

# Algonquin College Health Program Assessment (AC-HPAT) Practice Exam (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**

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- 1. What role does the mucus in the trachea play in respiratory health?**
  - A. Enhances air temperature**
  - B. Increases oxygen diffusion**
  - C. Traps and removes foreign particles**
  - D. Produces sound during speech**
  
- 2. In which phase of the cell cycle does cytokinesis occur?**
  - A. Prophase**
  - B. Metaphase**
  - C. Telophase**
  - D. Interphase**
  
- 3. Which of the following systems is primarily responsible for nutrient absorption in the human body?**
  - A. Respiratory system**
  - B. Digestive system**
  - C. Circulatory system**
  - D. Nervous system**
  
- 4. What term describes traits that are alternatives to the wild type, such as white eyes in a fruit fly?**
  - A. Normal phenotypes**
  - B. Mutant phenotypes**
  - C. Phenotypic variations**
  - D. Dominant traits**
  
- 5. What is a dipole?**
  - A. A type of ion formed by gaining electrons**
  - B. The separation of charge due to differences in electronegativity in a covalent bond**
  - C. A neutral atom undergoing a chemical reaction**
  - D. A metallic bond formed between metals**

**6. What is the most abundant gas in the atmosphere?**

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

**7. What causes an oxygen debt in the body?**

- A. Aerobic exercise**
- B. Rest**
- C. Anaerobic exercise**
- D. Overhydration**

**8. What role does a centriole play in cell division?**

- A. It aids in the replication of DNA**
- B. It is involved in the development of spindle fibers**
- C. It functions as the site of ATP production**
- D. It helps in the synthesis of proteins**

**9. An atom with an atomic number of 58 and an atomic mass of 118 has how many neutrons?**

- A. 60**
- B. 58**
- C. 118**
- D. 50**

**10. What structure packages proteins and lipids after modifying them?**

- A. Cell membrane**
- B. Nucleus**
- C. Vesicles**
- D. Golgi apparatus**

## **Answers**

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

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## **Explanations**

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## 1. What role does the mucus in the trachea play in respiratory health?

- A. Enhances air temperature
- B. Increases oxygen diffusion
- C. Traps and removes foreign particles**
- D. Produces sound during speech

Mucus in the trachea plays a vital role in maintaining respiratory health by trapping and removing foreign particles. This is essential for protecting the respiratory system from irritants, pathogens, and debris that are inhaled along with air. The mucus acts as a sticky substance that captures dust, pollen, smoke, and microorganisms, preventing them from reaching the lungs where they could cause infections or other complications. Cilia, tiny hair-like structures that line the trachea and other parts of the respiratory tract, work in conjunction with mucus to move these trapped particles upwards toward the throat, where they can be swallowed or expelled. This mucociliary escalator is a key defense mechanism of the respiratory system. The other options do not accurately represent the primary function of mucus in the trachea. While enhancing air temperature could happen as air passes through the respiratory tract, the primary purpose of the mucus is not related to temperature regulation. Increasing oxygen diffusion is primarily associated with the alveoli in the lungs, not the trachea. Lastly, while sound production does happen in the larynx (and not the trachea), it is unrelated to the function of mucus. Thus, the role of mucus as a trap for foreign particles is indeed the

## 2. In which phase of the cell cycle does cytokinesis occur?

- A. Prophase
- B. Metaphase
- C. Telophase**
- D. Interphase

Cytokinesis occurs during the telophase of the cell cycle. This is the final stage of mitosis, following anaphase, where the chromosomes have been separated and are at opposite poles of the cell. During telophase, the nuclear membrane re-forms around each set of chromosomes, and the cell prepares to divide into two daughter cells. Cytokinesis specifically involves the physical splitting of the cytoplasm, which typically happens concurrently with telophase. This process completes cell division by creating two distinct cells that have their own nuclei and share the organelles and cytoplasm of the original cell. In contrast, prophase and metaphase are earlier stages of mitosis where the chromosomes condense and align at the cell's equatorial plane, respectively. Interphase, on the other hand, is the phase where the cell prepares for division by growing and replicating its DNA, but it does not involve the actual division of the cytoplasm. Therefore, the correct answer indicating that cytokinesis occurs during telophase aligns with the chronological sequence and functional events of the cell cycle.

