

ALGONQUIN COLLEGE HEALTH PROGRAM ASSESSMENT (AC- HPAT) PRACTICE EXAM (SAMPLE) STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. At what pH range is gastric acid maintained?**
 - A. 7-8
 - B. 4-5
 - C. 1-3
 - D. 0-1

- 2. What is the purpose of mucus in the trachea?**
 - A. To regulate air pressure
 - B. To trap foreign particles
 - C. To lubricate the trachea
 - D. To enhance oxygen absorption

- 3. The mass of an atom is primarily contributed by its?**
 - A. Electrons
 - B. Nucleus
 - C. Protons only
 - D. Neutrons only

- 4. Which gas is crucial to all the body's cells?**
 - A. Carbon dioxide
 - B. Nitrogen
 - C. Hydrogen
 - D. Oxygen

- 5. Which statement about the relationship between genotype and phenotype is true?**
 - A. Genotype is always expressed as the phenotype
 - B. Phenotype results from the interaction of genotype with the environment
 - C. Genotype has no influence on the phenotype
 - D. Phenotype determines genetic outcomes

- 6. What is the main purpose of respiration?**
 - A. To create energy
 - B. To sustain life
 - C. To expel carbon dioxide
 - D. To maintain body temperature

7. What is the genotype of an organism?

- A. The observable characteristics resulting from environmental interactions
- B. The genetic makeup determining an organism's traits
- C. The process by which traits are expressed in phenotypes
- D. The sum of all genes present in an ecosystem

8. Which of the following best describes the relationship between grams and moles?

- A. Grams measure volume, while moles measure mass
- B. Grams measure mass, while moles measure quantity of particles
- C. Both grams and moles measure mass
- D. Moles measure temperature, grams measure pressure

9. What is a chromatid?

- A. A strand of DNA that has no function in cell division
- B. Each of the two threads into which a chromosome divides during cell division
- C. A small protein that assists in DNA replication
- D. A type of RNA involved in protein formation

10. What is the charge of an electron?

- A. Neutral
- B. Positively charged
- C. Negatively charged
- D. Varies with its state

Answers

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

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Explanations

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1. At what pH range is gastric acid maintained?

- A. 7-8
- B. 4-5
- C. 1-3**
- D. 0-1

Gastric acid, primarily composed of hydrochloric acid, is maintained within a pH range of approximately 1 to 3. This highly acidic environment is essential for several important functions in the digestive process. It facilitates the breakdown of food, activates digestive enzymes such as pepsin, and provides a barrier against pathogens that may enter the stomach with ingested food. The extremely low pH is achieved through the secretion of hydrogen ions by parietal cells in the stomach lining. This acidic condition not only aids in digestion but also serves to denature proteins, making it easier for enzymes to further break them down. Other pH ranges provided in the options do not accurately reflect the true acidic environment of gastric acid. For instance, a pH of 7-8 is considered neutral and would not support the required acidity for digestion, while 4-5 indicates a much less acidic environment that would impair the digestive processes. Similarly, a pH of 0-1 would be too extreme, as it does not accurately represent the normal variation typically found in gastric fluid. Therefore, maintaining a pH around 1 to 3 is crucial for optimal gastric function.

2. What is the purpose of mucus in the trachea?

- A. To regulate air pressure
- B. To trap foreign particles**
- C. To lubricate the trachea
- D. To enhance oxygen absorption

The purpose of mucus in the trachea is to trap foreign particles. The trachea, or windpipe, serves as an essential airway for respiratory function, and the lining of the trachea is coated with mucus-producing cells. This mucus plays a critical role in the respiratory system by trapping dust, allergens, bacteria, and other particulates that we inhale. By capturing these foreign particles, mucus prevents them from reaching the lower respiratory tract, reducing the risk of infections and maintaining clear airways for optimal breathing. Mucus also contains antibodies and enzymes that provide additional defense against pathogens, further supporting the body's immune response. In this context, the mucus acts as a protective barrier, ensuring that the respiratory system remains healthy and functional. The action of cilia, hair-like structures on the surface of respiratory epithelial cells, helps to move the trapped particles upwards, facilitating clearing from the airways.

3. The mass of an atom is primarily contributed by its?

- A. Electrons
- B. Nucleus**
- C. Protons only
- D. Neutrons only

The mass of an atom is primarily contributed by its nucleus. The nucleus contains protons and neutrons, which are significantly heavier than electrons. Protons and neutrons each have a mass of about 1 atomic mass unit (amu), while electrons have a negligible mass (approximately 1/1836 of an amu) in comparison. Since the vast majority of an atom's mass comes from the combined mass of the protons and neutrons located in the nucleus, this is why the nucleus is identified as the main contributor to atomic mass. The collective weight of the nucleus determines the element's atomic weight on the periodic table, making it crucial to understanding atomic composition.

4. Which gas is crucial to all the body's cells?

- A. Carbon dioxide
- B. Nitrogen
- C. Hydrogen
- D. Oxygen**

Oxygen is crucial to all the body's cells because it plays a vital role in cellular respiration, a process that converts nutrients into energy. Cells require this energy to carry out functions essential for survival, growth, and repair. Oxygen is used by cells to break down glucose in the presence of other nutrients, producing adenosine triphosphate (ATP), which is the primary energy carrier in all living organisms. While carbon dioxide, nitrogen, and hydrogen are important in various biochemical processes, they do not fulfill the same essential role as oxygen in cellular respiration. Carbon dioxide is a waste product of respiration that needs to be expelled from the body, nitrogen is mostly inert with limited biological function except in specific compounds, and hydrogen is a component of many organic molecules but not directly utilized as a gas by cells. Therefore, oxygen stands out as the gas that is crucial and directly required by all cells for their metabolic processes.

