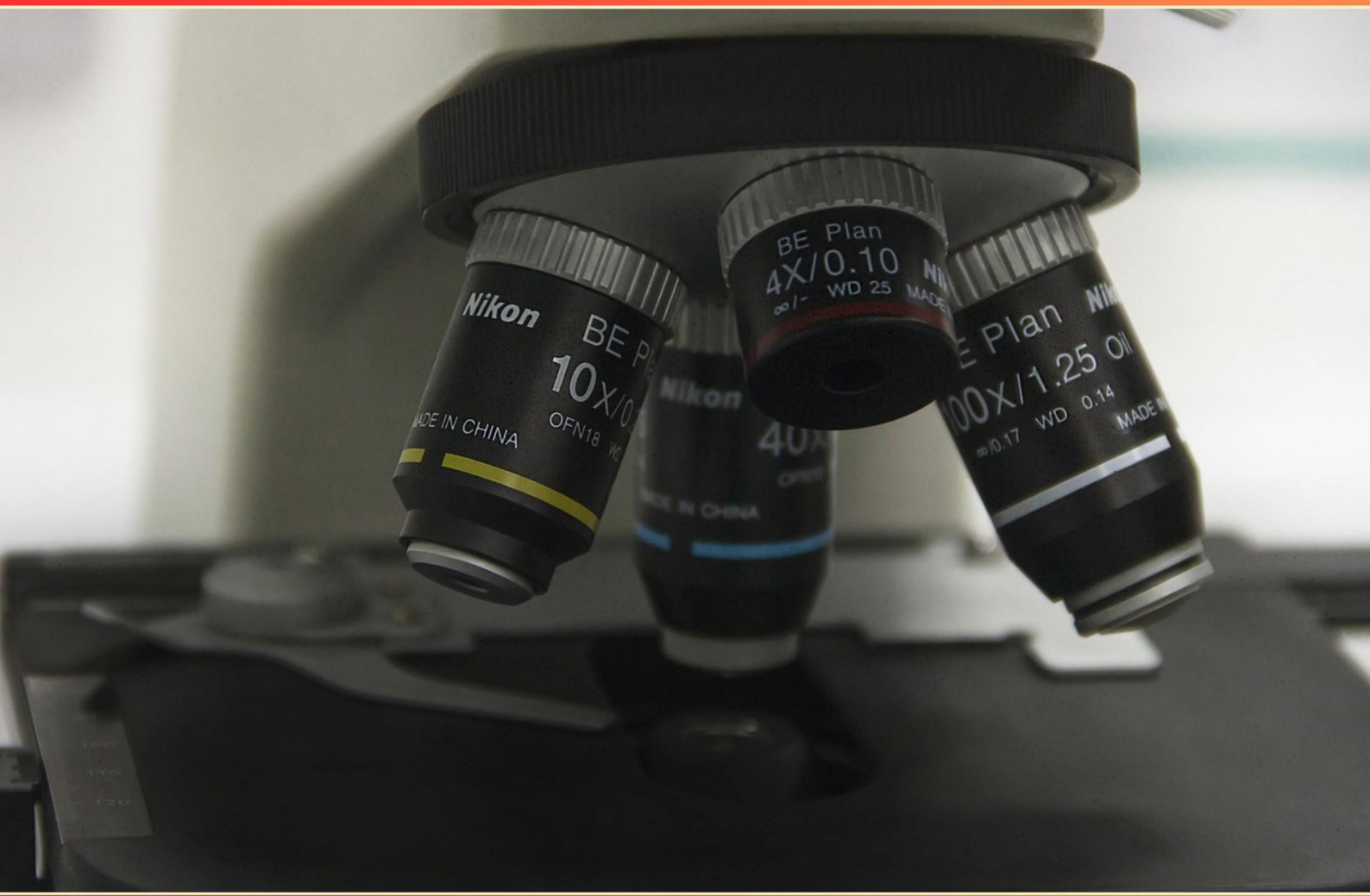
TEXES SCIENCE 7-12 (236) PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR THE FULL VERSION STUDY GUIDE

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Table of Contents

Copyright 1
Table of Contents 2
Introduction 3
How to Use This Guide 4
Questions 5
Answers 8
Explanations 10
Next Steps 15

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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.

