

# HOSA Biomedical Laboratory Practice Test (Sample)

## Study Guide



**Everything you need from our exam experts!**

**Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.**

**ALL RIGHTS RESERVED.**

**No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.**

**Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.**

**SAMPLE**

# Table of Contents

<b>Copyright</b> .....	<b>1</b>
<b>Table of Contents</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>3</b>
<b>How to Use This Guide</b> .....	<b>4</b>
<b>Questions</b> .....	<b>5</b>
<b>Answers</b> .....	<b>8</b>
<b>Explanations</b> .....	<b>10</b>
<b>Next Steps</b> .....	<b>16</b>

SAMPLE

# 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

SAMPLE

- 1. What is the significance of reticulocytes in a blood test?**
  - A. Indicate normal RBC lifespan**
  - B. Indicate bone marrow activity level**
  - C. Measure hemoglobin concentration**
  - D. Indicate blood pH levels**
  
- 2. What process cuts the number of chromosomes per cell in half?**
  - A. Mitosis**
  - B. Meiosis**
  - C. Fertilization**
  - D. Replication**
  
- 3. Which nucleotide functions primarily as an energy-storing molecule?**
  - A. Guanosine**
  - B. Uridine**
  - C. Adenosine triphosphate (ATP)**
  - D. Cytidine**
  
- 4. Which of the following describes a factor that can impact disease transmission?**
  - A. Environmental temperature**
  - B. Host immunity**
  - C. Pathogen virulence**
  - D. All of the above**
  
- 5. In DNA, which base is paired with the base adenine?**
  - A. Thymine**
  - B. Guanine**
  - C. Cytosine**
  - D. Uracil**

- 6. What condition suggests a red blood cell's inadequate iron levels?**
- A. Microcytic anemia**
  - B. Hemolytic anemia**
  - C. Hypochromic anemia**
  - D. Peritubular anemia**
- 7. Which component is not typically found in serum?**
- A. Clotting factors**
  - B. Electrolytes**
  - C. Proteins**
  - D. Water**
- 8. What term describes unicellular organisms that can cause disease?**
- A. Viruses**
  - B. Fungi**
  - C. Bacteria**
  - D. Parasites**
- 9. Which type of respiration is less efficient and often occurs in conditions with low oxygen?**
- A. Aerobic respiration**
  - B. Anaerobic respiration**
  - C. Cellular respiration**
  - D. Photorespiration**
- 10. Parasites that cause harm to their host are typically referred to as what?**
- A. Hostile organisms**
  - B. Commensals**
  - C. Pathogens**
  - D. Infectious agents**

## Answers

SAMPLE

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

SAMPLE

## **Explanations**

SAMPLE

## 1. What is the significance of reticulocytes in a blood test?

- A. Indicate normal RBC lifespan
- B. Indicate bone marrow activity level**
- C. Measure hemoglobin concentration
- D. Indicate blood pH levels

Reticulocytes are immature red blood cells that are released into the bloodstream from the bone marrow. Their significance in a blood test lies primarily in their ability to indicate the activity level of the bone marrow. When the bone marrow is producing red blood cells at an increased rate, often in response to anemia or blood loss, the number of reticulocytes in the blood will rise. Therefore, measuring the level of reticulocytes can provide valuable insight into how well the bone marrow is functioning and whether it is responding adequately to the body's needs for red blood cells. In contrast, options that suggest measuring hemoglobin concentration, indicating normal RBC lifespan, or assessing blood pH levels do not accurately relate to the role of reticulocytes in blood testing. Hemoglobin concentration is assessed through different parameters, while RBC lifespan is determined through other methods, and blood pH levels are measured with specific tests unrelated to reticulocyte counts. Thus, reticulocytes serve as a crucial marker for evaluating bone marrow activity and red blood cell production.