**3. Which of the following systems is primarily responsible for nutrient absorption in the human body?**

- A. Respiratory system**
- B. Digestive system**
- C. Circulatory system**
- D. Nervous system**

The digestive system is primarily responsible for nutrient absorption in the human body because it is specifically designed to break down food into smaller components that can be easily absorbed. This system includes various organs such as the stomach, small intestine, and large intestine, each playing a vital role in digestion and absorption. The process starts in the mouth, where food is mechanically broken down and then chemically processed in the stomach. Most nutrient absorption occurs in the small intestine, where digested food passes through the intestinal walls into the bloodstream, allowing essential nutrients to be delivered to tissues and organs throughout the body. In contrast, the respiratory system focuses on gas exchange, bringing oxygen into the body and removing carbon dioxide. The circulatory system is responsible for transporting nutrients, oxygen, and other substances throughout the body but does not directly absorb nutrients. The nervous system manages signals and responses throughout the body but is not involved in the actual process of nutrient absorption.

**4. What term describes traits that are alternatives to the wild type, such as white eyes in a fruit fly?**

- A. Normal phenotypes**
- B. Mutant phenotypes**
- C. Phenotypic variations**
- D. Dominant traits**

The term that describes traits that are alternatives to the wild type, such as white eyes in a fruit fly, is indeed mutant phenotypes. Mutant phenotypes arise from genetic mutations that result in different observable characteristics compared to the typical or "wild type" traits. In the case of the fruit fly, where the common phenotype may have red eyes, the presence of white eyes indicates a specific genetic alteration that deviates from the norm, characterizing them as mutations. Understanding this concept is crucial in genetics, as the study of both wild type and mutant phenotypes allows researchers to investigate the effects of specific genes and how they determine traits. This comparison enhances our understanding of genetic variation and evolution.

## 5. What is a dipole?

- A. A type of ion formed by gaining electrons
- B. The separation of charge due to differences in electronegativity in a covalent bond**
- C. A neutral atom undergoing a chemical reaction
- D. A metallic bond formed between metals

A dipole refers to the separation of charge that occurs when there is a difference in electronegativity between atoms in a covalent bond. In such bonds, one atom attracts the shared electrons more strongly than the other, leading to an uneven distribution of electron density. This creates a positive end and a negative end, hence the term "dipole," which indicates two poles of charge. This concept is fundamental in understanding molecular behavior, polarity, and interactions in various chemical and physical processes. Molecules that have a dipole moment are polar, which influences their solubility in solvents, their interaction with other polar molecules, and their overall stability. The other options do not accurately capture the concept of a dipole; thus, option B is the most precise and appropriate answer concerning the definition of a dipole in chemistry.

## 6. What is the most abundant gas in the atmosphere?

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

The most abundant gas in the atmosphere is nitrogen, which comprises about 78% of the Earth's atmosphere by volume. This significant presence plays a crucial role in various processes, including the nitrogen cycle, which is essential for life as it helps in the formation of amino acids and proteins necessary for all living organisms. Understanding the composition of the atmosphere is fundamental in fields such as environmental science and biology, as it helps explain phenomena such as air quality, climate change, and the biodiversity of ecosystems. While other gases like oxygen are vital for respiration and combustion, they are present in much smaller amounts, constituting about 21% of the atmosphere. Carbon dioxide and argon are present in even lesser concentrations, with carbon dioxide being important for photosynthesis and global warming discussions. Thus, nitrogen's dominance highlights its essential role in supporting life and maintaining atmospheric balance.

