

HOSA Biotechnology Practice Test (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 do Good Laboratory Practices (GLP) ensure?**
 - A. Product marketing strategies**
 - B. Non-clinical and detailed guidelines**
 - C. Project timelines and deadlines**
 - D. Financial allocations**
- 2. Where are proteins synthesized in the cell?**
 - A. Nucleus**
 - B. Mitochondria**
 - C. Ribosomes**
 - D. Lysosomes**
- 3. What is the primary use of microcentrifuge tubes?**
 - A. To hold samples during centrifugation**
 - B. To mix chemicals**
 - C. To measure pH levels**
 - D. To store solid samples**
- 4. Which laboratory tool is primarily used for combining liquids and stirring materials?**
 - A. Test tube rack**
 - B. Stirring rod**
 - C. Transfer pipet**
 - D. Centrifuge**
- 5. Which type of pipet is considered less accurate than a volumetric pipet?**
 - A. Graduated Pipet**
 - B. Micropipet**
 - C. Medicine Dropper**
 - D. Inoculating Loop**
- 6. What is the purpose of a test tube rack in a laboratory?**
 - A. To measure the temperature of liquids**
 - B. To hold test tubes securely**
 - C. To dispense chemicals**
 - D. To filter solutions**

- 7. What is the most common container used for measuring volume in labs?**
- A. Beaker**
 - B. Volumetric flask**
 - C. Graduated cylinder**
 - D. Pipette**
- 8. What key topics should safety training cover?**
- A. Biohazards, transportation, and nutrition**
 - B. Biohazards, fire safety, and machinery**
 - C. First aid, machinery, and transportation**
 - D. Workplace policies, fire safety, and health**
- 9. Which of the following best describes polymers?**
- A. Single cellular units**
 - B. Compounds containing only carbon**
 - C. Chains of monomers linked together**
 - D. Small organic molecules**
- 10. Which organization is known as the Food and Drug Administration?**
- A. EPA**
 - B. FDA**
 - C. USDA**
 - D. WHO**

Answers

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

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Explanations

1. What do Good Laboratory Practices (GLP) ensure?

- A. Product marketing strategies
- B. Non-clinical and detailed guidelines**
- C. Project timelines and deadlines
- D. Financial allocations

Good Laboratory Practices (GLP) are a set of principles intended to ensure the quality and integrity of non-clinical laboratory studies. These guidelines cover various aspects, including the organization, personnel, procedures, and equipment used in laboratory environments. By adhering to GLP, laboratories can ensure that data generated during experiments is reliable and reproducible, which is essential for regulatory submissions and for protecting public health and safety. This rigorous framework helps in maintaining high standards in research, ultimately providing a detailed approach to conducting non-clinical studies. Other options like product marketing strategies, project timelines and deadlines, and financial allocations are not within the scope of GLP. These aspects pertain to different areas of business management and marketing rather than laboratory practices, which are primarily focused on ensuring the validity and reliability of scientific data. Therefore, GLP's connection to non-clinical and detailed guidelines is what makes it the correct answer.

2. Where are proteins synthesized in the cell?

- A. Nucleus
- B. Mitochondria
- C. Ribosomes**
- D. Lysosomes

Proteins are synthesized in the ribosomes, which are the cellular machinery responsible for translating messenger RNA (mRNA) into polypeptide chains, ultimately folding them into functional proteins. Ribosomes can be found either floating freely in the cytoplasm or bound to the endoplasmic reticulum, which contributes to the rough appearance and is involved in the synthesis of proteins destined for secretion or for use in the cell membrane. The nucleus, while crucial for the transcription of DNA into mRNA, does not participate directly in protein synthesis. Instead, it is the site where the genetic information is stored and where the initial steps of gene expression occur. Mitochondria, known as the powerhouse of the cell, primarily focus on energy production through ATP synthesis, and while they do have some ribosomes for synthesizing a small number of their own proteins, they are not the main site for protein synthesis. Lysosomes, on the other hand, are involved in the breakdown of cellular waste and do not play a role in synthesizing proteins. Thus, ribosomes are the correct and primary location for protein synthesis in the cell.

