Humber Admissions Practice Test (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. Which base pairs with thymine in DNA?

A. Cytosine

B. Adenine

C. Guanine

D. Uracil

2. Which of the following is true about valence shells?

A. They are filled first during electron configuration

B. They are the outermost shells that interact in bonding

C. They contain only neutrons

D. They have the lowest energy level

3. Which of the following is a primary factor in the process of natural selection?

A. Genetic variation within a species

B. Increased reproduction rates due to human intervention

C. Aquatic environment adaptation

D. Symbiotic relationships between species

4. Which statement about mixtures is true?

A. They are chemically bonded substances

B. They can always be separated by chemical means

C. They can be physically separated

D. They contain only elements

5. Pinocytosis is best described as what process?

A. Cell eating

B. Cell drinking

C. Cell respiration

D. Cell growth

6. What is the main result of increasing concentration in a solution?

A. Increased reaction energy

B. Decreased reaction rate

C. Increased likelihood of collisions

D. No effect on the reaction

7. What defines a hypertonic solution?

A. More water inside the cell, less outside

B. Equal concentrations of solutes inside and outside the cell

C. Less water inside the cell, more outside

D. Constant cell volume without change

8. Which feature of cell membranes is attributed to cholesterol?

A. Fluidity and rigidity

B. Energy production

C. Passive transport facilitation

D. Cellular attachment

9. What is the central process described as DNA -> RNA -> Protein?

A. Translation

B. Replication

C. Transcription

D. Central dogma

10. What structure surrounds the nucleus?

A. Cytoplasm

B. Nuclear membrane

C. Plasma membrane

D. Nucleoplasm

Answers

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

Explanations

1. Which base pairs with thymine in DNA?

A. Cytosine

B. Adenine

C. Guanine

D. Uracil

Thymine is one of the four nucleotide bases found in DNA, and it specifically pairs with adenine through hydrogen bonding. In the double helix structure of DNA, thymine and adenine are complementary bases, meaning that they fit together to stabilize the structure of the DNA molecule. This pairing is essential for the processes of DNA replication and transcription, where the accurate transmission of genetic information relies on these specific base pairings. Adenine has a double bond with thymine, forming A-T pairs. This is a foundational concept in molecular biology that underpins the mechanisms of heredity and gene expression. Understanding this base pairing is critical as it demonstrates the rules of complementary base pairing that dictate the integrity of genetic information.

2. Which of the following is true about valence shells?

A. They are filled first during electron configuration

B. They are the outermost shells that interact in bonding

C. They contain only neutrons

D. They have the lowest energy level

Valence shells refer to the outermost electron shells of an atom and play a crucial role in chemical bonding and reactions. The correct statement highlights that valence shells are indeed the outermost shells where the electrons reside that are available for bonding with other atoms. These electrons, known as valence electrons, determine how an atom interacts with its environment, including the types of bonds it can form, whether ionic or covalent, and how it reacts chemically. The other statements do not accurately represent the properties of valence shells. For instance, while electron configuration involves filling various shells in a specific order based on energy levels, the valence shell is not necessarily filled first. Additionally, valence shells contain electrons, not neutrons, which are found in the nucleus of the atom. Lastly, valence shells do not always have the lowest energy levels; in fact, they can have higher energy compared to the inner shells, especially in larger atoms where the valence shell is further from the nucleus. Thus, the focus on interaction in bonding is what makes the correct statement true in relation to valence shells.

3. Which of the following is a primary factor in the process of natural selection?

A. Genetic variation within a species

B. Increased reproduction rates due to human intervention

C. Aquatic environment adaptation

D. Symbiotic relationships between species

Genetic variation within a species is a primary factor in the process of natural selection because it provides the raw material for evolution. Without genetic diversity, all individuals in a population would be very similar, making the entire group susceptible to the same diseases, environmental changes, and other survival challenges. Natural selection operates on the principle that individuals with traits that are advantageous in their environment are more likely to survive and reproduce, passing those favorable traits to the next generation. This variation is crucial as it allows some individuals to better adapt and thrive under specific conditions, leading to changes in the frequency of traits within a population over time. Other factors mentioned, like increased reproduction rates due to human intervention, aquatic environment adaptation, and symbiotic relationships between species, may influence the dynamics of evolution but are not the fundamental mechanisms of natural selection itself. They may facilitate or impact the process but do not serve as the primary driving force behind the selection of traits within a species.

4. Which statement about mixtures is true?

A. They are chemically bonded substances

B. They can always be separated by chemical means

C. They can be physically separated

D. They contain only elements

Mixtures are defined as combinations of two or more substances that are not chemically bonded to each other. This means that the individual components retain their own properties and can be separated from one another without the need for chemical reactions. Physical separation methods can include filtration, distillation, or centrifugation, which allow for the components of the mixture to be isolated while preserving their original characteristics. The other statements do not accurately represent the characteristics of mixtures. For instance, mixtures are not chemically bonded, which directly contradicts the first statement about them being chemically bonded substances. The second statement suggests that mixtures can only be separated through chemical means, which is incorrect because they can be separated physically. Lastly, the claim that mixtures contain only elements is also false. Mixtures can contain compounds as well and are not limited to elemental substances. Thus, the statement regarding their physical separability is the most accurate representation of the nature of mixtures.

