CAMLPR MICROBIOLOGY PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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.

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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!

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Questions

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1. Gram-positive cocci in clusters, catalase positive, tube coagulase positive. Which organism matches this profile?

A. Staphylococcus aureus

B. Staphylococcus saprophyticus

C. Coagulase negative staphylococcus

D. Bacillus spp

2. Which set of media is used for stool cultures to detect a range of gastrointestinal organisms?

A. HEK O2 24h; MAC O2 24h; SMAC O2 24h; CIN O2 30C 24h

B. BAP CO2 24h

C. CHOC CO2 24h

D. MAC O2 24h only

3. Which criterion would lead to rejecting a sputum sample for culture?

A. Excess squamous epithelial cells with no abundance of WBCs or mucous

B. High WBC count with abundant mucous

C. Visible purulence and strong odor

D. Adequate sample with neutrophils

4. Which organism is non-lactose fermenting, oxidase negative, nitrate negative, and non-motile?

A. Shigella flexneri

B. Escherichia coli

C. Salmonella enterica

D. Vibrio vulnificus

5. If you use an expired antibiotic disk in a KB assay, what is the likely result?

A. Organism falsely susceptible

B. No effect

C. Organism falsely resistant

D. Zone size increases

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6. In nucleic acid amplification testing, what can cause a false positive?

A. Laboratory contamination

B. Contamination

C. Primer-dimer formation

D. Inhibitors in the sample

7. Which agents are used to treat Enterococcus infections, including VRE considerations?

A. Doxycycline, TMP-SMX

B. Penicillin, Ciprofloxacin, Gentamicin

C. Ampicillin, Vancomycin, Linezolid if VRE, Daptomycin

D. Amoxicillin, Nitrofurantoin

8. A 7-year-old unvaccinated child with sore throat and thick white pseudomembrane; throat culture shows Gram-positive pleomorphic rods; CTBA yields black-gray colonies; Catalase positive; Urea negative. What organism do you suspect and how do you identify it?

A. Corynebacterium diphtheriae, PCR for A and B toxins

B. Streptococcus pyogenes, bacitracin sensitivity

C. Corynebacterium jeikeium, MALDI-TOF

D. Neisseria meningitidis, PCR for capsule typing

9. Which organism is a Gram-positive coccus that occurs in chains, is non-hemolytic, and PYR positive?

A. Enterococcus spp

B. Streptococcus pyogenes

C. Staphylococcus aureus

D. Streptococcus pneumoniae

10. Which organism is associated with cystic fibrosis and demonstrates oxidase-positive, motile bacteria with glucose oxidation showing yellow in the O tube and green in the F tube?

A. Pseudomonas aeruginosa

B. Stenotrophomonas maltophilia

C. Burkholderia cepacia

D. Achromobacter xylosoxidans

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Answers

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

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Explanations

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1. Gram-positive cocci in clusters, catalase positive, tube coagulase positive. Which organism matches this profile?

A. Staphylococcus aureus

B. Staphylococcus saprophyticus

C. Coagulase negative staphylococcus

D. Bacillus spp

Staphylococcus aureus is identified by a combination of traits: gram-positive cocci arranged in irregular clusters, catalase positivity, and the ability to convert fibrinogen to fibrin in plasma (tube coagulase positive). The cluster arrangement points to Staphylococcus species, and the catalase test confirms you're dealing with staphylococci (they produce the enzyme catalase, unlike streptococci and enterococci). Within Staphylococcus, the tube coagulase test distinguishes the species: Staphylococcus aureus is coagulase positive, meaning it can clot plasma, while coagulase-negative staphylococci (like S. saprophyticus or S. epidermidis) do not. Bacillus species are Gram-positive rods, not cocci, so they don't fit the profile. Since the organism is a Gram-positive coccus in clusters, catalase positive, and tube coagulase positive, the best match is Staphylococcus aureus.

