

BCT LAB PRACTICAL 1 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. Schwann cells make _____ in the CNS.
 - A. None of the above
 - B. Myelin
 - C. CSF
 - D. Mucus
2. The naming of epithelial tissue is based on the shape of the cells on the basal surface.
 - A. True
 - B. False
 - C. Not sure
 - D. Both
3. Which organelle is primarily responsible for steroid production in the cell?
 - A. Nucleus
 - B. Golgi Apparatus
 - C. Smooth Endoplasmic Reticulum
 - D. Mitochondria
4. Which tissue type in the cerebellum is white matter?
 - A. Gray matter
 - B. Purkinje layer
 - C. Granular layer
 - D. White matter
5. Which statement is true about white and red blood cells?
 - A. Red blood cells contain mitochondria and nucleus
 - B. White blood cells are nucleated; red blood cells are anucleated
 - C. Both white and red blood cells have nuclei
 - D. White blood cells lack nuclei
6. Which structure is not located within the CNS?
 - A. Spinal cord
 - B. Cerebellum
 - C. Dorsal root ganglion
 - D. Medulla oblongata

- 7. The dorsal root ganglion is primarily composed of which type of neuron cell bodies?**
- A. Pseudounipolar sensory neurons
 - B. Bipolar sensory neurons
 - C. Multipolar motor neurons
 - D. Pyramidal neurons
- 8. Which canal runs perpendicular to the central canal and connects adjacent osteons?**
- A. Central canal
 - B. Perforating canal
 - C. Haversian canal
 - D. Volkmann's canal
- 9. Which tissue type appears multi-layered but each cell touches the basement membrane?**
- A. Pseudostratified epithelium
 - B. Simple squamous
 - C. Stratified squamous
 - D. Transitional epithelium
- 10. Which connective tissue surrounds the entire nerve?**
- A. Epineurium
 - B. Perineurium
 - C. Peripheral nerve
 - D. Nodes of Ranvier

Answers

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

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Explanations

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1. Schwann cells make _____ in the CNS.

A. None of the above

B. Myelin

C. CSF

D. Mucus

In the central nervous system, myelination is done by oligodendrocytes, not Schwann cells. Schwann cells are the glial cells that form the myelin sheath around peripheral nerves. CSF is produced by the choroid plexus ependymal cells, and mucus is produced by mucous membranes, not by Schwann cells. Therefore, Schwann cells do not make any of the listed substances in the CNS, so none of the options apply.

2. The naming of epithelial tissue is based on the shape of the cells on the basal surface.

A. True

B. False

C. Not sure

D. Both

Epithelial tissue is named by how many cell layers there are and by the shape of the cells at the surface that faces the lumen or outside, not by the shape of cells on the basal side. The basal surface sits on the basement membrane and mainly serves for attachment and polarity; it doesn't determine the name. The visible, apical surface shows cells that are flat (squamous), cube-shaped (cuboidal), or tall and columnar, and this apical shape is what drives the classification alongside the layering. For example, a single layer of flat apical cells is simple squamous, while multiple layers with flat outermost cells are stratified squamous. Transitional epithelium is a special case that can change shape with stretch, but the naming still relates to the surface cell appearance and layering. So naming based on the basal surface is not correct.

3. Which organelle is primarily responsible for steroid production in the cell?

A. Nucleus

B. Golgi Apparatus

C. Smooth Endoplasmic Reticulum

D. Mitochondria

Steroid hormones are lipid-based molecules built from cholesterol, so their production relies on the lipid-synthesis machinery of the cell. The smooth endoplasmic reticulum provides the membrane-rich environment and the enzymes needed to carry out the steps that convert cholesterol into the various steroid hormones. While the initial cholesterol modification to pregnenolone starts in the mitochondria, most of the subsequent steps that finalize different steroids occur in the smooth ER. That combination makes the smooth ER the primary site for steroid production.

4. Which tissue type in the cerebellum is white matter?

- A. Gray matter
- B. Purkinje layer
- C. Granular layer
- D. White matter**

In the cerebellum, white matter is the inner core composed of myelinated axons, forming the arbor vitae that connects the cerebellar cortex with other brain regions. The cortex of the cerebellum is gray matter, organized into three layers: molecular, Purkinje cell, and granular layers, all containing neuron cell bodies and unmyelinated fibers. Because of the myelin, the white matter appears lighter. So the tissue type that is white matter is the central, myelinated fiber tracts of the cerebellum, while the three gray layers lie on the surface.

