# CSET MULTIPLE SUBJECTS SUBTEST 2: MATH AND SCIENCE PRACTICE TEST (SAMPLE)

## STUDY GUIDE

## SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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https://csetmultisubjsubtest2mathsci.examzify.com

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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. **Which type of symbiosis features a neutral effect on the host?**

   A. Mutualism

   B. Parasitism

   C. Commensalism

   D. Amensalism

2. **In two similar triangles with scale factor 3, a side length is 4 in the smaller triangle. What is the corresponding length in the larger triangle?**

   A. 8

   B. 4

   C. 12

   D. 7

3. **Which gas primarily makes up Earth's atmosphere?**

   A. Nitrogen

   B. Oxygen

   C. Argon

   D. Carbon Dioxide

4. **Which expression represents the prime factorization of 12?**

   A. 2×2×3

   B. 3×4

   C. 2×6

   D. 4×3

5. **Which rock is formed by the evaporation of seawater?**

   A. Rock Salt

   B. Sandstone

   C. Silkstone

   D. Shale

6. **What is the greatest common divisor of 48 and 180?**

   A. 6

   B. 18

   C. 12

   D. 24

**7. What is meiosis?**

A. Diploid cell creation

B. Mitosis

C. Cell division that creates haploid sex cells

D. Protein synthesis

**8. Which statement best describes weather under low-pressure conditions?**

A. Low pressure areas bring poor weather.

B. High pressure areas bring improving weather.

C. Low pressure areas bring clear skies.

D. High pressure areas bring storms.

**9. During the first and third quarters, which statement is true about the Moon's illumination?**

A. The Moon is fully illuminated.

B. The Moon is not illuminated.

C. The Moon is half illuminated.

D. The Moon is quarter illuminated.

**10. In the prime factorization of 84, what is the exponent of 2?**

A. 2

B. 1

C. 3

D. 4

# Answers

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

# Explanations

## 1. Which type of symbiosis features a neutral effect on the host?

A. Mutualism

B. Parasitism

C. Commensalism

D. Amensalism

*Symbiotic relationships are classified by how they affect the participants, especially the host. In commensalism, one partner benefits while the host is essentially unaffected, a neutral impact on the host. For example, barnacles attach to a whale: the barnacles gain access to nutrients and transport, while the whale isn't helped or harmed. Mutualism would give both partners a benefit, so the host would not be neutral. Parasitism hurts the host, which rules it out for neutral. Amensalism involves one species being harmed while the other is unaffected, which is different from a neutral effect on the host in the typical sense. So the correct type is commensalism.*

## 2. In two similar triangles with scale factor 3, a side length is 4 in the smaller triangle. What is the corresponding length in the larger triangle?

A. 8

B. 4

C. 12

D. 7

*When two triangles are similar with a scale factor of 3, every corresponding length in the larger triangle is three times the length in the smaller one. So a side that measures 4 in the smaller triangle becomes $4 \times 3 = 12$ in the larger triangle. The other numbers don't fit because they would require multiplying by 2, 1, or another non-multiple of 3. Therefore, the corresponding length is 12 units.*

## 3. Which gas primarily makes up Earth's atmosphere?

A. Nitrogen

B. Oxygen

C. Argon

D. Carbon Dioxide

*Earth's atmosphere is a mixture of gases, and the largest portion by volume is nitrogen. About 78% of dry air is nitrogen ($N_2$), making it the dominant component. The next major gas is oxygen, which is around 21%. The remaining gases—argon, carbon dioxide, neon, helium, methane, and others—are present only in trace amounts, together contributing less than a few percent. Nitrogen is so abundant because it is quite unreactive under surface conditions, so it stays in the atmosphere for long periods while other gases cycle more quickly. This stability lets nitrogen maintain its lead as the primary gas in Earth's atmosphere.*

## 4. Which expression represents the prime factorization of 12?

A. 2×2×3

B. 3×4

C. 2×6

D. 4×3

*Prime factorization expresses a number as a product of prime numbers. For 12, break it down by primes: 12 = 2 × 6, and 6 = 2 × 3, so 12 = 2 × 2 × 3. This uses only prime factors, which is what prime factorization requires. The other expressions include composite numbers (like 4 or 6), so they aren't a true prime factorization. The order doesn't matter, so 2×2×3 is the same as 3×2×2.*