## 2. What process cuts the number of chromosomes per cell in half?

- A. Mitosis
- B. Meiosis**
- C. Fertilization
- D. Replication

Meiosis is the process that reduces the chromosome number by half, creating gametes (sperm and egg cells) in sexually reproducing organisms. This reduction is essential for maintaining the species' chromosome number across generations. During meiosis, a single diploid cell undergoes two successive divisions—meiosis I and meiosis II. In meiosis I, homologous chromosomes pair up and are separated into different cells. Each resulting cell is haploid, containing half the original number of chromosomes. Meiosis II then separates the sister chromatids, but the critical reduction in chromosome number occurs during the first division. This ensures that when fertilization occurs, the resulting zygote has the correct diploid chromosome number, restoring the full set. The other processes listed do not lead to a reduction in chromosome number. Mitosis is the division of a single cell into two identical daughter cells, maintaining the same chromosome number. Fertilization is the union of two gametes, restoring the diploid number but not changing the number itself. Replication involves the copying of DNA but does not alter the number of chromosomes in a cell.

**3. Which nucleotide functions primarily as an energy-storing molecule?**

- A. Guanosine**
- B. Uridine**
- C. Adenosine triphosphate (ATP)**
- D. Cytidine**

Adenosine triphosphate (ATP) is the primary energy carrier in all living cells. It is composed of an adenosine molecule bonded to three phosphate groups. The key aspect of ATP's function as an energy-storing molecule lies in the high-energy bonds between the phosphate groups. When ATP is hydrolyzed to adenosine diphosphate (ADP) and inorganic phosphate (Pi), a significant amount of energy is released, which can then be utilized by the cell for various metabolic processes, including muscle contraction, protein synthesis, and other biochemical reactions essential for maintaining cellular function. The other choices refer to different nucleotides that do not serve the same primary role as energy carriers. Guanosine also plays a role in cellular energy transfer but is less prominent than ATP. Uridine and cytidine serve as building blocks for RNA but do not primarily function as energy-storing molecules. Thus, ATP stands out uniquely for its role as the main energy currency of the cell.

**4. Which of the following describes a factor that can impact disease transmission?**

- A. Environmental temperature**
- B. Host immunity**
- C. Pathogen virulence**
- D. All of the above**

All of the options listed—environmental temperature, host immunity, and pathogen virulence—play significant roles in influencing how diseases are transmitted. Environmental temperature can affect both the pathogen's survival and the host's susceptibility. For certain pathogens, warmer temperatures may enhance their reproduction and transmission rates, while extreme temperatures might limit their spread. Host immunity refers to the individual's ability to resist infection. A person with a robust immune response is less likely to contract or spread a disease, while immunocompromised individuals can facilitate more effective transmission of pathogens due to their reduced ability to fight infections. Pathogen virulence indicates the degree of damage a pathogen can inflict on its host. Highly virulent pathogens tend to spread more rapidly and cause more severe disease, which can influence transmission rates significantly. The interplay among these factors demonstrates that they collectively contribute to how diseases spread within populations. Therefore, the answer indicating all of the above factors is accurate, as each one is a key determinant in the dynamics of disease transmission.

**5. In DNA, which base is paired with the base adenine?**

- A. Thymine**
- B. Guanine**
- C. Cytosine**
- D. Uracil**

In DNA, adenine pairs with thymine through two hydrogen bonds. This pairing is a fundamental aspect of the structure of DNA, known as complementary base pairing, which ensures the accurate replication of genetic information during cell division. The specific pairing between adenine and thymine is crucial for maintaining the double helix structure of DNA. Guanine and cytosine, while both important bases in DNA and paired together, do not interact with adenine. Similarly, uracil is found in RNA instead of DNA; it replaces thymine in the RNA structure. Therefore, the correct base pairing for adenine in the context of DNA is with thymine, which maintains the integrity and stability of the genetic material.

**6. What condition suggests a red blood cell's inadequate iron levels?**

- A. Microcytic anemia**
- B. Hemolytic anemia**
- C. Hypochromic anemia**
- D. Peritubular anemia**

The condition that indicates inadequate iron levels within red blood cells is hypochromic anemia. This type of anemia is characterized by the presence of red blood cells that are paler than normal due to a deficiency in hemoglobin, which is often a result of insufficient iron. Hemoglobin is the protein in red blood cells responsible for transporting oxygen throughout the body. When iron levels are low, the synthesis of hemoglobin is impaired, leading to the hypochromic appearance of the cells. Microcytic anemia is also related to iron deficiency and presents with smaller than normal red blood cells, but hypochromic anemia specifically highlights the pale color associated with inadequate hemoglobin content. Hemolytic anemia arises from the destruction of red blood cells, and peritubular anemia is not a recognized term in this context. Therefore, hypochromic anemia is the most accurate choice when referring specifically to red blood cells with inadequate iron levels.

