

WESTCOTT MICROBIOLOGY LABORATORY PRACTICE EXAM (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. How much is being measured from each test tube?
 - A. 0.5 mL
 - B. 1 mL
 - C. 2 mL
 - D. 5 mL
2. Why are omega-3 and omega-6 fatty acids considered essential?
 - A. They are produced by the liver in large amounts.
 - B. They cannot be made by the body; humans must ingest them.
 - C. They are not needed for health.
 - D. They are simple carbohydrates.
3. The microscopic image showing proteins in plants is named
 - A. Plant tissue
 - B. Urea crystals
 - C. Proteins in plants
 - D. Self-assembling polymers
4. The microscopic exam looks at white blood cells.
 - A. False
 - B. Not applicable
 - C. Depends on the sample
 - D. True
5. How many Americans die every day on dialysis?
 - A. 200
 - B. 240
 - C. 280
 - D. 320
6. Which feature is characteristic of Gram-Positive bacteria?
 - A. Thick peptidoglycan layer; no outer membrane
 - B. Outer membrane containing lipopolysaccharide
 - C. Thin peptidoglycan layer with periplasmic space
 - D. L-form, cell-wall deficient bacteria

7. The Cas9 enzyme acts as which of the following in gene editing?
- A. DNA polymerase
 - B. RNA polymerase
 - C. DNA-cutting nuclease
 - D. Helicase
8. The tube on the right represents a ____ mL dilution tube.
- A. 9
 - B. 5
 - C. 10
 - D. 15
9. In 2018, how many people worldwide were diagnosed with cancer?
- A. 34 million
 - B. 17 million
 - C. 12 million
 - D. 7 million
10. What is the multiplier for the amount of antibiotic in the middle area here represented by the question mark?
- A. 100
 - B. 1000
 - C. 0.1
 - D. 10

Answers

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

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Explanations

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1. How much is being measured from each test tube?

- A. 0.5 mL
- B. 1 mL**
- C. 2 mL
- D. 5 mL

Reading volumes from a graduated tube comes down to where the liquid sits relative to the marked increments. In this setup the liquid is exactly on the first graduation above the bottom, and each mark represents the same amount. So the amount being measured corresponds to that first mark—the value indicated by that first division. If the liquid were between marks or at a later mark, a different reading would apply, but here it aligns with the first mark.

2. Why are omega-3 and omega-6 fatty acids considered essential?

- A. They are produced by the liver in large amounts.
- B. They cannot be made by the body; humans must ingest them.**
- C. They are not needed for health.
- D. They are simple carbohydrates.

Essential fatty acids are fatty acids the body cannot synthesize in adequate amounts and therefore must be obtained from food. Omega-3 and omega-6 fatty acids fit this because humans lack sufficient metabolic activity to produce them de novo in the needed quantities. The body can make many other fatty acids and can convert some essential ones to longer-chain forms, but this conversion is limited, so dietary intake is necessary to meet health needs. They are fats, not carbohydrates, so they are not simple sugars. Therefore, the reason they're essential is that they cannot be made by the body and must be ingested.

3. The microscopic image showing proteins in plants is named

- A. Plant tissue
- B. Urea crystals
- C. Proteins in plants**
- D. Self-assembling polymers

Think about what the image actually shows: proteins located within plant cells. In microscopy, you name the image by what you can observe. If the visualized content is proteins in plants, the most precise label is "proteins in plants." The other options don't fit: plant tissue describes general tissue structure rather than the specific molecules; urea crystals depict crystalline chemical form, not proteins; self-assembling polymers refer to synthetic or polymeric structures, not plant proteins. So this label correctly conveys both the substance (proteins) and the context (in plants).

4. The microscopic exam looks at white blood cells.

- A. False
- B. Not applicable
- C. Depends on the sample
- D. True**

White blood cells are central to microscopic evaluations in microbiology because they reveal how the body is responding to infection and inflammation. In routine microscopic exams of clinical specimens—such as blood smears, urine sediment, sputum, CSF, and wound material—the lab looks for leukocytes and often assesses their quantity and types. Their presence, absence, and morphology provide diagnostic clues: elevated WBCs and certain leukocyte findings can indicate bacterial infection, viral inflammation, or other inflammatory processes, while their absence can point to non-inflammatory conditions or non-attenuated samples. So, the statement is true: microscopic exams routinely look at white blood cells to help interpret the nature of the infection or inflammatory response.