## 5. Which rock is formed by the evaporation of seawater?

A. Rock Salt

B. Sandstone

C. Silkstone

D. Shale

*Rocks formed by evaporation of seawater are evaporites, minerals that precipitate from concentrated brines as water evaporates. When seawater in a restricted basin dries up, salts like sodium chloride become supersaturated and crystallize, producing rock salt. This contrasts with sandstone, which forms from cemented sand grains; shale, from compacted clay particles; and silkstone, which isn't a typical evaporite rock. So rock salt is the correct choice.*

## 6. What is the greatest common divisor of 48 and 180?

A. 6

B. 18

C. 12

D. 24

*The greatest common divisor is the largest number that divides both numbers. To find it, break each number into prime factors: 48 = 2^4 × 3, and 180 = 2^2 × 3^2 × 5. The common prime factors are 2 and 3, and you take the smallest powers they appear with in both factorizations: 2^2 and 3^1. Multiply those together to get 2^2 × 3 = 4 × 3 = 12. So 12 is the largest number that divides both 48 and 180 (and you can verify: 48 ÷ 12 = 4 and 180 ÷ 12 = 15).*

## 7. What is meiosis?

A. Diploid cell creation

B. Mitosis

C. Cell division that creates haploid sex cells

D. Protein synthesis

*Meiosis is the cell division that reduces the chromosome number by half to form haploid sex cells. This is essential so that when two gametes join during fertilization, the offspring end up with the normal diploid chromosome count. In organisms like animals and many plants, meiosis occurs in the reproductive organs to produce sperm and eggs (or pollen and ovules). It involves two rounds of division after DNA is replicated, first separating homologous chromosomes and then separating sister chromatids, yielding four haploid cells. Genetic variation comes from crossing over during the first division and from the independent assortment of chromosomes, so each gamete is genetically different from the others. This is different from mitosis, which keeps the chromosome number the same and makes two genetically identical diploid body cells, and from protein synthesis, which is about making proteins from genetic information.*

## 8. Which statement best describes weather under low-pressure conditions?

A. Low pressure areas bring poor weather.

B. High pressure areas bring improving weather.

C. Low pressure areas bring clear skies.

D. High pressure areas bring storms.

*Low pressure causes air to rise, which cools and condenses into clouds, often bringing rain, storms, or other unsettled conditions. That rising air also leads to more vertical development and instability, making weather come in more quickly and be less predictable. So, describing low-pressure areas as bringing poor weather fits the typical pattern. In contrast, high-pressure systems have sinking air that suppresses cloud formation, leading to clearer skies and calmer, more stable weather.*

## 9. During the first and third quarters, which statement is true about the Moon's illumination?

A. The Moon is fully illuminated.

B. The Moon is not illuminated.

C. The Moon is half illuminated.

D. The Moon is quarter illuminated.

*Moon illumination depends on how much of the Sunlit side of the Moon we can see from Earth. During the first and third quarter phases, the Sun, Moon, and Earth form a right angle, so sunlight hits exactly half of the Moon's near side. We see a half-moon, meaning about 50% of the Moon is illuminated. In everyday terms this is often described as a quarter moon, since it's one of the four main phases, but the key point is the illuminated fraction is half. The full moon has all of the near side lit, and the new moon has none, so those describe the other points in the cycle.*

**10. In the prime factorization of 84, what is the exponent of 2?**

A. 2

B. 1

C. 3

D. 4

*To find the exponent of 2, look at how many times 2 multiplies into 84 in its prime factorization. Divide by 2 repeatedly while results stay even: 84 ÷ 2 = 42, and 42 ÷ 2 = 21. After that, the result is no longer even, so 2 appears twice. This means 84 can be written as 2^2 times the remaining factor 21, and 21 factors further as 3 × 7. So the exponent of 2 is 2.*

# 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://csetmultisubjsubtest2mathsci.examzify.com

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