

Canadian National Institute of Health (CNIH) Entrance 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

- 1. What is the scientific theory that describes changes in species over time and shared ancestry?**
 - A. Adaptation**
 - B. Evolution**
 - C. Mutation**
 - D. Extinction**
- 2. What does "genotype" describe?**
 - A. The physical expression of traits**
 - B. The genetic makeup of alleles**
 - C. A single trait**
 - D. A characteristic of an organism**
- 3. Which of the following is a monosaccharide?**
 - A. Starch**
 - B. Glucose**
 - C. Sucrose**
 - D. Cellulose**
- 4. How does blood move from the lungs back to the heart?**
 - A. Via the right atrium**
 - B. Via the left ventricle**
 - C. Via the pulmonary veins**
 - D. Via the aorta**
- 5. A haploid cell has how many sets of chromosomes?**
 - A. Two sets of chromosomes**
 - B. One set of chromosomes**
 - C. Three sets of chromosomes**
 - D. Four sets of chromosomes**
- 6. What does the pulmonary artery transport?**
 - A. Oxygenated blood to the body**
 - B. Deoxygenated blood from the heart to the lungs**
 - C. Oxygenated blood from the lungs to the heart**
 - D. Deoxygenated blood to the brain**

- 7. Which type of evolutionary mechanism is likely to result in the most rapid changes in a population's traits?**
- A. Natural selection**
 - B. Mutation**
 - C. Genetic drift**
 - D. Gene flow**
- 8. Which enzyme acts specifically on carbohydrates to break them down?**
- A. Protease**
 - B. Lipase**
 - C. Amylase**
 - D. Pepsin**
- 9. What distinguishes aerobic from anaerobic organisms?**
- A. Aerobic organisms can thrive in any environment**
 - B. Aerobic organisms do not consume organic materials**
 - C. Aerobic organisms rely on oxygen, while anaerobic organisms do not**
 - D. Aerobic organisms reproduce faster than anaerobic organisms**
- 10. What is the function of the nuclear membrane?**
- A. To assist in protein synthesis**
 - B. To separate the nucleus from the cytoplasm**
 - C. To facilitate cell communication**
 - D. To provide energy to the cell**

Answers

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

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Explanations

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1. What is the scientific theory that describes changes in species over time and shared ancestry?

- A. Adaptation**
- B. Evolution**
- C. Mutation**
- D. Extinction**

The concept of evolution is fundamental to understanding biological diversity and the relationships among living organisms. Evolution refers to the scientific theory that explains the process through which species change over time due to various factors, including natural selection, genetic drift, and mutations. This theory posits that all living organisms share a common ancestry and that species adapt to their environments over generations, resulting in gradual changes. This idea was most famously articulated by Charles Darwin, who proposed that natural selection is the mechanism driving these changes. As organisms reproduce, variations occur, and those that are better adapted to their environments are more likely to survive and pass on their traits to the next generation. Over time, these small changes accumulate, leading to the development of new species and the branching of the evolutionary tree. The other terms, while related to biological processes, do not encompass the broader and more comprehensive explanation of species change and ancestry that evolution provides. Adaptation refers specifically to how organisms adjust to their environments; mutation is a change in genetic material that can lead to changes in traits; and extinction describes the end of a species rather than the process of change over time. Therefore, evolution accurately captures the essence of how species develop and relate to one another through shared ancestry.

2. What does "genotype" describe?

- A. The physical expression of traits**
- B. The genetic makeup of alleles**
- C. A single trait**
- D. A characteristic of an organism**

The term "genotype" refers to the genetic makeup of an organism specifically in terms of its alleles, which are the different forms of a gene that occur at a specific locus on a chromosome. Each individual inherits two alleles for each gene, one from each parent, and the combination of these alleles determines the genotype of the organism. This genetic composition plays a crucial role in influencing various traits and characteristics expressed by the organism, but it is distinct from the physical manifestations of these traits, which are described by the term "phenotype." The other options describe different concepts. The physical expression of traits refers to observable characteristics resulting from the genotype interacting with the environment. A single trait relates to a specific characteristic that can be influenced by the underlying genotype, but it does not encompass the complete genetic makeup. Similarly, a characteristic of an organism may refer to any observable feature, further emphasizing the distinction between genotype and phenotype. Therefore, the definition of genotype as the overall genetic makeup of alleles is precise and underlines its foundational role in heredity and biological diversity.

