

IGCSE Science Paper 6 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

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- 1. What instrument provides more accurate measurements than a measuring cylinder?**
 - A. Burette.**
 - B. Pipette.**
 - C. Beaker.**
 - D. Erlenmeyer flask.**
- 2. Which result is considered inaccurate in a drawn graph context?**
 - A. A value that exactly matches a plotted point.**
 - B. A point not appearing on the drawn graph, read its x-axis and explain it does not occur.**
 - C. A value that lies exactly on the y-axis.**
 - D. A value that is one unit away from a plotted point.**
- 3. What color does anhydrous copper(II) sulfate turn when it absorbs water?**
 - A. White**
 - B. Blue**
 - C. Green**
 - D. Yellow**
- 4. The true value is the value that would be obtained in an ideal measurement.**
 - A. The value that would be measured with no errors.**
 - B. The measured value with the smallest uncertainty.**
 - C. The average of many measurements.**
 - D. The value given by the instrument's display.**
- 5. What is a benefit of measuring 10 oscillations instead of a single oscillation?**
 - A. Reduces human errors**
 - B. Gives more accurate value of time taken**
 - C. Gives an average of T**
 - D. Increases measurement time**

- 6. Which statement best defines the independent variable in an experiment?**
- A. The variable that the experimenter deliberately changes.**
 - B. The variable that is measured in response to the changes.**
 - C. The variable kept constant throughout the experiment.**
 - D. The variable that represents the final outcome.**
- 7. Which pH range describes a strong acid?**
- A. 0 to 2**
 - B. 3 to 6**
 - C. 7**
 - D. 8 to 14**
- 8. If a measuring cylinder is used, how could you obtain more accurate results?**
- A. Use a burette, as it is more accurate.**
 - B. Increase the concentration of solution.**
 - C. Use a larger cylinder.**
 - D. Repeat measurements with the same cylinder.**
- 9. Why is a pencil used to draw the origin line in chromatography experiments?**
- A. Because pen inks can dissolve in the solvent, causing colors to spread and distort results.**
 - B. Because pencils are easier to see.**
 - C. Because pencil marks are permanent.**
 - D. Because black ink dries slower.**
- 10. When drawing the image formed by a lens, the image is...**
- A. Inverted relative to the object**
 - B. Upright relative to the object**
 - C. Same orientation as the object**
 - D. Cannot be drawn**

Answers

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

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Explanations

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1. What instrument provides more accurate measurements than a measuring cylinder?

A. Burette.

B. Pipette.

C. Beaker.

D. Erlenmeyer flask.

The main idea here is precision in delivering and reading the amount of liquid. A measuring cylinder is built for estimating volumes and has relatively widely spaced marks, so you get a rough idea of how much liquid is present. The burette, however, is designed for precise measurement and controlled delivery. It has a fine scale along its length and a stopcock that lets you release liquid one small amount at a time. By watching the bottom of the meniscus and reading at eye level, you can determine very small changes in volume, often to 0.1 mL or better. This combination of fine graduations and the ability to dispense gradually makes the burette more accurate for measuring exactly how much liquid has been added. The other instruments are mainly for holding or mixing liquids (they don't provide the same level of precise measurement), and while a pipette can be accurate for delivering a fixed volume, the burette offers the best precision for variable, step-by-step additions.

2. Which result is considered inaccurate in a drawn graph context?

A. A value that exactly matches a plotted point.

B. A point not appearing on the drawn graph, read its x-axis and explain it does not occur.

C. A value that lies exactly on the y-axis.

D. A value that is one unit away from a plotted point.

When reading a drawn graph, the information you can rely on is the data points and the relationship shown. A value is only accurate if there is a plotted point (or a justified interpolation) at that position. If you propose a specific point that does not appear on the graph, you're stepping beyond what the graph supports. To check, you can look at the x-axis value that would correspond to that proposed point and see whether the graph actually has a point there. If there isn't one, you must conclude that the proposed result doesn't occur according to the data, which is why that option describes an inaccurate result. Values that exactly match a plotted point are correct, and small deviations from a plotted point can be acceptable within reading or plotting uncertainty. The key idea is that only what the graph shows (and valid interpolations) is considered accurate.

3. What color does anhydrous copper(II) sulfate turn when it absorbs water?

- A. White
- B. Blue**
- C. Green
- D. Yellow

Water uptake changes the copper(II) sulfate from its dry, white form into the hydrated blue form. When it absorbs water, it forms copper(II) sulfate pentahydrate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$). The blue color comes from the copper(II) ion in this hydrated complex, where the water molecules coordinated to copper alter the light absorption, giving a characteristic blue appearance. So the color change from white to blue is a clear sign of hydration.

4. The true value is the value that would be obtained in an ideal measurement.

- A. The value that would be measured with no errors.**
- B. The measured value with the smallest uncertainty.
- C. The average of many measurements.
- D. The value given by the instrument's display.

