

Arizona State University (ASU) BIO202 Human Anatomy and Physiology II Exam 1 Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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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

- 1. What is the term for low insulin secretion due to an abnormally slow rate?**
 - A. Type 1 diabetes**
 - B. Type 2 diabetes**
 - C. Gestational diabetes**
 - D. Metabolic syndrome**
- 2. Which of these plays a role in communication and control within the body?**
 - A. Only hormones**
 - B. Only neurotransmitters**
 - C. Both hormones and neurotransmitters**
 - D. Neither**
- 3. Which organ is known as a neuroendocrine organ that produces hormones?**
 - A. Adrenal gland**
 - B. Thyroid gland**
 - C. Hypothalamus**
 - D. Ovaries**
- 4. What condition results from inadequate oxygen supply to tissues?**
 - A. Cardiac arrest**
 - B. Ischemia**
 - C. Arrhythmia**
 - D. Angina pectoris**
- 5. What type of feedback mechanisms amplify physiological changes?**
 - A. Negative feedback**
 - B. Positive feedback**
 - C. Corrective feedback**
 - D. Regulatory feedback**

- 6. What substances are released by nerves to affect cells?**
- A. Hormones**
 - B. Enzymes**
 - C. Neurotransmitters**
 - D. Cytokines**
- 7. What is the primary component of blood that contains white blood cells?**
- A. Plasma**
 - B. Platelets**
 - C. Formed elements**
 - D. Red blood cells**
- 8. What percentage of whole blood is made up of red blood cells?**
- A. 38-48%**
 - B. 12-18%**
 - C. 70-80%**
 - D. 50-60%**
- 9. What is transported by blood but is regulated by body functions?**
- A. Oxygen levels**
 - B. Nutrient levels**
 - C. Carbon dioxide levels**
 - D. Waste products**
- 10. Renal failure can be the etiology of anemia. True or False?**
- A. True**
 - B. False**
 - C. Only in severe cases**
 - D. It does not affect anemia**

Answers

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

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Explanations

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1. What is the term for low insulin secretion due to an abnormally slow rate?

- A. Type 1 diabetes**
- B. Type 2 diabetes**
- C. Gestational diabetes**
- D. Metabolic syndrome**

The term for low insulin secretion due to an abnormally slow rate is best described by Type 1 diabetes. In this condition, the body's immune system attacks and destroys the insulin-producing beta cells in the pancreas. This leads to a significant reduction in insulin secretion, which is essential for regulating blood glucose levels. In Type 1 diabetes, the lack of insulin can result in hyperglycemia and associated complications if not managed appropriately, often requiring external insulin administration to maintain proper glucose levels. Understanding the mechanisms behind this condition clarifies the significance of insulin's role in glucose metabolism and how its deficiency leads to the symptoms associated with diabetes. On the other hand, Type 2 diabetes involves insulin resistance and a relative impairment in insulin secretion, rather than a complete lack of insulin production. Gestational diabetes occurs during pregnancy and is characterized by insulin resistance and, in some cases, insufficient insulin secretion, but it is distinct from the chronic conditions represented by Type 1 and Type 2. Metabolic syndrome encompasses a cluster of conditions that increase the risk for heart disease and diabetes but does not directly refer to low insulin secretion.

2. Which of these plays a role in communication and control within the body?

- A. Only hormones**
- B. Only neurotransmitters**
- C. Both hormones and neurotransmitters**
- D. Neither**

Both hormones and neurotransmitters play crucial roles in communication and control within the body. Hormones are chemical messengers secreted into the bloodstream by endocrine glands, which then travel to target organs or tissues, triggering various physiological responses. This system of communication is typically slower and is involved in regulating long-term processes such as growth, metabolism, and reproduction. On the other hand, neurotransmitters are chemicals released by neurons to communicate with other neurons or muscles across synapses. This form of communication occurs very rapidly and is essential for immediate responses, such as muscle contraction and reflexive actions. The combined actions of hormones and neurotransmitters enable the body to coordinate various functions, respond to changes in the environment, and maintain homeostasis. Understanding the distinct yet complementary roles of both systems highlights their significance in the intricate network of bodily communication and control.