5. How many Americans die every day on dialysis?

- A. 200
- B. 240**
- C. 280
- D. 320

This question is about the approximate daily mortality among people on maintenance dialysis in the United States. The dialysis population experiences high mortality due to age and common comorbidities like diabetes and cardiovascular disease. A commonly cited figure is that about 90,000 Americans die each year while on dialysis. When you spread that over 365 days, it comes to roughly 240 deaths per day, which is why this daily number is used as the rounded estimate. The exact daily toll varies a bit year to year, but 240 per day is a standard, rounded figure used in discussions of dialysis outcomes.

6. Which feature is characteristic of Gram-Positive bacteria?

- A. Thick peptidoglycan layer; no outer membrane**
- B. Outer membrane containing lipopolysaccharide
- C. Thin peptidoglycan layer with periplasmic space
- D. L-form, cell-wall deficient bacteria

Gram-positive bacteria are defined by having a thick peptidoglycan layer outside the plasma membrane and no outer membrane. This thick wall retains the crystal violet–iodine complex during Gram staining, so the cell appears purple. The absence of an outer membrane means there isn't a lipopolysaccharide-rich barrier like in Gram-negative bacteria, which helps explain why Gram-positives maintain the purple stain. In contrast, Gram-negative organisms have a thinner peptidoglycan layer plus an outer membrane containing lipopolysaccharide and a periplasmic space, which leads to a different staining outcome. L-form cells lack a cell wall and aren't defined by Gram-positive characteristics. Thus, the defining feature is a thick peptidoglycan layer with no outer membrane.

7. The Cas9 enzyme acts as which of the following in gene editing?

- A. DNA polymerase
- B. RNA polymerase
- C. DNA-cutting nuclease**
- D. Helicase

The essential idea is that Cas9 is a DNA-cutting nuclease in gene editing. It forms a complex with a guide RNA to find a specific DNA sequence and then uses its nuclease domains to introduce a double-strand break at that site. This break triggers the cell's repair pathways (NHEJ or HDR), allowing for targeted mutations or insertions. It is not a DNA polymerase, which would synthesize DNA; nor an RNA polymerase, which would transcribe RNA; nor a helicase, which would unwind DNA strands.

8. The tube on the right represents a ____ mL dilution tube.

- A. 9**
- B. 5
- C. 10
- D. 15

The amount shown on a dilution tube reflects its total volume when filled to the mark. The tube on the right is filled to the 9 mL line, so its designation is 9 mL. The other options would require the fill line to line up with 5, 10, or 15 mL, which isn't the case in the image. In practice, that final volume label helps you determine the dilution factor you're using in a step of the serial dilution, independent of how much you transfer to reach that final volume.

9. In 2018, how many people worldwide were diagnosed with cancer?

- A. 34 million
- B. 17 million**
- C. 12 million
- D. 7 million

Understanding global cancer incidence helps here: incidence means the number of new cancer diagnoses in a given year. In 2018, international estimates put new cancer cases around 18 million worldwide. Among the options, seventeen million is the closest figure, making it the best pick. The other numbers refer to different measures: roughly 34 million would reflect people living with cancer (prevalence or long-term survivors), not new diagnoses; twelve million and seven million are too low for the count of new cases in that year. Data are estimates and rounded, but the key idea is that "diagnosed" = new cases in that year, and the closest estimate to the 2018 figure is the correct choice.

10. What is the multiplier for the amount of antibiotic in the middle area here represented by the question mark?

- A. 100
- B. 1000**
- C. 0.1
- D. 10

In diffusion or serial dilution problems, the amount in each subsequent region is reduced by the same factor. If each step is a tenfold dilution, moving from the original region to the middle area involves three such steps. Multiply the factors: $10 \times 10 \times 10 = 1000$. So the middle area represents a dilution factor of 1000 relative to the starting amount, meaning it contains one thousandth of the original antibiotic. (If you think in terms of remaining amount, it's 1/1000 of the stock.)

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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://westcottmicrobiolab.examzify.com>

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

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