5. Which statement is true about white and red blood cells?

- A. Red blood cells contain mitochondria and nucleus
- B. White blood cells are nucleated; red blood cells are anucleated**
- C. Both white and red blood cells have nuclei
- D. White blood cells lack nuclei

White blood cells keep their nucleus to support ongoing gene expression and immune functions, while mature red blood cells lose their nucleus (and, in mammals, mitochondria) to maximize space for hemoglobin and to be more flexible through tiny vessels. That combination makes the statement true: white blood cells are nucleated and red blood cells are anucleated. The other ideas conflict with what mature blood cells look like—red blood cells do not have nuclei (and typically lack mitochondria in mammals), white blood cells do have nuclei, and not all blood cells share the same nuclear status.

6. Which structure is not located within the CNS?

- A. Spinal cord
- B. Cerebellum
- C. Dorsal root ganglion**
- D. Medulla oblongata

The difference between the CNS and the peripheral nervous system is being tested here. The structure that is not located within the CNS is the dorsal root ganglion, because it belongs to the peripheral nervous system. It sits along the dorsal root of a spinal nerve just outside the spinal cord and contains the cell bodies of sensory neurons. The central processes of those neurons enter the spinal cord to transmit sensory information. In contrast, the spinal cord, cerebellum, and medulla oblongata are all components of the CNS, residing within the brain and spinal column.

7. The dorsal root ganglion is primarily composed of which type of neuron cell bodies?

A. Pseudounipolar sensory neurons

B. Bipolar sensory neurons

C. Multipolar motor neurons

D. Pyramidal neurons

Pseudounipolar sensory neurons form the cell bodies in the dorsal root ganglion. These neurons have a single process that divides into a peripheral branch, carrying information from sensory receptors, and a central branch that enters the spinal cord. This setup is typical of primary sensory neurons whose cell bodies lie in the dorsal root ganglia, a part of the peripheral nervous system. In contrast, multipolar motor neurons have their cell bodies in the ventral horn of the spinal cord and drive muscle activity, so they aren't located in the dorsal root ganglion. Bipolar sensory neurons are found in specialized sensory systems like the retina or olfactory epithelium, not in DRGs. Pyramidal neurons are cortical neurons in the brain.

8. Which canal runs perpendicular to the central canal and connects adjacent osteons?

A. Central canal

B. Perforating canal

C. Haversian canal

D. Volkmann's canal

Volkmann's canals run perpendicular to the central (Haversian) canals and connect adjacent osteons, forming a transverse network that carries blood vessels and nerves from the periosteum into the bone and between neighboring osteons. This allows nutrients and wastes to move across the bone's compact bone by linking the longitudinal central canals with one another. The central canal sits inside an osteon and runs along its length, while Volkmann's canals provide the perpendicular connections between osteons (they're also called perforating canals). This combination keeps the bone tissue nourished throughout its structure.

9. Which tissue type appears multi-layered but each cell touches the basement membrane?

A. Pseudostratified epithelium

B. Simple squamous

C. Stratified squamous

D. Transitional epithelium

The key idea is that some epithelia look like they have multiple layers even though every cell actually contacts the basement membrane. Pseudostratified epithelium fits this description: nuclei sit at different heights within a single layer of cells, so it appears multilayered, but each cell reaches the basement membrane. This is common in the trachea and other parts of the respiratory tract, where cells may be ciliated and include mucus-secreting goblet cells. In contrast, simple squamous is truly a single layer with all cells touching the basement membrane, so it isn't multilayered. Stratified squamous has many layers but only the deepest cells touch the basement membrane. Transitional epithelium is layered and stretchable, but not all cells extend to the basement membrane, especially the surface cells. So the described pattern points to pseudostratified epithelium.

10. Which connective tissue surrounds the entire nerve?

- A. Epineurium**
- B. Perineurium
- C. Peripheral nerve
- D. Nodes of Ranvier

The outermost connective tissue layer that wraps an entire nerve is the epineurium. It is a dense irregular connective tissue that encloses all the nerve fascicles together and provides protection and support, with blood vessels running through it. Inside the nerve, each fascicle is wrapped by the perineurium, and each individual axon within a fascicle is surrounded by the endoneurium. Nodes of Ranvier are gaps in the myelin sheath along the axon, not surrounding layers of connective tissue around the nerve.

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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://bctlabpractical1.examzify.com>

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

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