3. Which organ is known as a neuroendocrine organ that produces hormones?

- A. Adrenal gland**
- B. Thyroid gland**
- C. Hypothalamus**
- D. Ovaries**

The hypothalamus is considered a neuroendocrine organ because it plays a critical role in the regulation of hormones released from both the pituitary gland and other endocrine structures. It is unique in that it integrates neural input with endocrine function, allowing it to influence various physiological processes through hormonal modulation. The hypothalamus produces several key hormones, such as oxytocin and antidiuretic hormone (ADH), which are then transported to the posterior pituitary gland for release into the bloodstream. Additionally, it secretes releasing and inhibiting hormones that regulate the anterior pituitary's secretion of hormones involved in stress response, growth, metabolism, and reproductive functions. This pivotal role in linking the nervous system and the endocrine system underscores its classification as a neuroendocrine organ. In contrast, while the adrenal gland, thyroid gland, and ovaries are important endocrine glands that produce hormones, they do not have the neuroendocrine characteristics that define the hypothalamus. Each of these organs operates under hormonal control rather than directly integrating neural signals, which distinguishes the hypothalamus's unique function in the body.

4. What condition results from inadequate oxygen supply to tissues?

- A. Cardiac arrest**
- B. Ischemia**
- C. Arrhythmia**
- D. Angina pectoris**

Ischemia is the condition that specifically refers to an insufficient blood supply to a tissue, leading to a lack of oxygen and nutrients required for cellular metabolism and function. This inadequate oxygen supply can result from various factors, such as blockage of blood vessels or reduced blood flow due to constriction. When tissues experience ischemia, they can begin to suffer damage or dysfunction due to oxygen deprivation, which can manifest as pain or other symptoms depending on the affected area. In contrast, while cardiac arrest is a life-threatening condition where the heart fails to pump blood effectively, it is not solely defined by inadequate oxygen supply to tissues. Arrhythmia refers to irregular heartbeats that may or may not affect the oxygen supply to tissues directly, depending on their nature and severity. Angina pectoris involves chest pain due to ischemia specifically related to heart muscle, but it is a symptom rather than the condition itself. Ischemia thus provides the broadest and most direct definition of the inadequate oxygen supply to tissues, making it the most accurate answer.

5. What type of feedback mechanisms amplify physiological changes?

- A. Negative feedback**
- B. Positive feedback**
- C. Corrective feedback**
- D. Regulatory feedback**

Positive feedback mechanisms amplify physiological changes by enhancing the direction of a process rather than opposing it. This type of feedback is characterized by a response that accelerates the output of a process. For instance, during childbirth, the release of oxytocin increases the intensity and frequency of contractions, leading to further release of oxytocin and thus amplifying the contraction process until delivery occurs. This creates a self-perpetuating cycle that continues until a specific outcome is achieved. In contrast, negative feedback mechanisms work to counteract changes and maintain homeostasis by reducing or inhibiting the process in response to a deviation from a set point. Corrective and regulatory feedback do not specifically define the amplification of physiological changes in the same way that positive feedback does, making positive feedback the clear choice for mechanisms that amplify changes.

6. What substances are released by nerves to affect cells?

- A. Hormones**
- B. Enzymes**
- C. Neurotransmitters**
- D. Cytokines**

Neurotransmitters are chemical messengers that are released by nerve cells (neurons) to communicate with other cells, including other neurons, muscle cells, or gland cells. When an electrical impulse travels down a neuron to its terminal, neurotransmitters are released into the synaptic cleft, the space between neurons. These substances bind to specific receptors on the target cell, leading to a response that can include muscle contraction, stimulation of another neuron, or secretion of hormones. This mechanism of neurotransmitter action is fundamental to the functioning of the nervous system, as it allows for rapid and precise communication between cells, enabling everything from reflexes to complex behaviors. The nature and type of neurotransmitters (such as dopamine, serotonin, and acetylcholine) affect various physiological processes and are crucial for maintaining homeostasis in the body. In contrast, hormones are released into the bloodstream by endocrine glands and have effects on distant target cells, enzymes facilitate biochemical reactions but do not serve as communicators between nerve cells, and cytokines are involved in immune responses and signaling between cells in the immune system rather than in direct nerve-to-cell communication.

