hemispheres3lvl1brainanatomyphysio.examzify.com>

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

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