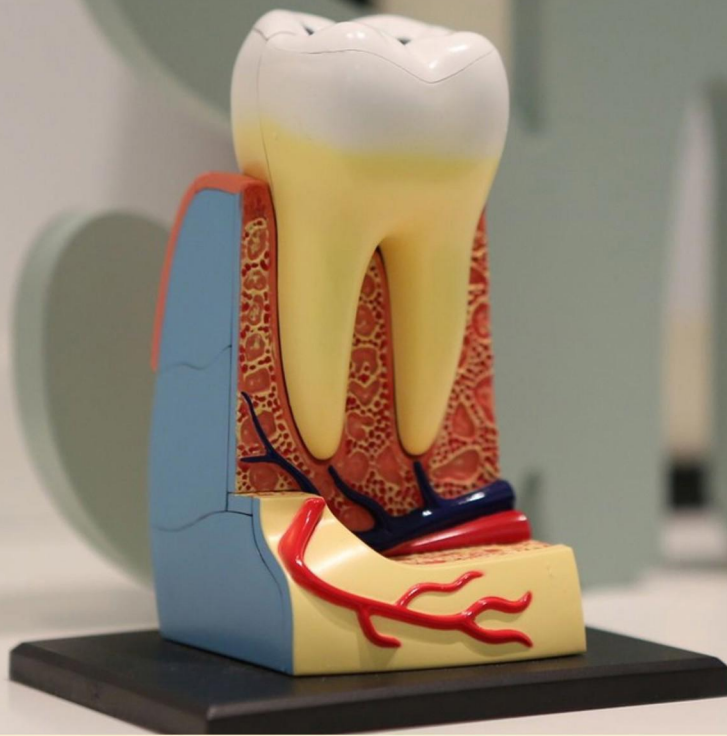


RUTGERS ANATOMY & PHYSIOLOGY II PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

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

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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. What color is biliverdin, and what color is bilirubin?**
 - A. Blue; yellow
 - B. Greenish; orange
 - C. Red; pink
 - D. Yellow; brown

- 2. What is the term for the percentage of red blood cells (RBC) in a blood sample?**
 - A. Plasma volume
 - B. Hematocrit
 - C. Serum fraction
 - D. Red cell mass

- 3. What do T-cells primarily recognize in immune responses?**
 - A. Pathogens
 - B. Antigens on infected cells
 - C. Self-cells only
 - D. Foreign substances only

- 4. Which of the following is NOT a tissue response associated with inflammation?**
 - A. Nearby blood vessels become constricted
 - B. Increased vascular permeability
 - C. Accumulation of neutrophils
 - D. Formation of granulation tissue

- 5. What greenish pigment is formed when hemoglobin molecules are decomposed?**
 - A. Chlorophyll
 - B. Biliverdin
 - C. Myoglobin
 - D. Carotene

- 6. What is the primitive stem cell of spermatogenesis called?**
- A. Spermatid
 - B. Spermatogonia
 - C. Spermatozoa
 - D. Oogonia
- 7. Which type of anemia is most likely caused by overexposure to ionizing radiation?**
- A. Iron-deficiency anemia
 - B. Hemolytic anemia
 - C. Aplastic anemia
 - D. Mineral deficiency anemia
- 8. Which of the following best describes the pH of blood in the human body?**
- A. Highly acidic
 - B. Neutral
 - C. Slightly alkaline
 - D. Highly alkaline
- 9. The formation of lymph increases due to which condition?**
- A. Decreasing blood pressure in arteries
 - B. Increasing osmotic pressure in tissue fluid
 - C. Dehydration of tissues
 - D. Leakage of plasma proteins into the blood
- 10. What is the basic event in the transformation of a blood clot?**
- A. Conversion of fibrinogen to fibrin
 - B. Activation of platelets
 - C. Formation of prothrombinase
 - D. Dissolution of clotting factors

Answers

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

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Explanations

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1. What color is biliverdin, and what color is bilirubin?

- A. Blue; yellow
- B. Greenish; orange**
- C. Red; pink
- D. Yellow; brown

Biliverdin is a green pigment that is produced from the breakdown of heme, a component of hemoglobin in red blood cells. Its color can be described as greenish. When biliverdin is further metabolized, it is converted to bilirubin, which has a yellow to orange color. This transition is important in the process of heme catabolism, and the distinct colors of biliverdin and bilirubin play a role in diagnostics and indicate various physiological states, such as liver function and hemolytic processes. In choosing the correct option, it reflects the natural progression of these pigments in the body and highlights their respective colors: biliverdin being greenish and bilirubin being yellow to orange.