7. What is the primary component of blood that contains white blood cells?

A. Plasma

B. Platelets

C. Formed elements

D. Red blood cells

The primary component of blood that contains white blood cells is the formed elements. Formed elements refer to the cellular components of blood, which include red blood cells, white blood cells, and platelets. White blood cells, or leukocytes, play a critical role in the immune system by defending the body against infections and foreign substances. Plasma, while being a key component of blood, primarily consists of water, electrolytes, proteins, and waste products, and does not contain cells. Platelets are involved in the blood clotting process and are also part of the formed elements, but they themselves do not contain white blood cells. Red blood cells, primarily responsible for transporting oxygen throughout the body, also do not contain white blood cells within their structure. Therefore, formed elements is the most accurate answer, as it encompasses all the cellular components of blood, including the crucial white blood cells.

8. What percentage of whole blood is made up of red blood cells?

A. 38-48%

B. 12-18%

C. 70-80%

D. 50-60%

The correct percentage of whole blood composed of red blood cells, typically referred to as the hematocrit, is between 38% and 48% for healthy adults. This range reflects the normal physiological conditions in which red blood cells are the most abundant cellular component of blood, playing a crucial role in the transport of oxygen from the lungs to the body's tissues and carbon dioxide from the tissues back to the lungs. The other options such as 12-18%, 70-80%, and 50-60% do not accurately represent the typical hematocrit values. The lower range (12-18%) is more indicative of plasma component percentages or could suggest a pathological condition associated with low red blood cell counts, like anemia. The higher ranges (70-80% and 50-60%) suggest an unrealistic volume of red blood cells in circulation that would likely lead to serious health issues, such as hyperviscosity, which affects blood flow and overall circulation. Understanding these percentages helps in assessing blood health and diagnosing various conditions.

9. What is transported by blood but is regulated by body functions?

- A. Oxygen levels**
- B. Nutrient levels**
- C. Carbon dioxide levels**
- D. Waste products**

The correct answer emphasizes the regulation of nutrient levels in the bloodstream by various physiological processes. Nutrients, such as glucose, amino acids, and lipids, are absorbed from the digestive system and transported through the blood to provide essential energy and building blocks for cells. The regulation of these nutrients is vital for maintaining homeostasis. For instance, blood glucose levels are tightly regulated by hormones like insulin and glucagon, facilitating the storage or release of glucose depending on the body's needs. Similarly, the levels of amino acids and fatty acids in the blood can fluctuate based on dietary intake and metabolic activity. Oxygen and carbon dioxide levels are crucial for respiration, but they are primarily regulated through respiratory processes rather than metabolic regulation typical of nutrients. While waste products are prevalent in the bloodstream and their levels can change based on metabolic activity, their transport does not involve intricate regulatory mechanisms akin to those seen with nutrients. Thus, the dynamic regulation of nutrient levels makes this option the most appropriate choice.

10. Renal failure can be the etiology of anemia. True or False?

- A. True**
- B. False**
- C. Only in severe cases**
- D. It does not affect anemia**

Renal failure can indeed contribute to the development of anemia, primarily due to the kidneys' role in erythropoiesis, which is the production of red blood cells. The kidneys produce erythropoietin (EPO), a hormone that stimulates the bone marrow to produce red blood cells. In cases of renal failure, the damaged kidneys often produce insufficient amounts of erythropoietin, leading to reduced red blood cell production and, consequently, anemia. Additionally, chronic kidney disease can lead to other factors associated with anemia, such as the accumulation of toxins that can suppress the bone marrow, as well as the potential for iron deficiency due to dietary restrictions or blood loss associated with dialysis treatments. Thus, the assertion that renal failure can be the etiology of anemia is accurate, reflecting the critical link between kidney function and the regulation of red blood cell synthesis in the body.

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://asu-bio202exam1.examzify.com>

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