## 7. What causes an oxygen debt in the body?

- A. Aerobic exercise
- B. Rest
- C. Anaerobic exercise**
- D. Overhydration

Oxygen debt refers to the amount of oxygen that the body must consume after exercise to restore itself to its pre-exercise state. It occurs primarily as a result of anaerobic exercise, which is characterized by high-intensity activities that require quick bursts of energy. During anaerobic exercise, the body relies on energy sources that do not require oxygen, leading to the production of lactic acid and a temporary shortage of oxygen available for cellular processes. This results in an oxygen debt because, after the activity, the body works to convert the accumulated lactic acid back into usable forms and replenish oxygen levels in the muscles and blood. As a person engages in anaerobic activities, such as sprinting or heavy lifting, the demand for immediate energy exceeds the supply of oxygen available for aerobic metabolism. Consequently, the body enters a state where it must recover post-exercise by increasing oxygen intake to meet the physiological needs created by the activity. Other options provided do not induce oxygen debt in the same way. Aerobic exercise utilizes oxygen more efficiently and promotes steady energy production, while rest allows the body to recover without creating any additional demand for oxygen. Overhydration can lead to issues with electrolyte balance and might affect performance but does not directly create an oxygen deficit. Thus,

## 8. What role does a centriole play in cell division?

- A. It aids in the replication of DNA
- B. It is involved in the development of spindle fibers**
- C. It functions as the site of ATP production
- D. It helps in the synthesis of proteins

The centriole plays a crucial role in cell division, particularly during mitosis and meiosis. Its primary function is to assist in the formation of spindle fibers, which are essential for separating chromosomes during cell division. Once the cell is prepared to divide, the centrioles replicate and move to opposite poles of the cell, organizing the microtubules that make up the spindle apparatus. These spindle fibers attach to the chromosomes and help ensure that each new daughter cell receives the correct number of chromosomes. In contrast, the other roles mentioned in the options are not associated with centrioles. The process of DNA replication occurs in the nucleus and involves other cellular structures such as the DNA polymerase and various other proteins, rather than centrioles. The site of ATP production is primarily the mitochondria, which are well-known for their role in energy metabolism, not centrioles. Lastly, protein synthesis takes place in the ribosomes, either free in the cytoplasm or attached to the endoplasmic reticulum; again, this is unrelated to the function of centrioles during cell division. Thus, the involvement of centrioles in developing spindle fibers clearly defines their essential role in facilitating accurate chromosome segregation in cell division.

**9. An atom with an atomic number of 58 and an atomic mass of 118 has how many neutrons?**

- A. 60**
- B. 58**
- C. 118**
- D. 50**

To determine the number of neutrons in an atom, you can use the formula: Number of Neutrons = Atomic Mass - Atomic Number. In this case, the atom has an atomic number of 58 and an atomic mass of 118. Substituting these values into the formula gives: Number of Neutrons = 118 - 58 = 60. This means the atom contains 60 neutrons. Understanding this calculation is important, as the atomic number represents the number of protons in the nucleus, while the atomic mass is the total number of protons and neutrons combined. Therefore, this knowledge is crucial for grasping the structure of atoms in chemistry and physics.

**10. What structure packages proteins and lipids after modifying them?**

- A. Cell membrane**
- B. Nucleus**
- C. Vesicles**
- D. Golgi apparatus**

The Golgi apparatus is the structure responsible for modifying, sorting, and packaging proteins and lipids for secretion or delivery to other organelles within the cell. Once the proteins and lipids are synthesized in the endoplasmic reticulum, they are transported to the Golgi apparatus, where they undergo further modifications, such as glycosylation. After the Golgi apparatus completes its processing, it sorts these molecules into vesicles. These vesicles can then transport the proteins and lipids to various destinations, such as the cell membrane for secretion or to lysosomes for degradation. In contrast, the cell membrane primarily functions as a barrier and does not package proteins and lipids. The nucleus is involved in storing genetic material and regulating gene expression rather than modifying and packaging biomolecules. While vesicles are involved in the transport of proteins and lipids, they do not perform the function of modifying them; that crucial role is reserved for the Golgi apparatus. Therefore, the correct answer highlights the essential function of the Golgi apparatus in the cellular transportation and processing of biomolecules.

# 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://ac-hpat.examzify.com>**

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

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