2. What is the term for the percentage of red blood cells (RBC) in a blood sample?

- A. Plasma volume
- B. Hematocrit**
- C. Serum fraction
- D. Red cell mass

The term for the percentage of red blood cells in a blood sample is hematocrit. Hematocrit is a crucial measurement in evaluating blood composition, allowing healthcare providers to assess whether a person has a normal, elevated, or decreased red blood cell volume. This measurement is expressed as a percentage; for example, a hematocrit of 45% means that 45% of the total blood volume consists of red blood cells. The assessment of hematocrit is vital for diagnosing various medical conditions, such as anemia, polycythemia, and other blood-related disorders. It helps indicate the blood's oxygen-carrying capacity, which is especially important in evaluating a person's overall health. The other terms listed, such as plasma volume and serum fraction, refer to different components of blood. Plasma volume pertains to the liquid part of the blood where cells are suspended and does not specifically indicate red blood cells' proportion. Serum fraction relates to the part of blood that remains after coagulation and also does not represent the red cell portion. Red cell mass refers to the total amount of red cells in circulation but does not quantify it as a percentage of the overall blood volume. Hence, hematocrit is the most accurate term for the percentage of red blood

3. What do T-cells primarily recognize in immune responses?

- A. Pathogens
- B. Antigens on infected cells**
- C. Self-cells only
- D. Foreign substances only

T-cells primarily recognize antigens on infected cells, which is central to their function in the immune response. These antigens are typically presented by major histocompatibility complex (MHC) molecules on the surface of cells. Infected cells process and display fragments of pathogens, such as viruses or intracellular bacteria, on their surface using MHC class I molecules for CD8+ cytotoxic T-cells, or MHC class II molecules for CD4+ helper T-cells. This recognition is crucial for T-cells to activate and proliferate in response to a threat. The CD8+ T-cells can directly kill infected host cells, while CD4+ T-cells can help orchestrate other parts of the immune response, including the activation of B-cells and other immune cells. Thus, the ability of T-cells to specifically target and respond to these presented antigens is vital for an effective immune response against infections. While pathogens are indeed the source of these antigens and self-cells can be affected, T-cells do not exclusively recognize pathogens or self-cells independently; rather, their primary role is tied to the recognition of antigens that signal infection. Therefore, identifying and responding to antigens on infected cells is specifically

4. Which of the following is NOT a tissue response associated with inflammation?

- A. Nearby blood vessels become constricted**
- B. Increased vascular permeability
- C. Accumulation of neutrophils
- D. Formation of granulation tissue

In the context of inflammation, nearby blood vessels typically undergo dilation rather than constriction. This vasodilation is crucial as it allows more blood to flow to the affected area, which increases the delivery of essential immune cells, nutrients, and oxygen, facilitating the healing process. Increased vascular permeability is a hallmark of inflammation, allowing plasma proteins and immune cells to exit the circulatory system and enter the site of injury or infection. The accumulation of neutrophils is also characteristic of the inflammatory response, as these white blood cells are among the first responders to sites of infection or injury, helping to eliminate pathogens and debris. Formation of granulation tissue is part of the healing process that occurs after the acute inflammatory phase, involving the growth of new tissue and blood vessels, which helps to repair any damage. In summary, vasodilation is a critical response in inflammation rather than vasoconstriction, making that the correct choice for the question.

5. What greenish pigment is formed when hemoglobin molecules are decomposed?

- A. Chlorophyll
- B. Biliverdin**
- C. Myoglobin
- D. Carotene

The greenish pigment formed when hemoglobin is decomposed is biliverdin. This pigment is a product of the breakdown of heme, which is the iron-containing component of hemoglobin. During the degradation process, heme is converted into biliverdin before it is further reduced to bilirubin, another important pigment that is yellow in color. Biliverdin is significant in the context of the body's natural recycling of red blood cells, where hemoglobin is broken down after the cells reach the end of their lifespan. This conversion is a normal physiological process that occurs in the liver and spleen, and the presence of biliverdin in the body can indicate how efficiently the hemoglobin breakdown pathways are functioning. It is also important in understanding various conditions related to hemolysis, jaundice, and liver function.

