

THE ULTIMATE CHECKPOINT SCIENCE PRACTICE TEST (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. Which statement about electron affinity and periodic trends across a period is accurate?

- A. Electron affinity is the energy required to remove an electron.
- B. Electron affinity is the energy change when an atom gains an electron but is generally exothermic across a period.
- C. Electron affinity is the energy change when an atom gains an electron; noble gases have very high affinity compared with other elements.
- D. Electron affinity is the energy change when an atom gains an electron; generally becomes more negative across a period as nuclear charge increases; noble gases have very low or endothermic values; exceptions exist.

2. What best defines a tectonic plate?

- A. A small river
- B. A sheet of ice
- C. A part of the crust that moves slowly
- D. A mountain range

3. What are chromosomes made of?

- A. DNA
- B. RNA
- C. Protein
- D. Lipids

4. Which statement correctly identifies the independent, dependent, and controlled variables in an experiment and explains why this distinction matters?

- A. The independent variable is what you measure; the dependent variable is what you deliberately change; controlled variables are kept constant to prevent bias.
- B. All variables are equally important and should be measured the same way.
- C. The independent variable is what you deliberately change; the dependent variable is what you measure; controlled variables are kept constant to prevent confounding effects.
- D. The independent variable is what you deliberately change; the dependent variable is what you measure; controlled variables are kept constant to prevent confounding effects.

- 5. When calcium carbonate reacts with hydrochloric acid, which gas is produced?**
- A. Helium
 - B. Carbon Dioxide
 - C. Hydrogen
 - D. Methane
- 6. What does resource availability influence in natural selection?**
- A. Survival and reproduction
 - B. Only birth rates
 - C. Color change in organisms
 - D. Size of the genome
- 7. What happens in the renal vein?**
- A. Blood leaves excretory (renal) system.
 - B. Blood enters excretory (renal) system.
 - C. Urine is formed.
 - D. Filtration occurs.
- 8. How can we tell if a molecule is formed by an ionic bond?**
- A. The atoms share pairs of electrons.
 - B. The atoms lose or gain electrons.
 - C. The atoms are both nonmetals.
 - D. The atoms are identical.
- 9. If voltage doubles and resistance remains constant, how does current change?**
- A. It decreases by half.
 - B. It doubles.
 - C. It remains the same.
 - D. It quadruples.

10. Over many generations, natural selection can lead to what outcome if the environment favors a particular trait?

- A. Random fixation of traits with no advantage
- B. Increase in frequency of the advantageous trait
- C. Decrease in population size
- D. Traits acquired during life are inherited

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Answers

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

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Explanations

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1. Which statement about electron affinity and periodic trends across a period is accurate?

- A. Electron affinity is the energy required to remove an electron.
- B. Electron affinity is the energy change when an atom gains an electron but is generally exothermic across a period.
- C. Electron affinity is the energy change when an atom gains an electron; noble gases have very high affinity compared with other elements.
- D. Electron affinity is the energy change when an atom gains an electron; generally becomes more negative across a period as nuclear charge increases; noble gases have very low or endothermic values; exceptions exist.**

Electron affinity is the energy change when an atom gains an electron. Across a period, the increasing nuclear charge pulls added electrons in more strongly, so the energy released (the magnitude of the affinity) tends to become more negative as you move from left to right. Noble gases, with closed shells, don't readily accept electrons, so their affinities are very small or even endothermic. There are occasional anomalies due to how electrons pair in subshells and repulsion effects, but the overall pattern is a general shift toward more negative values across a period, with noble gases standing out as the exception. That combination—energy change for gaining an electron, trending toward more negative values across the period, and very low or endothermic values for noble gases—matches the statement best.

2. What best defines a tectonic plate?

- A. A small river
- B. A sheet of ice
- C. A part of the crust that moves slowly**
- D. A mountain range

Tectonic plates are large, rigid pieces of Earth's outer shell that move slowly over the mantle. They make up the lithosphere, which includes the crust and the uppermost part of the mantle, and their motion is driven by convection currents beneath. Saying a tectonic plate is a part of the crust that moves slowly gets at the heart of the idea: a plate is a substantial chunk of the crust that has its own gradual motion, rather than a surface feature or a moving body of ice or water. The other options describe things that are not movable slabs of the Earth's outer shell: a river is liquid water, a sheet of ice is frozen water, and a mountain range is a raised landform built by tectonic forces but not a moving plate itself.

3. What are chromosomes made of?

- A. DNA**
- B. RNA
- C. Protein
- D. Lipids

Chromosomes are built around DNA. The DNA molecule carries the genetic instructions that define inherited traits, and in chromosomes it is packaged with histone proteins into a condensed structure called chromatin, which allows long DNA molecules to fit inside the cell nucleus and be efficiently organized during cell division. So the material that chromosomes are made of is DNA, with proteins helping package and regulate it. RNA plays a role in reading and expressing genetic information but is not the main component of chromosomes, and lipids are not involved in chromosome makeup.

4. Which statement correctly identifies the independent, dependent, and controlled variables in an experiment and explains why this distinction matters?

- A. The independent variable is what you measure; the dependent variable is what you deliberately change; controlled variables are kept constant to prevent bias.
- B. All variables are equally important and should be measured the same way.
- C. The independent variable is what you deliberately change; the dependent variable is what you measure; controlled variables are kept constant to prevent confounding effects.