3. Which of the following is a monosaccharide?

- A. Starch
- B. Glucose**
- C. Sucrose
- D. Cellulose

Glucose is classified as a monosaccharide because it is the simplest form of sugar, consisting of a single sugar molecule. Monosaccharides are the building blocks of carbohydrates and cannot be hydrolyzed into simpler sugars. Glucose, specifically, has the chemical formula $C_6H_{12}O_6$ and plays a crucial role in providing energy for cells in many organisms. In contrast, starch, sucrose, and cellulose are all polysaccharides or disaccharides. Starch is a complex carbohydrate made up of many glucose units linked together, serving as a storage form of energy in plants. Sucrose, on the other hand, is a disaccharide consisting of one glucose molecule and one fructose molecule, which means it is made up of two monosaccharides bonded together. Cellulose, like starch, is a polysaccharide composed of long chains of glucose but is a structural component in the cell walls of plants. Understanding the classification of these carbohydrates helps clarify how they function in biological systems and metabolism, with monosaccharides being essential for immediate energy availability.

4. How does blood move from the lungs back to the heart?

- A. Via the right atrium
- B. Via the left ventricle
- C. Via the pulmonary veins**
- D. Via the aorta

Blood moves from the lungs back to the heart through the pulmonary veins. After gas exchange occurs in the alveoli of the lungs, oxygenated blood is collected by the pulmonary veins, which carry this blood directly to the left atrium of the heart. This oxygen-rich blood can then be pumped from the left atrium into the left ventricle, where it is ultimately distributed to the rest of the body through the aorta. The function of the pulmonary veins is crucial in the circulatory system as they serve the specific purpose of transporting oxygenated blood from the lungs to the heart, ensuring that the body receives the necessary oxygen for proper functioning. Other options refer to structures or pathways that do not serve the role of transporting blood from the lungs back to the heart. The right atrium and left ventricle are components of the heart involved in different phases of blood circulation, while the aorta is responsible for distributing blood from the heart to the systemic circulation.

5. A haploid cell has how many sets of chromosomes?

- A. Two sets of chromosomes**
- B. One set of chromosomes**
- C. Three sets of chromosomes**
- D. Four sets of chromosomes**

A haploid cell contains one set of chromosomes. This means that there is a single complete set of genetic information, typically represented as "n". In organisms that reproduce sexually, haploid cells are important because they are involved in the formation of gametes—sperm and egg cells. When two haploid gametes fuse during fertilization, they form a diploid cell, which contains two sets of chromosomes (one from each parent). Understanding the significance of haploid cells also highlights their role in maintaining genetic diversity through sexual reproduction. This is crucial for evolutionary processes. In contrast, other choices represent multiple sets of chromosomes, which are characteristic of diploid (two sets) or polyploid (three or more sets) organisms, and do not apply to haploid cells.

6. What does the pulmonary artery transport?

- A. Oxygenated blood to the body**
- B. Deoxygenated blood from the heart to the lungs**
- C. Oxygenated blood from the lungs to the heart**
- D. Deoxygenated blood to the brain**

The pulmonary artery plays a critical role in the circulatory system by transporting deoxygenated blood from the heart to the lungs. This process is integral to respiration, as the blood needs to release carbon dioxide and absorb oxygen. The pulmonary artery originates from the right ventricle of the heart and branches into the left and right pulmonary arteries, directing blood to each lung. In the lungs, carbon dioxide is expelled from the blood, and oxygen is absorbed. This fresh oxygenated blood is then returned to the heart via the pulmonary veins, ready to be circulated throughout the body. Understanding the function of the pulmonary artery highlights the importance of the pulmonary circulation in maintaining effective gas exchange and overall cardiovascular health.

