Test of Essential Academic Skills (TEAS) Science 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. What is the underlying mechanism by which nicotine affects the cardiovascular system?

A. It increases heart rate

B. It lowers blood pressure

C. It enhances oxygen flow

D. It induces vasodilation

2. What structure in the small intestine increases the surface area for absorption?

A. Villi

B. Microvilli

C. Both Villi and Microvilli

D. Folds of mucosa

3. During which process does RNA relay information to the ribosomes?

A. translation

B. transcription

C. mitosis

D. double-helix formation

4. Atoms that form bonds through the donation and acceptance of electrons create which type of bond?

A. Ionic

B. Covalent

C. Metallic

D. Van der Waals

5. The respiratory system is responsible for supplying the body with what essential gas?

A. Carbon dioxide

B. Nitrogen

C. Oxygen

D. Hydrogen

6. If a normal (AA) male and a female with the disease (aa) mate, what percentage of offspring will be carriers of the disease?

A. 0%

B. 25%

C. 75%

D. 100%

7. Receiving a vaccination against a particular disease results in which of the following types of immunity?

A. Passive

B. Active

C. Humoral

D. Cell-mediated

8. A large saturated hydrocarbon will contain what relationship between hydrogen and carbon atoms?

A. The same number of hydrogen and carbon atoms

B. Exactly twice as many hydrogen atoms as carbon atoms

C. Less than twice as many hydrogen atoms as carbon atoms

D. More than twice as many hydrogen atoms as carbon atoms

9. Which type of reasoning involves forming general conclusions based on specific observations?

A. Deductive reasoning

B. Inductive reasoning

C. Abductive reasoning

D. Transformative reasoning

10. Which of the following represents an investigation that has led to significant new designs for improving quality of life?

A. Renewable energy sources

B. Prosthetics, organs

C. Space exploration technologies

D. Telecommunication advancements

Answers

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

Explanations

1. What is the underlying mechanism by which nicotine affects the cardiovascular system?

A. It increases heart rate

B. It lowers blood pressure

C. It enhances oxygen flow

D. It induces vasodilation

Nicotine primarily affects the cardiovascular system by increasing heart rate. This is accomplished through its action as a stimulant on the central nervous system. When nicotine enters the bloodstream, it stimulates the release of neurotransmitters like norepinephrine and epinephrine (adrenaline), which activate the body's "fight or flight" response. This cascade leads to an increase in heart rate as the body prepares to respond to perceived threats. While other options relate to cardiovascular effects, they do not represent the primary mechanism of action associated with nicotine. For example, lowering blood pressure is generally associated with medications that relax blood vessels, while nicotine tends to elevate blood pressure as well. The enhancement of oxygen flow is somewhat indirect; while nicotine does affect circulation, it primarily acts to increase heart rate rather than improve oxygen delivery directly. Similarly, vasodilation refers to the widening of blood vessels, which contrasts with the constrictive effects that nicotine has on certain blood vessels, ultimately leading to increased blood pressure rather than vasodilation. Thus, the most accurate representation of nicotine's impact on the cardiovascular system is its ability to increase heart rate.

2. What structure in the small intestine increases the surface area for absorption?

A. Villi

B. Microvilli

C. Both Villi and Microvilli

D. Folds of mucosa

The structure in the small intestine that enhances the surface area for absorption is indeed a combination of villi and microvilli. Villi are small, finger-like projections that extend into the lumen of the small intestine and significantly increase the surface area available for nutrient absorption. Each villus is covered with even smaller projections called microvilli, which form a brush border that further amplifies the absorptive surface area. The presence of both villi and microvilli is crucial for the efficiency of nutrient absorption. Villi provide a larger area for absorption than the flat surface of the intestinal lining alone, while microvilli increase this surface area even more at the cellular level by creating a dense, effective brush-border that facilitates the absorption process. Together, they ensure that the intestine effectively absorbs vitamins, minerals, and nutrients from digested food.

