IAC WHITE SET SCIENCE BEE PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR THE FULL VERSION STUDY GUIDE

https://iacwhitesetsciencebee.examzify.com

Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

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

SAMPLE

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.

SAMPLE

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!

SAMPLE

Questions

SAMPLE

1. What is the lowest layer of Earth's atmosphere?

A. Troposphere

B. Stratosphere

C. Mesosphere

D. Thermosphere

2. Which planet is known for the Great Red Spot and was observed by Galileo, with moons including Ganymede and Europa?

A. Venus

B. Saturn

C. Jupiter

D. Mercury

3. What process do plants use to convert light energy into chemical energy, storing it as glucose?

A. Respiration

B. Transpiration

C. Photosynthesis

D. Fermentation

4. Who proposed the plum pudding model of the atom after discovering electrons?

A. Niels Bohr

B. Ernest Rutherford

C. James Chadwick

D. J. J. Thomson

5. What is the SI unit of mass and its standard symbol?

A. Kilogram, symbol kg

B. Gram, symbol g

C. Meter, symbol m

D. Newton, symbol N

SAMPLE

6. What is the difference between an element and a compound?

A. An element is a substance made of only one type of atom; a compound is formed from two or more elements chemically bonded.

B. An element is composed of molecules; a compound is a pure element.

C. An element is a mixture; a compound is a pure substance.

D. An element is always a solid; a compound is always a liquid.

7. Which sex chromosome is associated with X-inactivation and forms a Barr body in female mammals?

A. Y chromosome

B. X chromosome

C. Chromosome 21

D. Mitochondrial DNA

8. In a monohybrid cross Aa x Aa, what is the probability that offspring show the recessive phenotype?

A. 50%

B. 75%

C. 25%

D. 0%

9. In a closed system, the Law of Conservation of Mass states that mass is:

A. Created from nothing

B. Doubled during reactions

C. Conserved; mass before equals mass after

D. Varies with temperature

10. In what year did the Soviet Union launch the first artificial satellite, Sputnik 1?

A. 1950

B. 1961

C. 1957

D. 1969

SAMPLE

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What is the lowest layer of Earth's atmosphere?

A. Troposphere

B. Stratosphere

C. Mesosphere

D. Thermosphere

The lowest layer is the troposphere. This layer sits directly above the Earth's surface and holds most of the atmosphere's mass, which is why weather happens here. In the troposphere, temperature generally decreases with height (the lapse rate, about 6.5°C per kilometer), which helps drive weather patterns and cloud formation. It ends at the tropopause, where conditions change and the stratosphere begins. The stratosphere, mesosphere, and thermosphere sit above it, each with different temperature trends, so they aren't the lowest layer.

2. Which planet is known for the Great Red Spot and was observed by Galileo, with moons including Ganymede and Europa?

A. Venus

B. Saturn

C. Jupiter

D. Mercury

The planet in question is identified by two well-known facts: a gigantic, long-lasting storm and a set of moons that Galileo observed. The Great Red Spot is a massive anticyclonic storm that has raged in Jupiter's atmosphere for centuries, large enough to contain multiple Earths. Galileo's observations with his telescope revealed several moons orbiting the planet, including Ganymede—the largest moon in the solar system—and Europa, an icy moon that excites interest about possible subsurface oceans. These clues together point to Jupiter. Venus and Mercury don't host moons like that, and while Saturn has rings, the Great Red Spot is a hallmark feature unique to Jupiter.

3. What process do plants use to convert light energy into chemical energy, storing it as glucose?

A. Respiration

B. Transpiration

C. Photosynthesis

D. Fermentation

Plants convert light energy into chemical energy stored in glucose through photosynthesis. In the chloroplasts, pigments like chlorophyll capture light and drive two linked sets of reactions. The light-dependent reactions use light to split water, releasing oxygen and producing ATP and NADPH. The Calvin cycle then uses those energy carriers to fix carbon dioxide into sugar, creating glucose that stores energy in its chemical bonds. This is why light energy becomes chemical energy in glucose. Other processes do not store energy as glucose: respiration breaks glucose to release energy, transpiration involves water loss, and fermentation is an anaerobic way to harvest a smaller amount of energy from sugars.

