

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. To achieve an outer octet, what must an atom of element 19 do?
 - A. Add an electron and acquire a charge of -1
 - B. Lose an electron and acquire a charge of +1
 - C. Share electrons equally with another atom
 - D. Gain two electrons and remain neutral
2. What happens to the pressure in the lungs during expiration?
 - A. It decreases
 - B. It remains constant
 - C. It increases
 - D. It fluctuates
3. What is the primary role of the nucleolus within a cell?
 - A. Synthesis of ribosomal RNA
 - B. Production of ATP
 - C. Modification of proteins
 - D. Storage of genetic material
4. What is it called when plaque builds up in the arteries?
 - A. Aneurysm
 - B. Arteriosclerosis
 - C. Atherosclerosis
 - D. Thrombosis
5. What does the International Committee for Weights and Measures define as one mole?
 - A. 12g of Oxygen-16
 - B. 12g of Carbon-12
 - C. 6.022×10^{23} atoms
 - D. 1g of Hydrogen
6. How many grams are equivalent to one mole of boron?
 - A. 10.81 g
 - B. 12.01 g
 - C. 14.01 g
 - D. 7.02 g

7. What is endocytosis?

- A. The process of escaping harmful substances from inside the cell
- B. The capture and intake of external substances by the cell membrane
- C. The synthesis of proteins within the endoplasmic reticulum
- D. The fusion of vesicles with the plasma membrane

8. What is the primary function of the epiglottis?

- A. To regulate breathing
- B. To prevent food from going down the trachea
- C. To assist in vocalization
- D. To filter incoming air

9. What type of organisms are eubacteria?

- A. Multicellular organisms
- B. Prokaryotes
- C. Eukaryotes
- D. Viruses

10. Which of the following has ribosomes attached to its surface?

- A. Smooth endoplasmic reticulum
- B. Rough endoplasmic reticulum
- C. Golgi apparatus
- D. Nucleus

Answers

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

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Explanations

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1. To achieve an outer octet, what must an atom of element 19 do?

- A. Add an electron and acquire a charge of -1
- B. Lose an electron and acquire a charge of +1**
- C. Share electrons equally with another atom
- D. Gain two electrons and remain neutral

An atom of element 19 corresponds to potassium (K), which has an atomic number of 19. To achieve a stable outer octet, potassium must seek to mimic the electron configuration of the nearest noble gas, which is argon (Ar). Potassium has one electron in its outermost shell (the 4th energy level). Since the goal is to complete the outer shell to an octet, potassium can achieve this by losing that one outer electron. By doing so, potassium will adopt a configuration similar to argon, resulting in a full outer shell of eight electrons in the lower energy level (3rd shell). This loss of an electron gives potassium a charge of +1 because it now has more protons than electrons. This process is typical for alkali metals like potassium, which readily lose their single outer electron to attain a more stable electron configuration, similar to the noble gases. Other options present different scenarios that do not align with the behavior of potassium in pursuit of a full outer octet.

2. What happens to the pressure in the lungs during expiration?

- A. It decreases
- B. It remains constant
- C. It increases**
- D. It fluctuates

During expiration, the diaphragm and intercostal muscles relax, causing the thoracic cavity to decrease in volume. This decrease in volume leads to an increase in pressure within the lungs relative to the atmospheric pressure outside. Specifically, as the volume of the lungs decreases, the air inside is compressed, resulting in higher pressure. Consequently, air is expelled from the lungs into the atmosphere until the pressures equalize. This physiological process is governed by Boyle's Law, which states that the pressure of a gas is inversely related to its volume when the temperature is held constant. Thus, during expiration, as the lung volume decreases, the pressure increases, allowing air to flow out of the lungs effectively.

3. What is the primary role of the nucleolus within a cell?

- A. Synthesis of ribosomal RNA**
- B. Production of ATP
- C. Modification of proteins
- D. Storage of genetic material

The nucleolus plays a crucial role within the cell primarily focused on synthesizing ribosomal RNA (rRNA). This specialized structure is found within the nucleus and is the site where rRNA is transcribed and combined with proteins to form the subunits of ribosomes, which are essential for protein synthesis. Without the nucleolus's function, cells would be unable to produce ribosomes effectively, leading to impaired protein synthesis. In contrast, the other options describe functions associated with different cellular components. The production of ATP is primarily handled by the mitochondria, which generate energy for the cell. The modification of proteins occurs in the endoplasmic reticulum and the Golgi apparatus, where proteins undergo folding, modifications, and are sorted for transport. Lastly, the storage of genetic material is the function of the nucleus itself, which contains the cell's DNA. Therefore, the specific role of the nucleolus in synthesizing rRNA distinctly sets it apart in cellular function.

4. What is it called when plaque builds up in the arteries?

- A. Aneurysm
- B. Arteriosclerosis
- C. Atherosclerosis**
- D. Thrombosis

The buildup of plaque in the arteries is called atherosclerosis. This condition occurs when fatty deposits, cholesterol, and other substances accumulate on the arterial walls, leading to the narrowing and stiffening of the arteries. Over time, this can restrict blood flow and increase the risk of heart disease, stroke, and other cardiovascular issues. Atherosclerosis is particularly significant because it is a progressive disease that often starts early in life and can go unnoticed for many years. Factors such as poor diet, lack of exercise, smoking, and genetic predisposition can all contribute to the development of atherosclerosis. Recognizing and addressing this condition is vital for maintaining cardiovascular health. Understanding the other options provides further clarity: aneurysm refers to an abnormal bulge in a blood vessel wall, arteriosclerosis is a broader term that encompasses the hardening and thickening of arteries, and thrombosis denotes the formation of a blood clot within a blood vessel. While these conditions may be related, they do not specifically describe the plaque buildup seen in atherosclerosis.