7. Which type of evolutionary mechanism is likely to result in the most rapid changes in a population's traits?

A. Natural selection

B. Mutation

C. Genetic drift

D. Gene flow

Natural selection is a key evolutionary mechanism that can lead to rapid changes in a population's traits due to its focused and adaptive nature. In natural selection, individuals with traits that provide a survival or reproductive advantage in a specific environment are more likely to pass on those advantageous traits to the next generation. Over time, this process can significantly alter the genetic makeup of the population. Natural selection operates on existing genetic variation within a population, allowing beneficial traits to increase in frequency. For instance, if a specific trait enhances an organism's ability to find food or avoid predators, individuals with that trait will reproduce more successfully, leading to a faster rate of change in the population compared to other mechanisms. In contrast, while mutation introduces new genetic variations, it may not always result in advantageous traits. Genetic drift changes allele frequencies randomly and is more pronounced in small populations, often leading to less predictable changes. Gene flow involves the exchange of genes between populations, which can introduce new traits but often stabilizes rather than rapidly changes the traits within a single population. Therefore, natural selection is the most effective mechanism for driving quick adaptations and shaping the traits of a population in response to environmental pressures.

8. Which enzyme acts specifically on carbohydrates to break them down?

A. Protease

B. Lipase

C. Amylase

D. Pepsin

The enzyme that specifically acts on carbohydrates to break them down is amylase. Amylase catalyzes the hydrolysis of starch and glycogen, which are complex carbohydrates, into simpler sugars such as maltose and glucose. This process is essential for carbohydrate digestion, as it helps in the absorption of these simpler sugars into the bloodstream where they can be utilized for energy. Amylase is produced primarily in the salivary glands and the pancreas, allowing for the digestion of carbohydrates to begin in the mouth and continue in the small intestine. Its specificity for carbohydrate substrates makes it the key enzyme in this metabolic pathway, distinctly setting it apart from enzymes that target proteins or fats. Understanding the role of amylase highlights the significance of digestive enzymes in the body and their role in nutritional metabolism. This knowledge is crucial for recognizing how different enzymes contribute to the breakdown of various macromolecules in the digestive system.

9. What distinguishes aerobic from anaerobic organisms?

- A. Aerobic organisms can thrive in any environment
- B. Aerobic organisms do not consume organic materials
- C. Aerobic organisms rely on oxygen, while anaerobic organisms do not**
- D. Aerobic organisms reproduce faster than anaerobic organisms

The distinction between aerobic and anaerobic organisms fundamentally lies in their reliance on oxygen for metabolic processes. Aerobic organisms utilize oxygen to help break down organic materials during cellular respiration, a process that generates ATP, the energy currency of the cell. This process is highly efficient, yielding a significant amount of energy compared to anaerobic processes. In contrast, anaerobic organisms do not require oxygen to survive and may even find it toxic; they mainly rely on fermentation or other anaerobic pathways for their energy production. This relationship with oxygen is crucial, as it influences the environment in which these organisms can thrive. The other options do not accurately capture this distinction. For instance, saying that aerobic organisms can thrive in any environment overlooks the fact that they require oxygen-rich conditions to survive. Stating that aerobic organisms do not consume organic materials is misleading, as they rely on organic compounds as a source of energy. Finally, the assertion about reproduction rates does not inherently differentiate the two groups, as reproduction speed can vary widely among species regardless of their oxygen dependence.

10. What is the function of the nuclear membrane?

- A. To assist in protein synthesis
- B. To separate the nucleus from the cytoplasm**
- C. To facilitate cell communication
- D. To provide energy to the cell

The nuclear membrane, also known as the nuclear envelope, functions primarily to separate the nucleus from the cytoplasm. This structure consists of two lipid bilayer membranes that encase the genetic material within the nucleus, creating a distinct environment. By maintaining this separation, the nuclear membrane protects the DNA from potential damage that could occur from reactions occurring in the cytoplasm, which is vital for maintaining the integrity of genetic information and regulating gene expression. In this way, the nuclear membrane plays a crucial role in cellular organization, ensuring that processes such as transcription and DNA replication can occur in a controlled environment. Additionally, while the nuclear pore complexes embedded in the membrane allow for the regulated exchange of materials, such as RNA and proteins, the key purpose remains the compartmentalization of the genetic material away from the cytoplasmic environment. Other functions mentioned, like assisting in protein synthesis or providing energy, do not accurately describe the role of the nuclear membrane. Protein synthesis primarily occurs in ribosomes located in the cytoplasm, while cellular energy production is largely managed by mitochondria. The idea of facilitating cell communication, while important in cellular functions, is more related to other structures and mechanisms in the cell rather than the nuclear membrane itself.

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://cnihentrance.examzify.com>

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