

AC-HPAT Biology Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

This is a sample study guide. To access the full version with hundreds of 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. Don't worry about getting everything right, 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, and take breaks to retain information better.

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.

7. Use Other Tools

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!

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Questions

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- 1. What is the primary function of the larynx in the respiratory system?**
 - A. Filter air**
 - B. Connect pharynx to trachea**
 - C. Moisten air**
 - D. Produce sound**

- 2. Which tissue type is the xylem primarily composed of?**
 - A. Living tissue with nuclei**
 - B. Dead tissue at maturity**
 - C. Active living cells**
 - D. Storage cells**

- 3. In eukaryotic organisms, the term haploid refers to what?**
 - A. A cell with two sets of chromosomes**
 - B. A cell with half the usual number of chromosomes**
 - C. A dominant genetic trait**
 - D. A cell undergoing mitosis**

- 4. What type of light has a wavelength longer than that of X-rays?**
 - A. Infrared radiation**
 - B. Ultraviolet radiation**
 - C. Visible light**
 - D. Microwaves**

- 5. What circulatory element transports deoxygenated blood from the heart to the lungs?**
 - A. Aorta**
 - B. Pulmonary vein**
 - C. Pulmonary artery**
 - D. Superior vena cava**

6. What is the primary function of lysosomes in a cell?

- A. Production of energy through cellular respiration**
- B. Digestion of excess or worn-out organelles and waste removal**
- C. Synthesis and modification of proteins**
- D. Storage of nutrients and structural support**

7. What characterizes constipation?

- A. Frequent watery bowel movements**
- B. Infrequent or hard-to-pass bowel movements**
- C. Painful urination**
- D. Excessive gas production**

8. What distinguishes mitosis from meiosis?

- A. Mitosis occurs only in plant cells**
- B. Meiosis leads to genetic variation**
- C. Mitosis is focused on sex cell division**
- D. Meiosis involves identical cell replication**

9. Which substance is commonly linked to mercury poisoning?

- A. Bread products**
- B. Methyl mercury from seafood**
- C. Excessive alcohol consumption**
- D. Processed meats**

10. Which of the following is NOT a type of macromolecule?

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

Answers

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

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Explanations

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1. What is the primary function of the larynx in the respiratory system?

- A. Filter air**
- B. Connect pharynx to trachea**
- C. Moisten air**
- D. Produce sound**

The primary function of the larynx in the respiratory system is to connect the pharynx to the trachea, serving as a vital passageway for airflow between these two structures. The larynx not only provides this connection but also plays a crucial role in protecting the airway during swallowing by preventing food and liquids from entering the trachea. While it facilitates the flow of air to the lungs, it also houses the vocal cords, which are involved in sound production, but this feature is secondary to its function as a conduit in the respiratory tract. Therefore, recognizing the larynx as the bridge between the pharynx and trachea highlights its essential role in respiratory anatomy and function.

2. Which tissue type is the xylem primarily composed of?

- A. Living tissue with nuclei**
- B. Dead tissue at maturity**
- C. Active living cells**
- D. Storage cells**

The xylem is primarily composed of dead tissue at maturity, which plays a crucial role in the transport of water and minerals from the roots to the rest of the plant. The main components of xylem tissue include tracheids and vessel elements, both of which are specialized for efficient water conduction. These cells lose their living contents and become hollow at maturity, allowing for the unimpeded flow of water. The presence of dead cells is advantageous because it enables the xylem to handle the pressure and tension generated during water transport without the risk of collapse. The rigidity of the cell walls also provides structural support to the plant. In contrast, living tissues, active living cells, or storage cells do not fulfill the specific functions associated with xylem, making them less relevant in this context. The primary role of xylem is to facilitate water transport and provide support, which is effectively achieved through its composition of dead tissue at maturity.

3. In eukaryotic organisms, the term haploid refers to what?

- A. A cell with two sets of chromosomes**
- B. A cell with half the usual number of chromosomes**
- C. A dominant genetic trait**
- D. A cell undergoing mitosis**

In eukaryotic organisms, the term haploid specifically refers to a cell that contains half the usual number of chromosomes. This is especially significant during sexual reproduction, where haploid cells, such as gametes (sperm and egg cells), are produced through the process of meiosis. In humans and many other eukaryotes, diploid cells typically have two sets of chromosomes (one set from each parent). When these diploid cells undergo meiosis, they generate haploid cells, which are essential for maintaining the stability of chromosome number across generations once fertilization occurs. This context highlights the importance of haploidy in reproduction and genetic diversity, setting it apart from diploid cells, dominant genetic traits, or the processes involved in mitosis, which deal with the replication and division of cells without changing their chromosome number.

4. What type of light has a wavelength longer than that of X-rays?

- A. Infrared radiation**
- B. Ultraviolet radiation**
- C. Visible light**
- D. Microwaves**

X-rays are a type of electromagnetic radiation with very short wavelengths, typically ranging from about 0.01 to 10 nanometers. To determine which type of light has a wavelength longer than that of X-rays, it's important to understand the electromagnetic spectrum and the relative wavelengths of different types of radiation. Infrared radiation has a longer wavelength than X-rays, ranging from about 700 nanometers to 1 millimeter. Microwaves also have longer wavelengths, typically ranging from 1 millimeter to 1 meter. Visible light is positioned between ultraviolet radiation and infrared radiation in the spectrum, with wavelengths from approximately 400 to 700 nanometers. Ultraviolet radiation, on the other hand, has shorter wavelengths than visible light, ranging from about 10 to 400 nanometers. Therefore, while it is important to understand the positions of all these types of light in the electromagnetic spectrum, the correct response identifies that infrared radiation, visible light, and microwaves all have longer wavelengths than X-rays, making them suitable candidates when searching for radiation types beyond X-rays in terms of wavelength.