SAMPLE

4. Who proposed the plum pudding model of the atom after discovering electrons?

A. Niels Bohr

B. Ernest Rutherford

C. James Chadwick

D. J. J. Thomson

When you think about how scientists first imagined the atom after discovering electrons, the intuitive move was to fit those negatively charged particles into something that could stay electrically neutral. J. J. Thomson did exactly that after his cathode ray experiments showed electrons as part of every atom. He proposed the plum pudding model, envisioning the atom as a positively charged sphere with electrons scattered throughout like plums in a pudding. This explained how atoms could be neutral yet contain negatively charged components. This idea was later challenged by Rutherford's gold foil experiments, which revealed a tiny dense nucleus and a mostly empty atom, prompting a shift to the nuclear model. Bohr then refined the picture with quantized electron orbits, and Chadwick added the neutron to complete the picture of atomic structure.

5. What is the SI unit of mass and its standard symbol?

A. Kilogram, symbol kg

B. Gram, symbol g

C. Meter, symbol m

D. Newton, symbol N

Mass is measured in the SI system using the kilogram, symbol kg. This is the standard unit for quantifying how much matter an object contains. The gram is also a unit of mass, but it's a smaller unit equal to one thousandth of a kilogram. The meter measures length, and the Newton measures force, not mass. Since 2019 the kilogram has been defined by fixing the value of Planck's constant, tying mass to a fundamental constant rather than a physical object. So the SI unit and its symbol for mass are the kilogram, kg.

6. What is the difference between an element and a compound?

A. An element is a substance made of only one type of atom; a compound is formed from two or more elements chemically bonded.

B. An element is composed of molecules; a compound is a pure element.

C. An element is a mixture; a compound is a pure substance.

D. An element is always a solid; a compound is always a liquid.

Elements are pure substances made of only one type of atom. They can't be broken down into simpler substances by chemical means, though they can exist as individual atoms or as molecules composed of the same atom (like O2 or N2). Compounds, on the other hand, are formed when two or more different elements bond chemically in a fixed ratio. The compound has properties different from its constituent elements and can be broken down into elements only through chemical reactions. For example, water results from hydrogen and oxygen combining in a 2:1 ratio and behaves very differently from either gas; table salt comes from sodium and chlorine combining, with its own distinct properties.

SAMPLE

7. Which sex chromosome is associated with X-inactivation and forms a Barr body in female mammals?

A. Y chromosome

B. X chromosome

C. Chromosome 21

D. Mitochondrial DNA

In female mammals, one of the X chromosomes is silenced to balance gene expression with males who have only one X. The silenced X becomes highly condensed into heterochromatin and forms a Barr body at the edge of the nucleus. This inactivation is a classic example of dosage compensation and is driven by epigenetic marks that keep most genes on that chromosome from being expressed. So the chromosome involved in X-inactivation and forming a Barr body is the X chromosome. The Y chromosome isn't inactivated to form Barr bodies, and chromosome 21 or mitochondrial DNA aren't related to this process.

8. In a monohybrid cross Aa x Aa, what is the probability that offspring show the recessive phenotype?

A. 50%

B. 75%

C. 25%

D. 0%

In a monohybrid Aa x Aa cross, the key idea is that a recessive phenotype appears only when the organism has two recessive alleles, one from each parent. Each parent can pass either A or a with equal chance. So the possible offspring genotypes are AA, Aa, aA, and aa, all equally likely. Only the two-recessive aa combination shows the recessive trait, which is 1 out of these 4 possibilities. That equals 25%. The dominant trait shows up in the other three combinations (AA and Aa or aA each have at least one A). So the probability of recessive phenotype is 25%.

9. In a closed system, the Law of Conservation of Mass states that mass is:

A. Created from nothing

B. Doubled during reactions

C. Conserved; mass before equals mass after

D. Varies with temperature

In a closed system, the total mass stays the same. Substances can change form or rearrange into different compounds, but the amount of matter doesn't disappear or appear out of thin air. Chemical reactions rearrange atoms, and because atoms are conserved, the sum of the masses of all reactants equals the sum of the masses of all products. Think of weighing everything before and after a reaction inside a sealed container—the total weight remains the same (aside from tiny measurement errors). Mass isn't created, destroyed, or altered by temperature in this context; heating may change how it's distributed or how dense things are, but not the total mass.

SAMPLE

10. In what year did the Soviet Union launch the first artificial satellite, Sputnik 1?

A. 1950

B. 1961

C. 1957

D. 1969

Sputnik 1 launched in 1957, launching the era of human-made objects in space. This first artificial satellite was sent into orbit by the Soviet Union on October 4, 1957, and it completed orbits roughly every 96 minutes, demonstrating that a crafted object could reach and circle the Earth. This milestone sits before Yuri Gagarin's flight in 1961 and the Moon landing in 1969, making 1957 the correct year.

SAMPLE

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://iacwhitesetsciencebee.examzify.com

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

SAMPLE