**7. Which component is not typically found in serum?**

- A. Clotting factors**
- B. Electrolytes**
- C. Proteins**
- D. Water**

Serum is the clear fluid that remains after blood has clotted and the cells and clotting factors have been removed. Clotting factors, such as fibrinogen, are proteins involved in the coagulation process to help blood clot. Since serum is derived from blood that has been allowed to clot, it does not contain these clotting factors. In contrast, electrolytes (such as sodium, potassium, calcium), proteins (including albumin and globulins), and water are all components typically found in serum. Electrolytes play crucial roles in maintaining fluid balance and other physiological functions, proteins serve various roles including transport and immune response, and water makes up a significant portion of the serum's composition. Therefore, the absence of clotting factors in serum is what distinguishes it from other components of whole blood.

**8. What term describes unicellular organisms that can cause disease?**

- A. Viruses**
- B. Fungi**
- C. Bacteria**
- D. Parasites**

The term that describes unicellular organisms that can cause disease is bacteria. Bacteria are single-celled microorganisms that can thrive in various environments and play diverse roles in their ecosystems. While many bacteria are harmless or beneficial, some species have pathogenic capabilities and can lead to diseases in humans, animals, and plants. They do this through various mechanisms, including producing toxins or invading host tissues. In the context of this question, other choices include viruses, which are not considered unicellular organisms as they require a host cell to replicate and do not possess cellular structures. Fungi consist of single-celled or multicellular organisms, but many fungi are not unicellular or do not fit the primary definition of causing disease in the same way as bacteria. Parasites, while capable of causing disease, typically refer to multicellular organisms that depend on a host for survival, distinguishing them from the strictly unicellular nature of bacteria.

**9. Which type of respiration is less efficient and often occurs in conditions with low oxygen?**

- A. Aerobic respiration**
- B. Anaerobic respiration**
- C. Cellular respiration**
- D. Photorespiration**

Anaerobic respiration is the correct answer because it occurs in environments where oxygen is either absent or present in very low quantities. This process allows organisms, such as certain bacteria and yeast, to produce energy through the breakdown of glucose without the need for oxygen. However, it is less efficient than aerobic respiration, which utilizes oxygen to fully oxidize glucose and yields a higher amount of ATP (energy currency of the cell). In anaerobic respiration, only a minimal amount of ATP is produced from each glucose molecule compared to aerobic processes. Additionally, anaerobic respiration typically results in byproducts such as lactic acid or ethanol, which can accumulate and cause issues in cells if not removed. This understanding highlights the efficiency differences between aerobic and anaerobic respiration, particularly in response to oxygen availability. While cellular respiration comprises both aerobic and anaerobic pathways, it does not specifically refer to the less efficient process alone. Photorespiration, which occurs in plants, involves the fixation of oxygen instead of carbon dioxide, leading to wasted energy; however, it is unrelated to the efficiency comparison of respiration types in low oxygen conditions.

**10. Parasites that cause harm to their host are typically referred to as what?**

- A. Hostile organisms**
- B. Commensals**
- C. Pathogens**
- D. Infectious agents**

Parasites that cause harm to their host are referred to as pathogens because they actively disrupt the normal functions of the host's body and can lead to disease or adverse effects. Pathogens can include various organisms like bacteria, viruses, fungi, and parasites that invade a host and elicit an immune response, ultimately leading to illness. This term emphasizes the harmful nature of the organisms involved, as opposed to other classifications like commensals, which typically live in harmony with their hosts without causing damage. While the term "infectious agents" might describe something that can cause infections, it is a broader category that doesn't necessarily focus on the harmful impact, making it less precise in this context. Hostile organisms is not a standard biological term used to describe harmful parasites, and thus it lacks the specificity needed to accurately reflect the nature of these organisms. Therefore, "pathogens" is the most accurate and widely accepted term for parasites that are harmful to their hosts.

## 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://hosabiomedlab.examzify.com>**

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

SAMPLE