5. What circulatory element transports deoxygenated blood from the heart to the lungs?

- A. Aorta**
- B. Pulmonary vein**
- C. Pulmonary artery**
- D. Superior vena cava**

The pulmonary artery is responsible for transporting deoxygenated blood from the heart to the lungs. This process is crucial for oxygenation; when the heart pumps, the right ventricle sends deoxygenated blood into the pulmonary arteries. These arteries then carry the blood to the lungs, where carbon dioxide is exchanged for oxygen. In this circulatory process, the pulmonary artery is distinct from the aorta, which carries oxygenated blood from the heart to the rest of the body. The pulmonary vein, on the other hand, carries oxygenated blood back from the lungs to the heart. The superior vena cava brings deoxygenated blood from the upper body back to the heart, specifically into the right atrium, but it does not transport it to the lungs. Thus, the role of the pulmonary artery in delivering deoxygenated blood to the lungs for re-oxygenation is essential for maintaining efficient gas exchange and overall bodily function.

6. What is the primary function of lysosomes in a cell?

- A. Production of energy through cellular respiration**
- B. Digestion of excess or worn-out organelles and waste removal**
- C. Synthesis and modification of proteins**
- D. Storage of nutrients and structural support**

Lysosomes play a critical role in cellular maintenance and waste management. Their primary function is to digest excess or worn-out organelles, as well as to break down waste materials, including macromolecules and cellular debris. They contain a variety of hydrolytic enzymes that are capable of breaking down proteins, lipids, carbohydrates, and nucleic acids. This digestive capability allows lysosomes to recycle cellular components, providing materials that can be reused by the cell, and helps in eliminating potentially harmful substances. The proper functioning of lysosomes is vital for maintaining cellular health and homeostasis, and a dysfunction can lead to various diseases, often related to the accumulation of waste within cells.

7. What characterizes constipation?

- A. Frequent watery bowel movements
- B. Infrequent or hard-to-pass bowel movements**
- C. Painful urination
- D. Excessive gas production

Constipation is primarily characterized by infrequent bowel movements and the difficulty in passing stools, which can often be hard and dry. This condition commonly occurs when the large intestine absorbs too much water from the food waste as it moves through the digestive tract. Ideally, a person should have bowel movements at least three times a week; anything less may be considered a sign of constipation. The hardness of the stools and the discomfort associated with attempting to pass them are critical indicators. These symptoms can lead to straining and discomfort, making it an important health issue to address. In contrast, characteristics like frequent watery bowel movements, painful urination, and excessive gas production relate more to different gastrointestinal or urinary issues, not constipation itself. Understanding these distinctions is essential for recognizing and dealing with digestive health effectively.

8. What distinguishes mitosis from meiosis?

- A. Mitosis occurs only in plant cells
- B. Meiosis leads to genetic variation**
- C. Mitosis is focused on sex cell division
- D. Meiosis involves identical cell replication

The distinction that makes the correct answer significant lies in the role of meiosis in increasing genetic variability in the resulting gametes. Meiosis is a specialized form of cell division that occurs in the production of gametes (sperm and eggs) and introduces genetic diversity through processes such as crossing over and independent assortment of chromosomes. This genetic variability is crucial for evolution and adaptation in sexually reproducing organisms. In contrast, mitosis is a form of cell division that results in two identical daughter cells, serving primarily for growth, repair, and asexual reproduction. Mitosis does not contribute significantly to genetic variation, as the daughter cells are clones of the parent cell. Understanding this fundamental difference highlights the importance of meiosis in sexual reproduction and its evolutionary significance.

9. Which substance is commonly linked to mercury poisoning?

- A. Bread products**
- B. Methyl mercury from seafood**
- C. Excessive alcohol consumption**
- D. Processed meats**

Methyl mercury from seafood is commonly linked to mercury poisoning due to the bioaccumulation of this toxic compound in aquatic food chains. Mercury is released into the environment through industrial processes and can settle in water bodies, where it is converted by bacteria into methyl mercury, a more toxic form. Fish and other seafood absorb this methyl mercury from their environment. As larger fish consume smaller fish, the concentration of methyl mercury increases, a phenomenon known as biomagnification. When humans consume contaminated seafood, they can incur high levels of methyl mercury, which accumulates in the body and can lead to serious health issues, including neurological damage and developmental problems in fetuses and young children. Thus, the link between methyl mercury in seafood and mercury poisoning is well-established in toxicology and public health contexts.

10. Which of the following is NOT a type of macromolecule?

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

Glucose is not considered a type of macromolecule; it is classified as a simple sugar or monosaccharide. Macromolecules are typically large and complex molecules made up of smaller units called monomers. The four main types of macromolecules in biological systems are proteins, nucleic acids (like DNA and RNA), carbohydrates (where glucose falls as a building block), and lipids. Proteins are composed of amino acids linked by peptide bonds and serve various functions, including as enzymes and structural components. Nucleic acids consist of nucleotide monomers and are essential for storing and transmitting genetic information. Lipids are hydrophobic molecules that play roles in energy storage, membrane structure, and signaling. In contrast, glucose, as a monosaccharide, is a small molecule that serves as an energy source and building block for larger carbohydrates, such as starch and glycogen. Since glucose does not meet the criteria of being a large, complex macromolecule, it is appropriately identified as the answer in this question.

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://achpatbiology.examzify.com>

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

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