3. What is the primary use of microcentrifuge tubes?

A. To hold samples during centrifugation

B. To mix chemicals

C. To measure pH levels

D. To store solid samples

Microcentrifuge tubes are primarily designed to hold samples during centrifugation. They are specifically manufactured to withstand the forces generated during this process, ensuring that the samples remain secure and undisturbed as they are spun at high speeds. The shape and material of these tubes allow for efficient separation of components within the sample based on their densities, making them an essential tool in molecular biology, biochemistry, and various laboratory applications. While microcentrifuge tubes can be used to mix chemicals, that is not their primary designed function. Their effectiveness in centrifugation is what distinguishes them in laboratory settings. Additionally, microcentrifuge tubes are not typically employed for measuring pH levels or for storing solid samples, tasks which are more suitable for other types of containers. Therefore, their primary use remains focused on providing a reliable environment for sample processing during centrifugation.

4. Which laboratory tool is primarily used for combining liquids and stirring materials?

A. Test tube rack

B. Stirring rod

C. Transfer pipet

D. Centrifuge

The stirring rod is specifically designed to combine liquids and stir materials in laboratory settings. It is typically made of glass or plastic and serves the purpose of mixing substances effectively without introducing contaminants or reacting with the materials being stirred. By facilitating uniform mixing, a stirring rod is essential for experiments requiring homogenization of liquid solutions or suspensions. In contrast, other tools have distinct primary functions. A test tube rack is primarily used to hold test tubes in an upright position, providing organization but not functionality for mixing. A transfer pipet is designed for transferring small volumes of liquids but does not combine them actively. A centrifuge, on the other hand, is used to separate components in a mixture based on density, which does not involve stirring but rather spinning the samples at high speeds to achieve separation. Thus, the stirring rod's role in mixing makes it the most appropriate choice for the question asked.

5. Which type of pipet is considered less accurate than a volumetric pipet?

- A. Graduated Pipet**
- B. Micropipet**
- C. Medicine Dropper**
- D. Inoculating Loop**

A graduated pipet is considered less accurate than a volumetric pipet due to its design and functionality. Graduated pipets have multiple markings along the length of the pipet, allowing for the measurement of a range of volumes. However, this design means that they are generally less precise than volumetric pipets, which are designed to measure a single, specific volume with a high degree of accuracy. Volumetric pipets have a bulge in the center that allows for the measurement of a fixed volume accurately, with minimal error. In contrast, graduated pipets can introduce variability due to the need for careful readings at different volumetric markings, which can lead to misinterpretation, especially if meniscus readings are not done correctly. Other choices, such as a micropipet and a medicine dropper, do have their specific uses; micropipets are designed for small, precise volumes but are still considered less precise compared to volumetric pipets for larger volumes. A medicine dropper is generally used for dispensing small amounts of liquid without accurate measurement. An inoculating loop, on the other hand, is an entirely different tool used primarily in microbiology for transferring microorganisms, and it is not used for liquid measurement. Thus, the graduated pipet

6. What is the purpose of a test tube rack in a laboratory?

- A. To measure the temperature of liquids**
- B. To hold test tubes securely**
- C. To dispense chemicals**
- D. To filter solutions**

A test tube rack plays a crucial role in a laboratory setting by providing a stable and secure platform for holding test tubes. This accessory is particularly important because it allows multiple test tubes to be organized and easily reachable, preventing them from rolling or tipping over. The design of a test tube rack typically includes holes or slots specifically sized to accommodate standard test tube dimensions, ensuring that the test tubes are held upright. This is essential for safely conducting experiments, as it helps avoid spills and contamination between samples. Additionally, the stability provided by a test tube rack supports safe handling during experiments, particularly when combining chemicals, performing reactions, or during heating processes. Overall, having a dedicated place for test tubes not only maintains an orderly workspace but also enhances the efficiency and safety of laboratory procedures.