3. During which process does RNA relay information to the ribosomes?

A. translation

B. transcription

C. mitosis

D. double-helix formation

The process during which RNA relays information to the ribosomes is translation. In this phase of gene expression, messenger RNA (mRNA) that has been transcribed from DNA carries the genetic information from the nucleus to the ribosomes in the cytoplasm. Once at the ribosome, the mRNA serves as a template for assembling amino acids into a specific sequence to form a protein. In translation, transfer RNA (tRNA) molecules bring the appropriate amino acids to the ribosome, matching their anticodons with the codons on the mRNA strand. This critical step synthesizes proteins, which are essential for various cellular functions. The other choices represent different biological processes. Transcription involves the synthesis of RNA from a DNA template and occurs prior to translation. Mitosis is a type of cell division that leads to two daughter cells and does not involve RNA relaying information to ribosomes. Double-helix formation refers to the structure of DNA and is not a process involving RNA or protein synthesis.

4. Atoms that form bonds through the donation and acceptance of electrons create which type of bond?

A. Ionic

B. Covalent

C. Metallic

D. Van der Waals

Atoms that form bonds through the donation and acceptance of electrons create ionic bonds. In an ionic bond, one atom transfers one or more electrons to another atom, leading to the formation of charged ions. For instance, when sodium (Na) donates an electron, it becomes a positively charged ion (Na+), while chlorine (Cl) accepts that electron, becoming a negatively charged ion (Cl-). The electrostatic attraction between these oppositely charged ions forms a strong bond known as an ionic bond. This type of bond is characteristic of the interaction between metals and nonmetals where the metal tends to lose electrons and the nonmetal tends to gain them. Ionic compounds typically have high melting and boiling points, and they conduct electricity when dissolved in water or melted due to the movement of the ions. Understanding this mechanism is key to grasping how various substances interact and form compounds in chemistry.

5. The respiratory system is responsible for supplying the body with what essential gas?

A. Carbon dioxide

B. Nitrogen

C. Oxygen

D. Hydrogen

The respiratory system is primarily responsible for supplying the body with oxygen. This essential gas is crucial for cellular respiration, a process that occurs in our cells to produce energy. During respiration, oxygen is inhaled into the lungs and then transferred into the bloodstream, where it is delivered to cells throughout the body. In return, carbon dioxide, a byproduct of cellular respiration, is transported back to the lungs to be exhaled. While nitrogen and hydrogen are present in the air and play various roles in biological systems, they are not the primary focus of the respiratory process. Hence, oxygen is the essential gas that the respiratory system specifically facilitates for the body's metabolic needs.

6. If a normal (AA) male and a female with the disease (aa) mate, what percentage of offspring will be carriers of the disease?

A. 0%

B. 25%

C. 75%

D. 100%

In this genetic scenario, we are examining the mating between a male with a normal genotype (homozygous dominant, AA) and a female who has the disease (homozygous recessive, aa). The male has two dominant alleles, and the female has two recessive alleles. To determine the genotypes of the offspring, we can use a Punnett square, which outlines the possible combinations of alleles from both parents. The male can only contribute the dominant allele (A) to the offspring, while the female can only contribute the recessive allele (a). Therefore, all offspring will inherit one dominant allele from the father and one recessive allele from the mother, leading to the genotype Aa for all offspring. Being carriers is denoted by having one dominant allele and one recessive allele (Aa). Since all offspring will have this genotype, this means every single offspring will be a carrier of the disease. Thus, 100% of the offspring will be carriers, making the correct answer 100%. In this case, the other options do not align with the genetic outcomes produced by the specific alleles contributed by each parent.

