

# NBEO HISTOLOGY PRACTICE TEST (SAMPLE)

**STUDY GUIDE**



**SAMPLE STUDY GUIDE  
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR  
THE FULL VERSION STUDY GUIDE**

<https://nbeohistology.examzify.com>



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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 hormones are stored in the posterior pituitary and released in response to hypothalamic stimulation?**
  - A. ADH and Oxytocin
  - B. Insulin and Glucagon
  - C. TSH and T4
  - D. Cortisol and Aldosterone
- 2. Hyaluronic acid is classified as which type of molecule?**
  - A. GAG
  - B. Proteoglycan
  - C. Both A and B
  - D. None of the above
- 3. Do Eukaryotes or Prokaryotes have 80S ribosomes?**
  - A. Eukaryotes
  - B. Prokaryotes
  - C. Both
  - D. Neither
- 4. What are macrophages found in the blood called?**
  - A. Lymphocytes
  - B. Macrophages
  - C. Monocytes
  - D. Erythrocytes
- 5. Which type of cell junction does NOT connect cell to cell and therefore does not provide structural support?**
  - A. Gap junctions
  - B. Zonula occludens
  - C. Hemidesmosomes
  - D. Zonula adherens

- 6. Goblet cells secrete mucins that contribute to which layer of the tear film?**
- A. Lipid layer
  - B. Aqueous layer
  - C. Mucin (mucinous) layer
  - D. Salt layer
- 7. Which statement is NOT a major function of the liver?**
- A. Removes and stores fat soluble vitamins
  - B. Produces renin
  - C. Regulation of glucose levels
  - D. Produces bile
- 8. Macrophages found in the intestine are called what?**
- A. Mesentery cells
  - B. Kupffer cells
  - C. Microglia
  - D. Alveolar macrophages
- 9. Which cell type is a key component of the iris stroma?**
- A. Melanocytes
  - B. Fibroblasts
  - C. Myocytes
  - D. Neurons
- 10. What type of epithelium lines the posterior surface of the iris?**
- A. Posterior Iris Epithelium (Pigmented Epithelium)
  - B. Anterior Iris Epithelium
  - C. Retinal Pigment Epithelium
  - D. Nonpigmented Ciliary Epithelium



## **Answers**

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

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## **Explanations**

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**1. Which hormones are stored in the posterior pituitary and released in response to hypothalamic stimulation?**

**A. ADH and Oxytocin**

B. Insulin and Glucagon

C. TSH and T4

D. Cortisol and Aldosterone

*Neurohormones produced in the hypothalamus are stored in the posterior pituitary and released when the hypothalamic neurons fire. The two hormones stored there are ADH (vasopressin) and oxytocin. They travel down the nerve fibers from the hypothalamus to the posterior pituitary, where they're held in nerve terminals and released into the bloodstream in response to hypothalamic stimulation. ADH concentrates urine by acting on the kidneys and is released in response to increased plasma osmolality or decreased blood volume. Oxytocin is involved in uterine contractions and milk ejection and is released during stimuli such as suckling or certain reflexes. The other substances listed aren't stored in the posterior pituitary. Insulin and glucagon come from the pancreas; TSH is secreted by the anterior pituitary and stimulates the thyroid; cortisol and aldosterone come from the adrenal cortex.*

**2. Hyaluronic acid is classified as which type of molecule?**

**A. GAG**

B. Proteoglycan

C. Both A and B

D. None of the above

*Hyaluronic acid is a glycosaminoglycan (GAG). GAGs are long, unbranched polysaccharides composed of repeating disaccharide units, often sulfated, and they typically form part of proteoglycans when attached to a protein core. Hyaluronic acid, specifically, is a repeating disaccharide of D-glucuronic acid and N-acetyl-D-glucosamine, and it is not sulfated nor covalently attached to a core protein. Proteoglycans are defined by having one or more GAG chains covalently linked to a protein core. Because hyaluronic acid lacks a protein core and is not covalently attached to protein, it is classified as a GAG. It can associate with proteoglycans to form large extracellular structures, but on its own it remains a GAG.*

**3. Do Eukaryotes or Prokaryotes have 80S ribosomes?**

**A. Eukaryotes**

B. Prokaryotes

C. Both

D. Neither

*Ribosome size in terms of sedimentation rate distinguishes the two groups. The cytoplasmic ribosomes in eukaryotic cells are 80S, built from a 60S large subunit and a 40S small subunit. Prokaryotic cells use 70S ribosomes, composed of a 50S large subunit and a 30S small subunit. The 80S versus 70S difference reflects distinct RNA and protein compositions, which is why many antibiotics target bacterial (70S) ribosomes without affecting eukaryotic (80S) cytoplasmic ribosomes. Note that in eukaryotic organelles like mitochondria and chloroplasts, ribosomes are 70S, reflecting their bacterial origin, but the cytoplasmic translation machinery remains 80S. Thus, eukaryotes have 80S ribosomes.*

#### 4. What are macrophages found in the blood called?

- A. Lymphocytes
- B. Macrophages
- C. Monocytes**
- D. Erythrocytes

Macrophages in tissues come from circulating monocytes; in the blood, the cells are called monocytes. Monocytes travel in the bloodstream and, after migrating into tissues, differentiate into macrophages that perform phagocytosis and antigen presentation. Lymphocytes are a separate group of white blood cells involved in adaptive immunity, and erythrocytes are red blood cells that carry oxygen. So the circulating blood cell that gives rise to macrophages is the monocyte.

