

NIGHTINGALE 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. One of the few hormones that functions on a positive feedback loop is:**
 - A. Oxytocin
 - B. Prolactin
 - C. ADH
 - D. Melatonin

- 2. Spatial summation involves which concept?**
 - A. Temporal summation
 - B. Summation across multiple time points
 - C. Neurotransmitter release from several presynaptic knobs converging on a single postsynaptic neuron
 - D. Involves inhibitory synapses only

- 3. The preganglionic neurons of the autonomic nervous system are classified as which type of neuron in terms of neurotransmitter?**
 - A. Cholinergic
 - B. Adrenergic
 - C. GABAergic
 - D. Glutamatergic

- 4. Which gland contributes an alkaline component to semen that helps sperm viability?**
 - A. Prostate gland
 - B. Seminal vesicles
 - C. Bulbourethral glands
 - D. Testes

- 5. Which of the following is not one of the major groups of organic substances in the human body?**
 - A. Salts
 - B. Proteins
 - C. Lipids
 - D. Nucleic acids

- 6. Which statement accurately describes erythropoietin?**
- A. It directly destroys pathogens.
 - B. It decreases oxygen transport capacity.
 - C. It stimulates red blood cell production.
 - D. It promotes platelet aggregation.
- 7. CSF circulates through the ventricles, into the central canal and which space before being absorbed into the blood?**
- A. Subarachnoid space
 - B. Epidural space
 - C. Central canal
 - D. Arachnoid granulations
- 8. If osteoclast activity increases, what happens to blood calcium?**
- A. Blood calcium decreases
 - B. Blood calcium increases
 - C. No change in blood calcium
 - D. Blood calcium fluctuates
- 9. Which tissue is the primary component of the hypodermis, associated with fat storage?**
- A. Epithelial Tissue
 - B. Connective Tissue
 - C. Muscle Tissue
 - D. Nervous Tissue
- 10. Which of the following is NOT a cause of physiological muscle fatigue?**
- A. Relative lack of ATP
 - B. High levels of lactate
 - C. Failure of sodium-potassium pumps
 - D. Aerobic respiration

Answers

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

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Explanations

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1. One of the few hormones that functions on a positive feedback loop is:

- A. Oxytocin
- B. Prolactin
- C. ADH
- D. Melatonin

Positive feedback loops amplify a signal until a final event ends the process. Oxytocin fits this pattern in childbirth: cervical stretch triggers oxytocin release from the posterior pituitary, which increases uterine contractions; those contractions cause more cervical stretch, leading to even more oxytocin release and stronger contractions until delivery occurs. A similar reinforcing effect happens during milk ejection, where suckling promotes oxytocin release to push out milk as long as feeding continues. The other hormones don't form this kind of self-amplifying loop: prolactin is primarily regulated by dopamine and other factors rather than a self-reinforcing cycle; ADH is governed by osmolality with negative feedback to restore balance; melatonin is driven by light-dark cues and circadian signals, not a positive feedback loop.

2. Spatial summation involves which concept?

- A. Temporal summation
- B. Summation across multiple time points
- C. Neurotransmitter release from several presynaptic knobs converging on a single postsynaptic neuron
- D. Involves inhibitory synapses only

Spatial summation happens when inputs from several presynaptic neurons converge onto one postsynaptic neuron and their postsynaptic potentials add up at the same place on the cell. If multiple terminals release neurotransmitter at the same time, the resulting excitatory or inhibitory signals combine at the dendrites and near the axon hillock, influencing whether the neuron reaches threshold to fire. The key idea is summation across space: many different synapses contributing to the overall membrane potential of a single neuron. This is different from temporal summation, where rapid firing at a single synapse over time builds up the postsynaptic effect. While spatial summation can involve excitatory inputs, it's not limited to inhibitory synapses only. The option describes exactly the convergence of neurotransmitter release from several presynaptic knobs onto one postsynaptic neuron, which captures this spatial integration.

3. The preganglionic neurons of the autonomic nervous system are classified as which type of neuron in terms of neurotransmitter?

- A. Cholinergic
- B. Adrenergic
- C. GABAergic
- D. Glutamatergic

Autonomic preganglionic neurons are cholinergic because they release acetylcholine onto nicotinic receptors on the surface of the postganglionic neuron. This acetylcholine-mediated connection is fast and excitatory, forming the initial step of the autonomic cascade in both sympathetic and parasympathetic pathways. Adrenergic would describe neurons that release norepinephrine, which is characteristic of many postganglionic sympathetic fibers rather than the preganglionic ones. GABAergic and glutamatergic terms refer to neurotransmitters primarily used in the central nervous system rather than the typical autonomic preganglionic pathways.