5. Which statement about the relationship between genotype and phenotype is true?

- A. Genotype is always expressed as the phenotype
- B. Phenotype results from the interaction of genotype with the environment**
- C. Genotype has no influence on the phenotype
- D. Phenotype determines genetic outcomes

The statement that phenotype results from the interaction of genotype with the environment is accurate because it captures the essence of how an organism's traits are developed. The genotype refers to the genetic makeup of an individual, which consists of the alleles inherited from their parents. However, the phenotype, which is the observable characteristics or traits, doesn't arise solely from the genotype. Environmental factors such as nutrition, climate, and exposure to toxins can significantly influence how the genotype is expressed. This concept highlights the importance of the environment in shaping traits, making it clear that the relationship between genotype and phenotype is not a direct one-to-one correspondence. Instead, it involves complex interactions that can lead to variations in phenotype even among individuals with identical genotypes. This understanding is fundamental in fields such as genetics, biology, and medicine, where acknowledging both genetic and environmental factors is crucial for fully grasping how traits are expressed in living organisms.

6. What is the main purpose of respiration?

- A. To create energy
- B. To sustain life**
- C. To expel carbon dioxide
- D. To maintain body temperature

The main purpose of respiration is to sustain life. This process is essential for all living organisms as it provides the necessary means for cells to obtain energy from nutrients. Respiration involves the exchange of gases, primarily oxygen and carbon dioxide, which is crucial for cellular metabolism and energy production. Through this process, oxygen is delivered to cells, enabling them to produce energy in the form of ATP (adenosine triphosphate). This energy is then used to fuel various biological functions necessary for survival. While creating energy is a significant aspect of respiration, it is ultimately a part of the larger purpose of sustaining life. Respiration also serves to regulate the levels of gases in the body, ensuring that cells can function optimally, which effectively ties back to sustaining life. The other options, such as expelling carbon dioxide and maintaining body temperature, are important functions related to respiration, but they are secondary to the overarching goal of ensuring the survival and functionality of an organism.

7. What is the genotype of an organism?

- A. The observable characteristics resulting from environmental interactions
- B. The genetic makeup determining an organism's traits**
- C. The process by which traits are expressed in phenotypes
- D. The sum of all genes present in an ecosystem

The genotype of an organism refers to its specific genetic makeup, which includes all the alleles present for a given trait or traits. This genetic composition plays a crucial role in determining an organism's characteristics, known as phenotypes, which are the observable traits influenced by both the genotype and the environment. Understanding the genotype is essential in fields such as genetics, biology, and health sciences, as it helps in predicting how traits may be passed on to the next generation and how they may manifest in terms of physical or behavioral traits. The other options do not accurately define genotype. The observable characteristics resulting from environmental interactions describe the phenotype rather than the genotype. The process by which traits are expressed in phenotypes again refers to the interaction between genetic makeup and environmental factors, separate from the actual genetic blueprint itself. The sum of all genes present in an ecosystem touches on ecological genetics but does not define the specific genetic makeup of an individual organism, which is what the term genotype specifically refers to.

8. Which of the following best describes the relationship between grams and moles?

- A. Grams measure volume, while moles measure mass
- B. Grams measure mass, while moles measure quantity of particles**
- C. Both grams and moles measure mass
- D. Moles measure temperature, grams measure pressure

The relationship between grams and moles is centered around how substances are quantified in chemistry. Grams measure the mass of a substance, providing a direct indication of the amount of material present. In contrast, moles serve as a way to quantify the number of particles, such as atoms or molecules, in that mass. This relationship is fundamental in stoichiometry, as it allows chemists to convert between the mass of a substance (expressed in grams) and the amount of substance in terms of the number of entities (expressed in moles) using the substance's molar mass. For example, knowing the molar mass of a substance allows one to determine how many grams correspond to a certain number of moles, facilitating calculations that involve chemical reactions. Thus, while grams and moles both serve distinct purposes in measuring substances, their definitions align closely with mass and the quantity of particles, respectively. This foundational understanding is crucial for accurate measurements and conversions in chemical calculations.

9. What is a chromatid?

- A. A strand of DNA that has no function in cell division
- B. Each of the two threads into which a chromosome divides during cell division**
- C. A small protein that assists in DNA replication
- D. A type of RNA involved in protein formation

The correct answer identifies a chromatid as each of the two threads into which a chromosome divides during cell division. This is a fundamental aspect of chromosomal behavior in the processes of mitosis and meiosis. During cell division, the chromosomes replicate so that each daughter cell will receive an identical set of chromosomes. Following replication, each chromosome consists of two identical sister chromatids, which are joined at a region called the centromere. When the cell divides, these sister chromatids separate and are pulled toward opposite poles of the cell, ensuring that each new cell has the same genetic material. This understanding of chromatids is critical for comprehending how genetic information is correctly distributed during cell division, which is essential in both normal growth and development, as well as in understanding various genetic diseases. The context of cell division highlights the significance of chromatids in maintaining genetic stability across generations of cells.

10. What is the charge of an electron?

- A. Neutral
- B. Positively charged
- C. Negatively charged**
- D. Varies with its state

Electrons are fundamental particles that carry a specific electric charge, which is known to be negative. This negative charge is essential in understanding various physical and chemical interactions. In the context of atomic structure, electrons orbit the nucleus of an atom, which contains positively charged protons and neutral neutrons. The negative charge of electrons balances the positive charge of protons, resulting in a neutral atom overall when the number of electrons equals the number of protons. The concept of varying charge depending on the state does not apply to electrons, as their charge remains constant regardless of the conditions. Similarly, stating that electrons are neutral or positively charged contradicts established scientific knowledge about their fundamental properties. Thus, the correct and well-established understanding is that an electron is negatively charged.

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://ac-hpat.examzify.com>

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

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