2. Which set of media is used for stool cultures to detect a range of gastrointestinal organisms?

A. HEK O2 24h; MAC O2 24h; SMAC O2 24h; CIN O2 30C 24h

B. BAP CO2 24h

C. CHOC CO2 24h

D. MAC O2 24h only

Stool cultures aim to recover a broad spectrum of enteric pathogens, so a panel of selective and differential media is used together. This combination includes Hektoen enteric agar, which helps distinguish Salmonella and Shigella from other enterics based on colony color and H2S production; MacConkey agar, which separates lactose fermenters from non-fermenters; SMAC (sorbitol-MacConkey), which screens for the absence of sorbitol fermentation typical of E. coli O157:H7; and CIN agar, which is selective for Yersinia species and often shows the characteristic bull's-eye colonies. Using these together covers a wide range of common gastrointestinal pathogens more effectively than any single medium. The other options lack this broad coverage: a general blood agar or chocolate agar alone isn't selective for enteric pathogens; using MacConkey alone misses some organisms that the differential media help identify; and relying on a single medium would not detect the full spectrum of potential GI pathogens.

3. Which criterion would lead to rejecting a sputum sample for culture?

A. Excess squamous epithelial cells with no abundance of WBCs or mucous

B. High WBC count with abundant mucous

C. Visible purulence and strong odor

D. Adequate sample with neutrophils

Assessing sputum quality focuses on whether the specimen truly represents material from the lower respiratory tract. A good sputum sample should contain inflammatory cells, especially neutrophils, and mucus, with relatively few squamous epithelial cells that reflect oral contamination. Excess squamous epithelial cells with little or no white blood cells or mucus indicates the sample is mostly saliva from the mouth or throat, not lower airway secretions. This contamination can lead to misleading culture results because oral flora would dominate, so such a specimen is rejected for culture. In contrast, a high white blood cell count with abundant mucus suggests an inflammatory sputum sample from the lungs, which is appropriate for culture. Visible purulence and strong odor can accompany infection and don't by themselves justify rejection. An adequate sample with neutrophils is ideal for accurate culture.

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4. Which organism is non-lactose fermenting, oxidase negative, nitrate negative, and non-motile?

A. Shigella flexneri

B. Escherichia coli

C. Salmonella enterica

D. Vibrio vulnificus

Think about how labs distinguish these bacteria by a combination of four traits. Non-lactose fermentation points to a small group of enterics, including Shigella and Salmonella. Oxidase negative is common to Shigella, Salmonella, and Escherichia coli, but not to Vibrio, which helps rule out Vibrio vulnificus. The non-motile nature is a hallmark of Shigella among the non-lactose fermenters, since Salmonella and E. coli are motile. Finally, the nitrate test tends to be negative for Shigella while the others in this group can reduce nitrate. Putting it all together, the organism that fits non-lactose fermentation, oxidase negative, nitrate negative, and non-motile is Shigella flexneri.

5. If you use an expired antibiotic disk in a KB assay, what is the likely result?

A. Organism falsely susceptible

B. No effect

C. Organism falsely resistant

D. Zone size increases

In a Kirby-Bauer disk diffusion test, the size of the inhibition zone depends on how much active antibiotic is released from the disk. An expired disk often has reduced potency, so it releases less drug into the agar. That makes the bacteria appear less inhibited, resulting in a smaller zone or no zone. Because interpretation of susceptibility relies on zone size, this can be read as resistance even though the organism might be susceptible if the disk were still potent. So, the likely outcome is the organism being labeled falsely resistant.

6. In nucleic acid amplification testing, what can cause a false positive?

A. Laboratory contamination

B. Contamination

C. Primer-dimer formation

D. Inhibitors in the sample

Contamination is the main driver of false positives in nucleic acid amplification testing. These tests are incredibly sensitive, so even trace amounts of nucleic acids from previous runs, environmental DNA, or cross contamination can seed amplification and produce a signal that looks like the target is present when it isn't. That's why proper workflow and controls are essential: separate areas for sample prep and amplification, rigorous surface decontamination, dedicated equipment, and the use of negative controls to catch any carryover contamination. Primer-dimer formation can sometimes yield non-specific signals, but it's not the predominant cause of false positives in most NAAT workflows. Inhibitors, on the other hand, tend to block amplification and lead to false negatives rather than false positives.

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7. Which agents are used to treat Enterococcus infections, including VRE considerations?