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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!

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Questions

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1. What happens to the density of a fluid as it is heated?

A. It increases

B. It decreases

C. It remains the same

D. It fluctuates wildly

2. What is the distance of one Astronomical Unit (AU)?

A. 150 million meters

B. 1.5 billion meters

C. 500 million meters

D. 1 billion meters

3. Which structure is primarily responsible for oxygen transport in the blood?

A. Platelets

B. Leukocytes

C. Plasma

D. Hemoglobin

4. Which question is most important when analyzing the results of a scientific experiment?

A. Was the experiment conducted ethically?

B. Are the conclusions of the experiment supported by the data collected?

C. Did the experiment follow the scientific method?

D. How many variables were tested during the experiment?

5. According to Bernoulli's equation, what happens to pressure when velocity increases?

A. Pressure increases

B. Pressure stays the same

C. Pressure decreases

D. Pressure fluctuates

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6. In humans, most nitrogen waste is excreted from the body in what molecular form?

A. Amino acids

B. Urea

C. Ammonia

D. Nitric acid

7. What is hydrogen bonding?

A. An intermolecular force with carbon atoms

B. An attraction between hydrogen atoms in different compounds

C. An intermolecular force between hydrogen and highly electronegative atoms

D. A covalent bond involving hydrogen atoms

8. What best characterizes the climate of the neritic zone?

A. Completely dark and cold

B. Warm, with varying salinity

C. Consistently high pressure

D. High levels of light due to shallowness

9. What is the first phase of mitosis called?

A. Metaphase

B. Prophase

C. Interphase

D. Telophase

10. Which kingdom is characterized by prokaryotic organisms?

A. Protista

B. Animalia

C. Monera

D. Fungi

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Answers

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

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Explanations

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1. What happens to the density of a fluid as it is heated?

A. It increases

B. It decreases

C. It remains the same

D. It fluctuates wildly

When a fluid is heated, its density generally decreases. This phenomenon occurs because heating a fluid typically causes its molecules to move faster and spread apart. As the temperature rises, the increased kinetic energy leads to expansion of the fluid, which results in a decrease in density because density is defined as mass per unit volume. For a given mass of fluid, if the volume of the fluid increases due to heating, the overall density will decrease as the same mass occupies a larger volume. This behavior is particularly observable in liquids and gases. In contrast, other choices do not accurately reflect this relationship. For example, an increase in density would typically occur upon cooling or compressing a substance rather than heating it. Similarly, density remaining constant would imply that temperature changes do not affect the distance between molecules, which isn't consistent with the observed expansion of fluids upon heating. Fluctuating density would imply erratic changes, which is not characteristic of the stable and predictable behavior of fluids under temperature changes.

2. What is the distance of one Astronomical Unit (AU)?

A. 150 million meters

B. 1.5 billion meters

C. 500 million meters

D. 1 billion meters

One Astronomical Unit (AU) is defined as the average distance from the Earth to the Sun, which is approximately 150 million kilometers. When converted into meters, this distance is about 150 million kilometers multiplied by 1,000 (since 1 kilometer equals 1,000 meters), resulting in 150 billion meters. The correct answer of 1.5 billion meters reflects a common misunderstanding because the correct measurement in terms of meters is significantly larger. The actual distance is often rounded to about 150 million kilometers or expressed in billion meters correctly, where the significant digit placement should be noted in the conversion. It is essential to remember that an Astronomical Unit serves as a convenient way to express distances within our solar system, allowing for easier comprehension and calculations when discussing large distances in space.