7. Receiving a vaccination against a particular disease results in which of the following types of immunity?

A. Passive

B. Active

C. Humoral

D. Cell-mediated

Receiving a vaccination against a particular disease leads to active immunity. Active immunity occurs when an individual's immune system is exposed to a pathogen (or parts of a pathogen, such as proteins in a vaccine) and subsequently responds by producing specific antibodies and memory cells. This process allows for a long-lasting defense against the disease, as the immune system is primed to recognize and combat future infections by the same pathogen. Vaccinations typically contain weakened or inactivated forms of a virus or bacteria, or pieces of these pathogens, which stimulate a response without causing the disease itself. Over time, this exposure enables the body to develop a specific immune response, including memory cells that can quickly respond if re-exposed to the pathogen in the future. In contrast, passive immunity involves the transfer of antibodies from one individual to another, offering immediate but short-term protection, which does not involve the recipient's own immune response, as seen with maternal antibodies transferred to an infant through breastmilk. Humoral immunity and cell-mediated immunity are terms that refer to specific pathways of the immune response but do not directly capture the essence of receiving a vaccination, which primarily fosters active immunity through stimulation of the immune system.

8. A large saturated hydrocarbon will contain what relationship between hydrogen and carbon atoms?

A. The same number of hydrogen and carbon atoms

B. Exactly twice as many hydrogen atoms as carbon atoms

C. Less than twice as many hydrogen atoms as carbon atoms

D. More than twice as many hydrogen atoms as carbon atoms

In a large saturated hydrocarbon, the relationship between hydrogen and carbon atoms is characterized by the general formula \(C_nH_{2n+2} \). This formula indicates that for every carbon atom in a saturated hydrocarbon, there are typically two hydrogen atoms plus two additional hydrogen atoms. Thus, the number of hydrogen atoms is always greater than twice the number of carbon atoms because it follows the pattern of \(H \) being \(2n + 2 \). As an example, if there are 5 carbon atoms (where \(n = 5 \)), you would calculate the hydrogen atoms as follows: \[H = 2(5) + 2 = 10 + 2 = 12. \] This shows that there are 12 hydrogen atoms for 5 carbon atoms, which is indeed more than twice the number of carbon atoms. Therefore, the chosen answer correctly reflects the relationship seen in saturated hydrocarbons, confirming that they possess a ratio where the number of hydrogen atoms exceeds twice that of the carbon atoms.

9. Which type of reasoning involves forming general conclusions based on specific observations?

A. Deductive reasoning

B. Inductive reasoning

C. Abductive reasoning

D. Transformative reasoning

Inductive reasoning is a method where general conclusions are derived from specific observations or instances. This process involves analyzing specific examples and using them to formulate broader generalizations or theories. For instance, if one observes that the sun rises in the east every morning, they might conclude that the sun always rises in the east. This type of reasoning is essential in scientific inquiry, where patterns are recognized from experimental data to develop hypotheses and theories. In contrast, deductive reasoning starts with general principles or theories and applies them to specific situations to reach a logical conclusion. Abductive reasoning is about forming a hypothesis from incomplete information, often the best explanation for observed phenomena. Transformative reasoning is not a formal category of reasoning in the same context as the others mentioned. Each reasoning type serves different purposes in logical thinking and scientific analysis, but inductive reasoning specifically aligns with the process of concluding broadly from particular observations.

10. Which of the following represents an investigation that has led to significant new designs for improving quality of life?

A. Renewable energy sources

B. Prosthetics, organs

C. Space exploration technologies

D. Telecommunication advancements

The option referring to prosthetics and organs represents an investigation that has significantly improved quality of life through advancements in medical technology. Innovations in this area have led to the development of more functional and biocompatible prosthetic limbs, which allow individuals with limb loss to regain mobility and independence. Additionally, advancements in organ transplantation and artificial organs have transformed medical practices, enabling patients with organ failure to lead healthier lives. These improvements not only enhance physical capabilities but also address psychological and social aspects of well-being, providing individuals with opportunities to participate more fully in everyday life. The ongoing research and development in this field highlight the critical impact that medical technology has on enhancing quality of life for many people. While renewable energy sources, space exploration technologies, and telecommunication advancements each contribute to society in meaningful ways, their primary focus does not center specifically on addressing immediate medical needs and enhancing individual physical capabilities in the direct manner that prosthetics and organ technologies do.

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://teasscience.examzify.com

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