#### 5. Which type of cell junction does NOT connect cell to cell and therefore does not provide structural support?

- A. Gap junctions
- B. Zonula occludens
- C. Hemidesmosomes**
- D. Zonula adherens

The big idea here is distinguishing cell-to-cell junctions from cell-to-matrix attachments. Hemidesmosomes are the structures that anchor an epithelial cell to the basement membrane, not to neighboring cells. They link the cell's internal cytoskeleton to extracellular matrix components via integrins and related proteins, acting as a half-desmosome at the bottom of the cell. Because they connect to the extracellular matrix rather than to another cell, they don't provide intercellular structural support. In contrast, the other junctions involve neighboring cells. Gap junctions create direct cytoplasmic channels between adjacent cells for small molecule exchange. Tight junctions (zonula occludens) seal the space between cells at the apical surface to regulate paracellular flow, and adherens junctions (zonula adherens) connect cells through cadherin–catenin complexes linked to actin, giving mechanical cohesion between cells. So the junction that does not connect cell to cell and therefore does not provide intercellular structural support is the one anchoring to the basement membrane.

#### 6. Goblet cells secrete mucins that contribute to which layer of the tear film?

- A. Lipid layer
- B. Aqueous layer
- C. Mucin (mucinous) layer**
- D. Salt layer

Goblet cells secrete mucins that form the mucin layer of the tear film. These mucins, such as MUC5AC, blend with the watery component to create a hydrophilic mucus layer that coats the corneal and conjunctival surfaces. This mucous layer helps the tear film wet the ocular surface, spread evenly, and adhere to the epithelium, which is essential for tear stability and comfort. The lipid layer on the outside comes from Meibomian glands and reduces evaporation, while the aqueous layer supplies most of the tear volume; there isn't a separate salt-only layer.

## 7. Which statement is NOT a major function of the liver?

- A. Removes and stores fat soluble vitamins
- B. Produces renin**
- C. Regulation of glucose levels
- D. Produces bile

*Renin is an enzyme released by kidney cells to start the RAAS cascade, converting angiotensinogen from the liver into angiotensin I. The liver supports several major roles, such as storing and metabolizing fat-soluble vitamins (A, D, E, K), helping regulate blood glucose through glycogen storage and glucose production, and producing bile for digestion. While the liver does synthesize angiotensinogen, it does not secrete renin. Therefore, producing renin is not a major hepatic function.*

## 8. Macrophages found in the intestine are called what?

- A. Mesentery cells**
- B. Kupffer cells
- C. Microglia
- D. Alveolar macrophages

*Macrophages in gut-associated tissues are specialized to keep tolerance to gut microbes while defending against pathogens. In the intestinal mesentery, the resident macrophage population is described as mesenteric macrophages, or mesentery cells. These cells sit in the connective tissue supporting the intestines and are part of the mucosal immune system. They actively phagocytose bacteria and debris, clear apoptotic cells, and secrete cytokines to regulate inflammation, helping maintain a balanced immune response in the gut environment. For contrast, other macrophage types are named by their tissue of residence—Kupffer cells in the liver, microglia in the brain, and alveolar macrophages in the lungs—so the macrophages associated with the intestine are appropriately called mesenteric (mesentery) macrophages.*

## 9. Which cell type is a key component of the iris stroma?

- A. Melanocytes**
- B. Fibroblasts
- C. Myocytes
- D. Neurons

*Melanocytes in the iris stroma are the key players because they are the pigment-producing cells embedded within the connective tissue framework of the iris. Their melanin content gives the iris its color and helps absorb excess light, which is a defining feature of the stromal tissue. While fibroblasts are present to maintain the extracellular matrix and support tissue structure, and smooth muscle cells form the iris's muscular elements to control pupil size, those components are not the primary identifiers of the stroma itself. Neurons contribute to innervation but are not the main cellular constituents that define the iris stroma.*

**10. What type of epithelium lines the posterior surface of the iris?**

**A. Posterior Iris Epithelium (Pigmented Epithelium)**

**B. Anterior Iris Epithelium**

**C. Retinal Pigment Epithelium**

**D. Nonpigmented Ciliary Epithelium**

*The posterior surface of the iris is lined by a pigmented epithelium known as the posterior iris epithelium. This layer, derived from neural tissue, sits on the back of the iris facing the pupil and the aqueous. Its cells contain melanin, which gives the iris its color and helps absorb stray light to prevent internal glare and scattering. This pigmented epithelium is continuous with the pigmented layer of the ciliary body and forms a distinct boundary between the stroma of the iris and the posterior chamber contents. In contrast, the anterior surface of the iris is lined by a nonpigmented epithelium, the retinal pigment epithelium is located in the retina, and the nonpigmented ciliary epithelium lines the ciliary body, not the iris posterior surface.*

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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](mailto:hello@examzify.com).

Or visit your dedicated course page for more study tools and resources:

<https://nbeohistology.examzify.com>

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

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