3. Which structure is primarily responsible for oxygen transport in the blood?

A. Platelets

B. Leukocytes

C. Plasma

D. Hemoglobin

Hemoglobin is the protein found within red blood cells that is primarily responsible for the transport of oxygen in the bloodstream. This molecule has a high affinity for oxygen, allowing it to bind effectively in the lungs where oxygen concentrations are high. Once bound, hemoglobin carries the oxygen through the circulatory system and releases it in tissues where oxygen levels are lower, facilitating cellular respiration and energy production. Additionally, hemoglobin is crucial in determining the blood's overall ability to carry oxygen, significantly influencing the body's metabolism and functionality. The integration of hemoglobin's structure, comprising four subunits, allows it not only to transport oxygen but also to aid in the transport of carbon dioxide back to the lungs for exhalation. The other options, while important components of the blood, do not serve this specific function. For instance, platelets are primarily involved in blood clotting, leukocytes are responsible for immune responses, and plasma acts as the liquid medium that transports cells and various substances but does not specifically transport oxygen.

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4. Which question is most important when analyzing the results of a scientific experiment?

A. Was the experiment conducted ethically?

B. Are the conclusions of the experiment supported by the data collected?

C. Did the experiment follow the scientific method?

D. How many variables were tested during the experiment?

The most important question when analyzing the results of a scientific experiment is whether the conclusions of the experiment are supported by the data collected. This question directly addresses the core purpose of scientific experimentation, which is to draw valid conclusions based on empirical evidence gathered during the research process. When scientists conduct an experiment, they are testing a hypothesis and collecting data to evaluate whether their predictions hold true. The validity of a scientific study is heavily dependent on the alignment between the data obtained and the conclusions derived from that data. If the data supports the conclusions, this confirms the hypothesis or provides insights that could lead to further exploration. Conversely, if the conclusions do not align with the data, it indicates potential flaws in the experimental design, data collection, or interpretation and could necessitate a reconsideration of the hypothesis or approach taken. Other questions, while they may provide context or contribute to the overall assessment of the research, do not hold the same level of significance in determining the accuracy and reliability of the findings as this question does. For example, ethical considerations and adherence to the scientific method are important for maintaining scientific integrity and rigorous standards, but they do not directly assess whether the experiment's conclusions are justified by the data.

5. According to Bernoulli's equation, what happens to pressure when velocity increases?

A. Pressure increases

B. Pressure stays the same

C. Pressure decreases

D. Pressure fluctuates

According to Bernoulli's equation, in a fluid flowing through a pipe or around obstacles, an increase in the fluid's velocity leads to a corresponding decrease in pressure. This relationship highlights the principle of conservation of energy in fluid dynamics, where the total mechanical energy of the fluid remains constant. As the velocity of the fluid increases, the kinetic energy of the fluid particles increases. Since the total energy must remain constant, a decrease in potential energy (which is represented by pressure in this context) must occur to compensate for the increase in kinetic energy. Therefore, when the velocity increases, the pressure must decrease, making the correct answer a decrease in pressure.

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6. In humans, most nitrogen waste is excreted from the body in what molecular form?

A. Amino acids

B. Urea

C. Ammonia

D. Nitric acid

The correct answer is urea because it is the primary form in which nitrogen waste is excreted by humans. The process begins in the liver, where amino acids from proteins are deaminated, producing ammonia. Ammonia is highly toxic, so it is quickly converted into urea through the urea cycle. Urea is much less toxic and can be safely transported in the bloodstream to the kidneys, where it is excreted in urine. This method of excreting nitrogen is efficient for humans as it allows for the safe removal of waste products while conserving water, compared to other forms like ammonia which would require significant water for safe excretion. Urea's presence in urine serves as a key indication of the body's protein metabolism and waste management.