In measurements, the true value is what you would obtain if the measurement were perfect—no errors from the instrument, the method, or the environment. That ideal value isn't something you can actually measure exactly, but it serves as a reference for accuracy. The reason this option fits best is that it describes the perfect, error-free result you'd get in an ideal measurement. The other ideas are practical ways to estimate or report measurements: averaging many results helps reduce random errors to get closer to the true value but doesn't guarantee perfection because systematic errors can remain; a single displayed reading depends on calibration and precision and might be biased or off; and focusing on the smallest uncertainty emphasizes precision, not necessarily matching the true value.

5. What is a benefit of measuring 10 oscillations instead of a single oscillation?

- A. Reduces human errors**
- B. Gives more accurate value of time taken**
- C. Gives an average of T**
- D. Increases measurement time**

The key idea is that timing a longer motion reduces the influence of human timing mistakes. When you start and stop a timer for a single oscillation, the small delay or hesitation from the person operating the timer can make a noticeable error in that one measurement. If you time ten oscillations, the same small starting/stopping error becomes much less significant relative to the total time. For example, if the reaction time adds about ± 0.2 s, that's a big relative error for a single 2 s oscillation, but only a small relative error for a total of about 20 s for ten oscillations. Consequently, the measurement is more precise. Additionally, you can divide the total time by ten to get the average period, which is a more reliable value than timing a single cycle. The idea that measuring more cycles inherently increases measurement time is a side effect, not the main benefit. So, the best answer highlights that measuring ten oscillations reduces human timing errors, making the result for the period more accurate.

6. Which statement best defines the independent variable in an experiment?

- A. The variable that the experimenter deliberately changes.**
- B. The variable that is measured in response to the changes.**
- C. The variable kept constant throughout the experiment.**
- D. The variable that represents the final outcome.**

The independent variable is the factor you deliberately change to see how it affects something else in the experiment. You set it at different values (for example, different amounts of light or different temperatures) to observe what happens to the outcome you're measuring. The thing you measure in response is the dependent variable, and the variables you keep constant are the controlled variables, used to ensure a fair test. So the statement that describes changing the variable on purpose is the best fit.

7. Which pH range describes a strong acid?

- A. 0 to 2**
- B. 3 to 6**
- C. 7**
- D. 8 to 14**

The main idea here is how pH reflects hydrogen ion concentration and how strongly an acid dissociates in water. A strong acid fully dissociates, releasing a lot of H^+ ions, which pushes the pH to very low values. That's why ranges like 0 to 2 are the ones that describe a strong acid—these numbers correspond to a high H^+ concentration. The other ranges don't describe a strong acid: pH 7 is neutral, pH 3 to 6 are acidic but not as extreme because the acid isn't fully dissociated, and pH 8 to 14 are basic/alkaline with low H^+ concentration.

8. If a measuring cylinder is used, how could you obtain more accurate results?

- A. Use a burette, as it is more accurate.**
- B. Increase the concentration of solution.**
- C. Use a larger cylinder.**
- D. Repeat measurements with the same cylinder.**

Accuracy when measuring liquids improves when you can add very small, controlled amounts. A burette is built for that: it's a long, narrow tube with fine divisions so you can read tiny changes in volume very precisely, usually to a few hundredths of a milliliter. You can release the liquid slowly, drop by drop, and stop exactly at the endpoint, which minimizes overshooting and rounding errors. A measuring cylinder, by contrast, has coarser markings and a wider shape, making the exact amount read less precise and the flow harder to control; the liquid's meniscus is easier to misread, especially if the scale isn't read at eye level. So using a burette gives the most accurate results because you can measure and add amounts with far greater precision. Repeating measurements with the same cylinder can improve precision by averaging, but the inherent limitation of the cylinder's coarse scale remains, which is why the burette is the better option for accuracy.

9. Why is a pencil used to draw the origin line in chromatography experiments?

- A. Because pen inks can dissolve in the solvent, causing colors to spread and distort results.**
- B. Because pencils are easier to see.**
- C. Because pencil marks are permanent.**
- D. Because black ink dries slower.**

In chromatography, the origin line must stay fixed and not be carried along by the developing solvent. Pen inks contain dyes that can dissolve in the solvent, so drawing the line with ink would allow the solvent to move the ink up the plate, smearing the baseline and distorting the pattern of spots. Pencil marks, made with graphite, are largely insoluble in the common solvents used for chromatography, so the origin line remains in place and does not contaminate the developing front. This gives a clean, reliable reference point for measuring how far substances travel.

10. When drawing the image formed by a lens, the image is...

A. Inverted relative to the object

B. Upright relative to the object

C. Same orientation as the object

D. Cannot be drawn

When a lens forms an image, the orientation depends on where the object sits relative to the focal point. For a converging lens with the object placed beyond the focal length, the light rays bend so that they cross after passing through the lens. If you draw at least two rays—the one parallel to the principal axis bending through the focal point on the other side, and the one passing through the center of the lens continuing straight—their intersection forms the image on the opposite side. Because those rays cross, the top of the object ends up at the bottom of the image, so the image is inverted relative to the object. If the object were inside the focal length, the image would be virtual and upright, but for the typical real-image drawing this inverted orientation is what you get.

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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://igcsesciencepaper6.examzify.com>

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

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