5. Pinocytosis is best described as what process?

A. Cell eating

B. Cell drinking

C. Cell respiration

D. Cell growth

Pinocytosis is best described as the process of "cell drinking." This is a specific form of endocytosis, where the cell engulfs extracellular fluid along with its dissolved solutes. In this process, small vesicles are formed when the plasma membrane invaginates and internalizes the fluid, allowing the cell to take in nutrients and other essential substances that are dissolved in the fluid. In contrast, the other options represent different biological processes. "Cell eating" refers to phagocytosis, which is the process by which cells engulf larger particles or other cells. "Cell respiration" is a metabolic process involving the conversion of nutrients into energy, while "cell growth" pertains to the increase in size and mass of a cell. These definitions highlight that pinocytosis specifically involves the uptake of liquid, making "cell drinking" the most accurate description of the process.

6. What is the main result of increasing concentration in a solution?

A. Increased reaction energy

B. Decreased reaction rate

C. Increased likelihood of collisions

D. No effect on the reaction

Increasing the concentration of a solution primarily leads to an increased likelihood of collisions between reacting particles. When you raise the concentration, there are more particles of the reactants in a given volume, which enhances the probability that these particles will collide with each other. Since chemical reactions occur when reactant molecules collide effectively, a higher concentration means a greater number of collisions per unit time. This subsequently can lead to an increased reaction rate, as more frequent collisions often result in more successful reactions occurring. In many cases, this principle is crucial in understanding how reaction conditions can be manipulated to achieve faster or more efficient chemical processes. The other options do not accurately describe the consequences of increased concentration; while reaction energy and rate might vary depending on specific conditions, the clear and direct outcome of increased concentration is indeed the increased likelihood of collisions among reactants. Therefore, the choice highlighting this relationship aligns with fundamental concepts in chemistry.

7. What defines a hypertonic solution?

A. More water inside the cell, less outside

B. Equal concentrations of solutes inside and outside the cell

C. Less water inside the cell, more outside

D. Constant cell volume without change

A hypertonic solution is characterized by having a higher concentration of solutes compared to the inside of a cell. When a cell is placed in a hypertonic solution, water will move out of the cell in order to balance the solute concentrations across the cell membrane. This movement of water results in the cell losing water and potentially shrinking, as there is less water inside the cell and more water outside. In the context of the options provided, this aligns with the description of a hypertonic solution where the concentration gradient causes water to exit the cell. Therefore, the correct choice accurately reflects the condition of the cell in a hypertonic environment. The other options describe different osmotic conditions that do not apply to hypertonic solutions. One option indicates an isotonic state, where concentrations are equal, while another suggests a situation where water is abundant inside the cell. The last choice implies that the cell volume remains constant, which is not the case in a hypertonic environment.

8. Which feature of cell membranes is attributed to cholesterol?

A. Fluidity and rigidity

B. Energy production

C. Passive transport facilitation

D. Cellular attachment

Cholesterol plays a significant role in maintaining the structure and functionality of cell membranes. It is primarily located within the phospholipid bilayer and interacts with the lipids and proteins that make up the membrane. One of the critical features that cholesterol contributes to is the balance between fluidity and rigidity of the membrane. It helps to stabilize the membrane's structure, preventing it from becoming too fluid at higher temperatures and too rigid at lower temperatures. This dual function allows for membrane flexibility while preserving essential cellular processes. The presence of cholesterol ensures that the cell membrane remains functionally versatile, allowing for proper signaling, transport, and interaction with the environment. By modulating the viscosity of the membrane, cholesterol enables cells to maintain homeostasis and optimize the function of membrane proteins. Other options do not accurately reflect the role of cholesterol. While energy production is a function associated with cellular mitochondria, passive transport is more directly related to the phospholipid bilayer and specific channel proteins. Cellular attachment typically involves proteins and carbohydrates, not cholesterol. Thus, the contribution of cholesterol to fluidity and rigidity is a fundamental characteristic essential for the overall integrity and function of cell membranes.

9. What is the central process described as DNA -> RNA -> Protein?

A. Translation

B. Replication

C. Transcription

D. Central dogma

The central process described by the sequence DNA -> RNA -> Protein is known as the central dogma of molecular biology. This framework explains the flow of genetic information within a biological system. According to the central dogma, DNA is first transcribed into RNA, which is then translated into protein. This sequence emphasizes the distinction between the roles of these molecules: DNA serves as the genetic blueprint, RNA acts as the intermediary that carries the instructions from DNA, and proteins are the end products that carry out various functions in the cell. Understanding this concept is fundamental because it lays the groundwork for molecular biology, genetics, and biochemistry. It helps explain how genetic information is expressed and how cells utilize this information to produce proteins that determine the traits and functions of an organism. Each part of the process also has its specific mechanisms: transcription involves copying a segment of DNA to produce RNA, and translation is the process where ribosomes synthesize proteins from the RNA sequence. However, the overarching concept encapsulated in the term "central dogma" captures the essence of the entire process.

10. What structure surrounds the nucleus?

A. Cytoplasm

B. Nuclear membrane

C. Plasma membrane

D. Nucleoplasm

The nuclear membrane, also known as the nuclear envelope, is the structure that surrounds and protects the nucleus of a cell. This double-layered membrane is crucial for maintaining the integrity of the genetic material contained within the nucleus. It has pores that regulate the movement of molecules between the nucleus and the cytoplasm, allowing for the selective exchange of substances such as RNA and proteins. This selective permeability is essential for processes like gene expression and the regulation of cellular functions. The other structures mentioned do not directly surround the nucleus. The cytoplasm is the jelly-like substance within the cell that contains various organelles, while the plasma membrane encases the entire cell, separating its contents from the external environment. Nucleoplasm refers to the viscous fluid inside the nucleus itself, where the chromatin and nucleolus are suspended. Each of these plays different roles in cellular function but does not provide the nuclear protection and regulation that the nuclear membrane offers.

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://humberadmissions.examzify.com

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