6. What is the primitive stem cell of spermatogenesis called?

- A. Spermatid
- B. Spermatogonia**
- C. Spermatozoa
- D. Oogonia

The primitive stem cell of spermatogenesis is known as spermatogonia. These cells are crucial in the male reproductive system as they are the earliest precursor cells from which sperm cells develop. Spermatogonia undergo both mitosis to produce more spermatogonia and meiosis to eventually form spermatids, which later mature into spermatozoa. Spermatogonia are located in the seminiferous tubules of the testes and serve as the foundation for the entire process of sperm production, making them fundamental for male fertility. As differentiating cells, they progress through various stages before becoming mature sperm, emphasizing their role as the starting point in spermatogenesis. In contrast, spermatids and spermatozoa represent later stages in the development of sperm cells. Oogonia, on the other hand, are the female equivalent stem cells involved in oogenesis, which is the process of egg cell development. This distinction underscores the importance of spermatogonia specifically as the primitive stem cells in spermatogenesis.

7. Which type of anemia is most likely caused by overexposure to ionizing radiation?

- A. Iron-deficiency anemia
- B. Hemolytic anemia
- C. Aplastic anemia**
- D. Mineral deficiency anemia

Aplastic anemia is the type of anemia most closely linked to overexposure to ionizing radiation. This condition arises when the bone marrow fails to produce adequate amounts of blood cells, including red blood cells, white blood cells, and platelets. Ionizing radiation can damage the stem cells in the bone marrow, leading to a significant reduction in blood cell production and, consequently, anemia, increased risk of infections, and bleeding tendencies due to low platelet counts. In contrast, iron-deficiency anemia typically results from insufficient iron intake or absorption, leading to a lack of hemoglobin in red blood cells. Hemolytic anemia involves the premature destruction of red blood cells, which can be caused by various factors but not primarily by ionizing radiation. Mineral deficiency anemia can arise from inadequate levels of certain minerals necessary for blood cell production but is not directly associated with radiation damage to the bone marrow. Thus, the unique damaging effects of ionizing radiation on bone marrow stem cells specifically make aplastic anemia the most relevant condition in this context.

8. Which of the following best describes the pH of blood in the human body?

- A. Highly acidic
- B. Neutral
- C. Slightly alkaline**
- D. Highly alkaline

The pH of blood in the human body is typically maintained between 7.35 and 7.45, which categorizes it as slightly alkaline. This range is crucial for various physiological processes, including enzyme activity and oxygen transport. The body has several mechanisms, including the bicarbonate buffer system, respiratory regulation, and renal adjustments, to maintain blood pH within this narrow range. If blood pH were to drift significantly toward the acidic end or the alkaline end, it could lead to serious health complications, thus emphasizing the importance of this slight alkalinity in maintaining homeostasis.

9. The formation of lymph increases due to which condition?

- A. Decreasing blood pressure in arteries
- B. Increasing osmotic pressure in tissue fluid**
- C. Dehydration of tissues
- D. Leakage of plasma proteins into the blood

The correct choice, which states that the formation of lymph increases due to increasing osmotic pressure in tissue fluid, is founded on the principles of fluid balance in the body. Lymph formation is a key component of the body's fluid management system, where excess interstitial fluid is collected and returned to the bloodstream via the lymphatic system. When osmotic pressure in the tissue fluid rises, typically due to the accumulation of proteins, it creates a greater pulling force that draws water from the blood plasma into the interstitial spaces. This process enhances the volume of fluid in the tissues, which subsequently leads to increased lymph formation as the lymphatic vessels work to drain this excess fluid. The lymphatic system aims to maintain homeostasis by regulating fluid levels in tissues, which is crucial for nutrient transport, waste removal, and immune function. Other options do not correctly represent the mechanisms that lead to increased lymph formation. For instance, decreased blood pressure in arteries usually would reduce the filtration rate of fluids from capillaries, thereby decreasing the likelihood of excess fluid formation that could lead to lymph production. Dehydration of tissues generally causes a reduction in interstitial fluid, leading to less lymph formation. Finally, while leakage of plasma proteins into the blood can affect fluid balance,

10. What is the basic event in the transformation of a blood clot?

- A. Conversion of fibrinogen to fibrin**
- B. Activation of platelets
- C. Formation of prothrombinase
- D. Dissolution of clotting factors

The transformation of a blood clot fundamentally involves the conversion of fibrinogen to fibrin. This process is crucial because fibrinogen is a soluble plasma protein that, upon activation through the clotting cascade, is converted into fibrin, which is insoluble. Fibrin threads weave through the platelet plug to create a mesh that stabilizes the clot, effectively sealing the wound to prevent further bleeding. Understanding this transformation highlights the importance of fibrin in the clotting process, as it forms the structural basis of the clot. The activation of platelets, formation of prothrombinase, and dissolution of clotting factors are all important components of hemostasis, but they either occur prior to or as part of the clot formation process. However, the actual event that solidifies and stabilizes the clot is the conversion of fibrinogen to fibrin, making this the key event in the clotting process.

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.

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

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