A. Doxycycline, TMP-SMX

B. Penicillin, Ciprofloxacin, Gentamicin

C. Ampicillin, Vancomycin, Linezolid if VRE, Daptomycin

D. Amoxicillin, Nitrofurantoin

Enterococcus infections require antibiotics that are active against these organisms, and the strategy must adapt when vancomycin resistance (VRE) is present. Ampicillin works well for susceptible Enterococcus faecalis and many faecium strains, making it a solid option when the isolate is susceptible. Vancomycin covers many non resistant enterococci, but it cannot be relied on for VRE. When VRE is involved, linezolid and daptomycin are important alternatives that retain activity against these resistant strains. So a regimen that includes ampicillin for susceptible infections, vancomycin where appropriate, and linezolid or daptomycin for VRE covers the main scenarios clinicians face. Other agents like doxycycline, TMP SMX, ciprofloxacin, or nitrofurantoin are not reliably effective for most enterococcal infections, especially systemic ones.

8. A 7-year-old unvaccinated child with sore throat and thick white pseudomembrane; throat culture shows Gram-positive pleomorphic rods; CTBA yields black-gray colonies; Catalase positive; Urea negative. What organism do you suspect and how do you identify it?

A. Corynebacterium diphtheriae, PCR for A and B toxins

B. Streptococcus pyogenes, bacitracin sensitivity

C. Corynebacterium jeikeium, MALDI-TOF

D. Neisseria meningitidis, PCR for capsule typing

Throat pseudomembrane in an unvaccinated child points to diphtheria caused by Corynebacterium diphtheriae. This organism is a Gram-positive, pleomorphic rod that is catalase positive and urease negative. It grows on cystine-tellurite blood agar with black-gray colonies because it reduces tellurite. To confirm its ability to cause disease, you look for the diphtheria toxin genes; a PCR test for the toxin (A and B) genes is a fast, definitive way to identify toxigenic strains (an Elek test can also be used to demonstrate toxin production). This combination of clinical presentation, characteristic colony morphology on the selective medium, and toxin gene detection makes Corynebacterium diphtheriae the best match. Other options don't fit the presentation or lab profile: for example, Streptococcus pyogenes would be Gram-positive cocci with beta-hemolysis and would not form the tellurite-reducing, black-gray colonies; Corynebacterium jeikeium is not typically linked to a throat pseudomembrane; Neisseria meningitidis is Gram-negative and presents with different features.

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9. Which organism is a Gram-positive coccus that occurs in chains, is non-hemolytic, and PYR positive?

A. Enterococcus spp

B. Streptococcus pyogenes

C. Staphylococcus aureus

D. Streptococcus pneumoniae

The test hinges on combining morphology, hemolysis, and the PYR test to identify the organism. Gram-positive cocci that appear in chains point toward streptococci or enterococci, not staphylococci (which group in clusters). Non-hemolysis on blood agar means gamma-hemolysis, which helps exclude beta-hemolytic streptococci like Streptococcus pyogenes. The PYR test adds another filter: Enterococcus species are PYR positive, whereas many other streptococci are not. Putting these clues together—Gram-positive cocci in chains, non-hemolysis, and PYR positive—points to Enterococcus species. This distinguishes them from Streptococcus pyogenes (beta-hemolytic), Streptococcus pneumoniae (alpha-hemolytic diplococci), and Staphylococcus aureus (clusters, not chains).

10. Which organism is associated with cystic fibrosis and demonstrates oxidase-positive, motile bacteria with glucose oxidation showing yellow in the O tube and green in the F tube?

A. Pseudomonas aeruginosa

B. Stenotrophomonas maltophilia

C. Burkholderia cepacia

D. Achromobacter xylosoxidans

The main idea here is recognizing a nonfermenting, oxidase-positive Gram-negative rod that shows oxidative metabolism of glucose. In the oxidative (O) vs fermentation (F) test, an organism that oxidizes glucose but does not ferment it will turn the O tube yellow due to acid production, while the F tube stays green because fermentation doesn't occur. This oxidation-dominant pattern helps identify certain nonfermenters commonly seen in the CF lung. Burkholderia cepacia is a classic example: it's oxidase-positive, motile, nonfermenting, and, in the lab, often shows glucose oxidation with yellow in the O tube and green in the F tube. Its association with cystic fibrosis is a key clinical clue, since B. cepacia can cause serious, rapidly progressive infection in CF patients and requires strict infection-control measures. While other oxidase-positive nonfermenters can share similar oxidation patterns, the combination of this metabolic profile plus the CF link points to Burkholderia cepacia in this context.

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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://camlprmicrobio.examzify.com

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

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