4. Which gland contributes an alkaline component to semen that helps sperm viability?

- A. Prostate gland**
- B. Seminal vesicles
- C. Bulbourethral glands
- D. Testes

Sperm need an environment that isn't hostile to them once they enter the female reproductive tract, which is quite acidic. Semen includes fluids from several glands, but the alkaline component that directly helps sperm viability comes from the prostate. The prostate gland releases a slightly alkaline fluid rich in bicarbonate and other substances that raises the pH of semen, counteracting vaginal acidity and supporting sperm survival and motility. While the seminal vesicles contribute most of the semen volume and nutrients, and the bulbourethral glands provide lubrication and some neutralization, the prostate's alkaline secretion is the key factor that protects and enables sperm to function in the acidic environment downstream.

5. Which of the following is not one of the major groups of organic substances in the human body?

- A. Salts**
- B. Proteins
- C. Lipids
- D. Nucleic acids

Organic substances in the body are carbon-containing macromolecules such as carbohydrates, proteins, lipids, and nucleic acids. Salts, on the other hand, are inorganic compounds formed from minerals and acids; they don't have carbon-hydrogen backbones and aren't classified among the major organic groups. So, salts do not belong to the main organic substance groups, even though they are essential as minerals and electrolytes that support bodily functions. Proteins, lipids, and nucleic acids are examples of these carbon-based organic macromolecules.

6. Which statement accurately describes erythropoietin?

- A. It directly destroys pathogens.
- B. It decreases oxygen transport capacity.
- C. It stimulates red blood cell production.**
- D. It promotes platelet aggregation.

Erythropoietin primarily stimulates red blood cell production. When tissues experience low oxygen levels, the kidneys release erythropoietin, which signals the bone marrow to boost production of erythroid progenitor cells and accelerate their maturation into red blood cells. This rise in red cells increases hemoglobin and hematocrit, improving the blood's capacity to carry oxygen to tissues. As oxygen delivery improves, the stimulus for erythropoietin reduces through a negative feedback loop. This hormone doesn't combat pathogens directly, so it doesn't destroy them. It also doesn't decrease oxygen transport capacity or promote platelet aggregation—those roles belong to other processes and factors.

7. CSF circulates through the ventricles, into the central canal and which space before being absorbed into the blood?

A. Subarachnoid space

B. Epidural space

C. Central canal

D. Arachnoid granulations

CSF flows from the ventricles into the central canal and then into the subarachnoid space, the area surrounding the brain and spinal cord. In this space, CSF circulates and is eventually absorbed into the bloodstream through arachnoid granulations that project into the dural venous sinuses. The subarachnoid space is the stage just before absorption. The epidural space is outside the dura, not part of CSF circulation. The central canal is a small channel inside the spinal cord, not where CSF is absorbed. Arachnoid granulations are the absorption structures themselves, located within the subarachnoid space.

8. If osteoclast activity increases, what happens to blood calcium?

A. Blood calcium decreases

B. Blood calcium increases

C. No change in blood calcium

D. Blood calcium fluctuates

Osteoclasts are the bone cells that break down bone tissue, releasing the minerals stored in the bone matrix, including calcium, into the bloodstream. When their activity increases, more calcium is dissolved from bone into the blood, raising the level of calcium in the circulation. This fits with the body's calcium homeostasis system, where hormones like parathyroid hormone boost osteoclast-mediated resorption when calcium is needed, while calcitonin dampens it when calcium is already high. So, increasing osteoclast activity leads to higher blood calcium.

9. Which tissue is the primary component of the hypodermis, associated with fat storage?

A. Epithelial Tissue

B. Connective Tissue

C. Muscle Tissue

D. Nervous Tissue

Fat storage in the hypodermis comes from adipose tissue, a specialized form of loose connective tissue. Adipose tissue stores energy as triglycerides within adipocytes, and it also provides insulation and cushioning. The hypodermis sits beneath the skin and is dominated by these fat-filled cells within a connective tissue matrix, which is why connective tissue is the best match. The other tissue types have different primary roles—epithelial tissue lines surfaces, muscle tissue provides movement, and nervous tissue handles signaling—and do not account for the main fat storage function of this layer.

10. Which of the following is NOT a cause of physiological muscle fatigue?

- A. Relative lack of ATP
- B. High levels of lactate
- C. Failure of sodium-potassium pumps
- D. Aerobic respiration**

Muscle fatigue happens when the muscle's energy supply can't keep up with demand and when metabolic changes inside the muscle impair its ability to contract. A limited ATP supply slows the detachment of myosin heads and the reuptake of calcium into the sarcoplasmic reticulum, which directly reduces force production. High levels of lactate (often accompanying anaerobic metabolism) accompany a drop in pH that can interfere with enzyme activity and the sensitivity of contractile proteins to calcium, further weakening contraction. If the sodium-potassium pumps fail to maintain proper ionic gradients, extracellular potassium rises, the muscle membrane becomes less excitable, and contraction strength declines. In contrast, aerobic respiration uses oxygen to generate ATP efficiently over longer periods; it supports sustained contraction and delays fatigue, so it is not a cause of physiological muscle fatigue.

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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://nightgalephysiology.examzify.com>

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

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