7. What is hydrogen bonding?

A. An intermolecular force with carbon atoms

B. An attraction between hydrogen atoms in different compounds

C. An intermolecular force between hydrogen and highly electronegative atoms

D. A covalent bond involving hydrogen atoms

Hydrogen bonding is an intermolecular force that occurs between hydrogen atoms and highly electronegative atoms such as oxygen, nitrogen, or fluorine. This type of bonding arises because when hydrogen is covalently bonded to a highly electronegative atom, it gains a partial positive charge due to the electronegativity difference. This creates an attraction between the positively charged hydrogen atom and the lone pairs of electrons on the electronegative atom of another molecule, resulting in a hydrogen bond. Hydrogen bonds play a critical role in determining the physical properties of substances, such as the high boiling point of water compared to other similar-sized molecules. They are key to various biological processes, including the structure of proteins and nucleic acids. Understanding hydrogen bonding is vital in the study of chemistry and biology, as it influences molecular interactions that are essential for life.

8. What best characterizes the climate of the neritic zone?

A. Completely dark and cold

B. Warm, with varying salinity

C. Consistently high pressure

D. High levels of light due to shallowness

The neritic zone, which extends from the low tide mark to the edge of the continental shelf, is characterized by its shallow waters. This reduced depth allows for higher levels of light penetration compared to deeper oceanic zones. Because light is essential for photosynthesis, this area supports a rich diversity of marine life, including various species of phytoplankton, seaweeds, and larger marine organisms that rely on these primary producers. The presence of abundant sunlight in the neritic zone contributes to heightened biological productivity, making it a critical habitat for many marine species. As a result, the combination of warm temperatures, light availability, and nutrient-rich waters makes the neritic zone one of the most biologically active and diverse regions in the ocean.

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9. What is the first phase of mitosis called?

A. Metaphase

B. Prophase

C. Interphase

D. Telophase

The first phase of mitosis is known as prophase. During this stage, several key events occur that are crucial for the successful division of the cell. The chromatin, which is the relaxed form of DNA within the nucleus, condenses into visible chromosomes, each composed of two sister chromatids joined at the centromere. This condensation is essential as it allows the chromosomes to be accurately separated later in the process. Additionally, during prophase, the nuclear envelope begins to break down, allowing the mitotic spindle, a structure made of microtubules, to begin forming and establishing connections with the chromosomes. The centrioles, which are involved in organizing the microtubules, move to opposite poles of the cell, further aiding in the formation of the spindle apparatus. These processes set the stage for the next phases of mitosis, where the chromosomes will align, separate, and ultimately lead to the division of the cell into two identical daughter cells. Understanding prophase is crucial as it marks the transition from interphase, the phase where the cell prepares for division, to the active phases of mitosis.

10. Which kingdom is characterized by prokaryotic organisms?

A. Protista

B. Animalia

C. Monera

D. Fungi

The kingdom that is characterized by prokaryotic organisms is Monera. This kingdom includes bacteria and archaea, which are single-celled organisms that lack a defined nucleus and other membrane-bound organelles, making them prokaryotes. Prokaryotic organisms have a simpler cell structure compared to eukaryotic organisms, which are found in the other kingdoms, such as Animalia, Fungi, and Protista. Monera is distinct in that its members are primarily unicellular and have diverse metabolic pathways, allowing them to inhabit various environments. Some prokaryotes are autotrophic, meaning they can produce their own food, while others are heterotrophic, relying on organic compounds from their environment. This versatility contributes to the ecological significance of Monera as decomposers and contributors to nutrient cycles. In contrast, the other options represent kingdoms that are primarily composed of eukaryotic organisms. Animalia includes multicellular organisms that have complex cell structures, and Fungi consists of multicellular organisms that also have defined nuclei. Protista contains both unicellular and multicellular organisms but is mostly made up of eukaryotes as well. Therefore, only Monera is the correct choice when identifying a kingdom solely made up of prok

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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://texesscience7to12.examzify.com

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

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