D. The independent variable is what you deliberately change; the dependent variable is what you measure; controlled variables are kept constant to prevent confounding effects.

Grasping how independent, dependent, and controlled variables work is essential for designing experiments that show cause and effect. The independent variable is the factor you deliberately change to test its impact. The dependent variable is what you measure to see the result of that change. Controlled variables are factors you keep constant across all experimental conditions so they don't influence the outcome. This distinction matters because it lets you attribute any observed change in the outcome to the manipulation of the independent variable, rather than to other varying conditions. It also supports reliable replication and helps prevent confounding, where unaccounted factors could distort the relationship you're trying to study. The other statements swap roles or suggest all variables should be measured the same way, which ignores the purposeful manipulation and the need to control other factors.

5. When calcium carbonate reacts with hydrochloric acid, which gas is produced?

- A. Helium
- B. Carbon Dioxide
- C. Hydrogen
- D. Methane

A carbonate reacting with an acid releases carbon dioxide. When calcium carbonate meets hydrochloric acid, the carbonate is protonated and breaks down to form calcium chloride, water, and carbon dioxide, which bubbles out as a gas. The balanced idea is $\text{CaCO}_3 + 2 \text{HCl} \rightarrow \text{CaCl}_2 + \text{CO}_2 + \text{H}_2\text{O}$. So the gas produced is carbon dioxide. Helium, hydrogen, and methane aren't generated by this acid-carbonate reaction, since they come from different processes and reactants.

6. What does resource availability influence in natural selection?

- A. Survival and reproduction**
- B. Only birth rates
- C. Color change in organisms
- D. Size of the genome

Resource availability shapes fitness by determining who can survive and reproduce in a given environment. When resources are limited, individuals face competition for food, water, shelter, and mates. Those with traits that help them obtain resources more efficiently, avoid predators, or endure scarcity have a better chance of surviving to reproductive age and producing offspring. Because these offspring inherit the advantageous traits, those traits become more common in the population over generations. So, resource availability directly influences who survives and who reproduces, driving evolutionary change through natural selection. Birth rates alone don't capture fitness, color changes aren't a direct consequence of resource levels, and genome size isn't dictated by resource availability in the typical course of natural selection.

7. What happens in the renal vein?

- A. Blood leaves excretory (renal) system.**
- B. Blood enters excretory (renal) system.
- C. Urine is formed.
- D. Filtration occurs.

Blood leaving the kidney via the renal vein means it's exiting the excretory system after being processed. The kidney filters waste from blood and ultimately produces urine, but the urine itself leaves the body through the ureter. Filtration happens in the glomerulus inside the nephron, not in the vein. So the renal vein's job is to drain cleaned blood away from the kidney back toward the heart.

8. How can we tell if a molecule is formed by an ionic bond?

- A. The atoms share pairs of electrons.
- B. The atoms lose or gain electrons.**
- C. The atoms are both nonmetals.
- D. The atoms are identical.

Ionic bonding is defined by electrons being transferred from one atom to another, producing ions that are held together by the strong attraction between opposite charges. When electrons are donated by a metal and accepted by a nonmetal, the metal becomes a positive ion and the nonmetal becomes a negative ion, and those ions stick together because they attract each other. This transfer, not sharing of electrons, is what sets ionic bonds apart from covalent bonds. So the best way to tell if a bond is ionic is to look for evidence of electron transfer between atoms. In contrast, bonds formed by sharing electrons (covalent bonds) involve pairs of electrons rather than full transfer, and the other clues—such as both atoms being nonmetals or the atoms being identical—don't by themselves distinguish ionic from covalent bonding.

9. If voltage doubles and resistance remains constant, how does current change?

- A. It decreases by half.
- B. It doubles.**
- C. It remains the same.
- D. It quadruples.

Current responds directly to voltage when resistance doesn't change, as described by Ohm's law $I = V / R$. If you double the voltage while keeping the resistance constant, the current must double because you're pushing twice as much voltage across the same obstacle. For example, with $V = 10\text{ V}$ and $R = 5\ \Omega$, $I = 2\text{ A}$; doubling the voltage to 20 V gives $I = 4\text{ A}$. So the current doubles. The other options don't fit this relationship: halving, staying the same, or quadrupling would require different changes in voltage or resistance that aren't present in this scenario.

10. Over many generations, natural selection can lead to what outcome if the environment favors a particular trait?

- A. Random fixation of traits with no advantage
- B. Increase in frequency of the advantageous trait**
- C. Decrease in population size
- D. Traits acquired during life are inherited

When the environment favors a particular trait, natural selection causes that trait to become more common in the population over many generations. Individuals with the advantageous trait tend to survive and reproduce more, so their genes are passed on more often. Over time, the frequency of the advantageous trait increases, and the population becomes better suited to its environment. The other ideas don't fit as well: random fixation happens by chance rather than because the trait provides a consistent advantage; a decrease in population size isn't a necessary outcome of selection for a trait; and traits acquired during life aren't inherited—genetic information is passed to offspring, not acquired characteristics.

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://ultimatecheckpointscience.examzify.com>

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

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