7. What is the most common container used for measuring volume in labs?

- A. Beaker**
- B. Volumetric flask**
- C. Graduated cylinder**
- D. Pipette**

The graduated cylinder is the most common container used for measuring volume in laboratories due to its design and precision. It has a tall, narrow shape with markings that allow for accurate readings of liquid volumes. The scale on a graduated cylinder provides clear metrics for measuring a range of volumes, making it suitable for various experimental needs. It typically offers better precision than a beaker, as beakers are primarily used for mixing and holding liquid rather than for precise measurements. Volumetric flasks are designed for preparing solutions at specific volumes but are not typically used for measuring variable volumes in routine lab work. Pipettes provide a method for transferring precise volumes of liquid, but they are specialized tools and not used for measuring larger volumes directly as a graduated cylinder can. Hence, the graduated cylinder serves as a reliable and accurate choice for volume measurement in lab settings.

8. What key topics should safety training cover?

- A. Biohazards, transportation, and nutrition**
- B. Biohazards, fire safety, and machinery**
- C. First aid, machinery, and transportation**
- D. Workplace policies, fire safety, and health**

The focus on biohazards, fire safety, and machinery in safety training is vital due to the potential risks involved in many workplaces, particularly in fields like biotechnology. Biohazards are a significant concern in settings where biological materials are handled. Training on biohazard safety equips individuals with the knowledge to handle, store, and dispose of these materials responsibly, reducing the risk of contamination or exposure to harmful agents. Fire safety is critical in any workplace, especially in laboratories and manufacturing areas where flammable materials may be present. Training in this area typically includes understanding fire prevention strategies, knowing how to respond to a fire emergency, and familiarization with fire extinguishing equipment, which are crucial for protecting life and property. Machinery training is essential as many jobs involve operating complex equipment. Proper training ensures that individuals understand the safe operation of machinery, including potential hazards, proper maintenance, and emergency shut-down procedures. The significance of these topics makes option B the most comprehensive and relevant choice for a safety training program, addressing key areas where risks can arise and highlighting the need for proactive safety measures in the workplace.

9. Which of the following best describes polymers?

- A. Single cellular units
- B. Compounds containing only carbon
- C. Chains of monomers linked together**
- D. Small organic molecules

Polymers are large molecules that consist of repeating structural units called monomers, which are covalently bonded to form long chains. This chain-like structure is what defines a polymer, as they are formed through polymerization processes that link many monomer units together. Examples include proteins (which are polymers of amino acids), nucleic acids (polymers of nucleotides), and synthetic substances like plastics (which can be made from various types of monomers). The other options do not accurately capture the definition of polymers. Single cellular units refer to individual cells, not chains of linked monomers, while compounds containing only carbon would specifically describe hydrocarbons or organic compounds but exclude the broader category of polymers that can also contain other elements. Lastly, small organic molecules lack the complexity and structural characteristics that define polymers, as they typically refer to simpler structures rather than long chains of monomers.

10. Which organization is known as the Food and Drug Administration?

- A. EPA
- B. FDA**
- C. USDA
- D. WHO

The organization known as the Food and Drug Administration is the FDA. This agency is a key component of the U.S. Department of Health and Human Services and is responsible for protecting public health through the regulation of food safety, pharmaceuticals, medical devices, cosmetics, and other products. The FDA ensures that these products are safe, effective, and secure for consumers. In contrast, the other organizations listed have different roles; for instance, the EPA (Environmental Protection Agency) focuses on environmental protection and regulations. The USDA (United States Department of Agriculture) is primarily concerned with farming, agriculture, and food safety in terms of agricultural products, but it does not directly oversee drugs or medical devices. The WHO (World Health Organization) operates at a global level to coordinate health issues and respond to international public health crises but is not involved in the direct regulation of food and drugs in the United States.

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://hosabiotechnology.examzify.com>

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