5. What does the International Committee for Weights and Measures define as one mole?

- A. 12g of Oxygen-16
- B. 12g of Carbon-12**
- C. 6.022×10^{23} atoms
- D. 1g of Hydrogen

The definition of one mole, as defined by the International Committee for Weights and Measures, is based on the amount of substance that contains the same number of entities as there are in 12 grams of carbon-12. This foundational definition ties the mole to a specific quantity of a fundamental substance, allowing for consistent measurements in chemistry. The significance of carbon-12 is that it is a stable isotope and provides a reliable standard for atomic mass. By using carbon-12 as the reference point, scientists can relate the mole to both macroscopic and microscopic quantities, which is crucial for stoichiometry and other calculations in chemistry. Using other substances, such as oxygen-16 or hydrogen, does not fulfill the official definition of a mole as it is specifically linked to the mass of carbon-12. Similarly, while 6.022×10^{23} indicates the number of entities in one mole (Avogadro's number), it does not serve as a definition of the mole itself in terms of mass or substance. Thus, the correct definition revolves around the mass of carbon-12, which provides a clear, universal standard in chemical measurements.

6. How many grams are equivalent to one mole of boron?

- A. 10.81 g**
- B. 12.01 g
- C. 14.01 g
- D. 7.02 g

One mole of an element is defined as the amount of that element that contains the same number of entities (atoms, molecules, etc.) as there are in 12 grams of carbon-12. The mass of one mole of any substance is numerically equal to its atomic or molecular weight expressed in grams. Boron has an atomic weight of approximately 10.81 g/mol. This means that one mole of boron weighs 10.81 grams. The atomic weight of boron is derived from its isotopic composition and reflects the average mass of its naturally occurring isotopes. Therefore, when you are asking how many grams correspond to one mole of boron, the appropriate answer is 10.81 grams, which aligns with the actual atomic weight of boron. This understanding is essential in chemistry, especially when performing stoichiometric calculations or preparing solutions, as it allows one to accurately measure the amount of a substance based on its molarity and volume.

7. What is endocytosis?

- A. The process of escaping harmful substances from inside the cell
- B. The capture and intake of external substances by the cell membrane**
- C. The synthesis of proteins within the endoplasmic reticulum
- D. The fusion of vesicles with the plasma membrane

Endocytosis refers to the biological process in which a cell takes in external substances by engulfing them with its cell membrane. The key aspect of endocytosis is that the cell membrane folds inward, creating a pocket that eventually pinches off to form a vesicle containing the ingested substances. This process allows the cell to absorb nutrients, signaling molecules, and other important factors from its environment. This mechanism is crucial for various cellular functions, including nutrient uptake and regulation of signaling pathways. By facilitating the intake of vital components, endocytosis plays a significant role in maintaining cellular homeostasis and responding to changes in the environment. The other choices presented describe different cellular processes that do not accurately reflect the nature of endocytosis. For instance, the process of escaping substances from inside the cell pertains more to exocytosis, whereas protein synthesis occurs within the endoplasmic reticulum, and the fusion of vesicles with the plasma membrane relates to the release of substances from the cell, rather than the intake of them.

8. What is the primary function of the epiglottis?

- A. To regulate breathing
- B. To prevent food from going down the trachea**
- C. To assist in vocalization
- D. To filter incoming air

The primary function of the epiglottis is to prevent food and liquids from entering the trachea during swallowing. This is crucial for protecting the airway and ensuring that food goes down the esophagus and not into the lungs. The epiglottis is a flap of cartilage located at the root of the tongue that acts as a gate, closing off the trachea when swallowing occurs. This function is essential for preventing choking and aspiration, which can lead to serious respiratory issues. In contrast, while the regulation of breathing involves other structures and processes in the respiratory system, the primary role of the epiglottis is specifically tied to swallowing and airway protection. Assisting in vocalization is mainly the function of the larynx, which contains the vocal cords, and filtering incoming air is primarily performed by the nasal passages and other components of the respiratory system, rather than the epiglottis.

9. What type of organisms are eubacteria?

- A. Multicellular organisms
- B. Prokaryotes**
- C. Eukaryotes
- D. Viruses

Eubacteria, also known as true bacteria, are classified as prokaryotic organisms. This means that they lack a defined nucleus and other membrane-bound organelles that are characteristic of eukaryotic cells. Instead, their genetic material is organized in a single, circular strand of DNA located in the cytoplasm. Additionally, eubacteria have a simpler cell structure, usually surrounded by a cell wall composed of peptidoglycan. This classification distinguishes them clearly from eukaryotes, which have complex cell structures, as well as from multicellular organisms and viruses. Eubacteria play significant roles in various ecosystems, including nutrient cycling and symbiotic relationships, and are also important in biotechnology and medicine.

10. Which of the following has ribosomes attached to its surface?

- A. Smooth endoplasmic reticulum
- B. Rough endoplasmic reticulum**
- C. Golgi apparatus
- D. Nucleus

The presence of ribosomes on the surface is a distinguishing characteristic of the rough endoplasmic reticulum. Ribosomes are the sites of protein synthesis, and their attachment to the rough endoplasmic reticulum allows for the immediate translation and processing of proteins destined for export or for use in the cell membrane. This structural feature gives the rough endoplasmic reticulum its 'rough' appearance when viewed under a microscope. In contrast, the smooth endoplasmic reticulum lacks ribosomes on its surface and is primarily involved in lipid synthesis and detoxification processes. The Golgi apparatus is responsible for modifying, sorting, and packaging proteins and lipids but does not have ribosomes attached to it. The nucleus houses genetic material and is involved in the regulation of gene expression, but it does not have ribosomes on its surface either. Thus, the presence of ribosomes exclusively defines the rough endoplasmic reticulum in this context.

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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