

# NBEO Microbiology Practice Test (Sample)

## Study Guide



**Everything you need from our exam experts!**

**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

<b>Copyright</b> .....	<b>1</b>
<b>Table of Contents</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>3</b>
<b>How to Use This Guide</b> .....	<b>4</b>
<b>Questions</b> .....	<b>5</b>
<b>Answers</b> .....	<b>8</b>
<b>Explanations</b> .....	<b>10</b>
<b>Next Steps</b> .....	<b>15</b>

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.

# 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

SAMPLE

- 1. Which of the following is an acid fast bacteria that is associated with night sweats, fever, and weight loss?**
  - A. Actinomyces**
  - B. Mycobacteria**
  - C. Neisseria gonorrhoeae**
  - D. Chlamydia trachomatis**
  
- 2. Is Adenovirus a DNA or RNA virus?**
  - A. RNA**
  - B. DNA**
  - C. Double-stranded RNA**
  - D. Single-stranded DNA**
  
- 3. Which hepatitis virus is transmitted via the fecal-oral route and has a vaccine available?**
  - A. Hepatitis A**
  - B. Hepatitis B**
  - C. Hepatitis C**
  - D. Hepatitis D**
  
- 4. Which color do Gram-positive bacteria stain after Gram staining?**
  - A. Colorless**
  - B. Purple**
  - C. Pink**
  - D. Brown**
  
- 5. Which of the following is the primary hallmark distinguishing prokaryotes from eukaryotes?**
  - A. Presence of a nucleus**
  - B. Lack of a nucleus**
  - C. Membrane-bound organelles**
  - D. Cytoskeleton**

- 6. Which organism would be least susceptible to penicillin due to the absence of a cell wall?**
- A. Staphylococcus aureus**
  - B. Streptococcus epidermidis**
  - C. Mycoplasma pneumoniae**
  - D. Corynebacterium diphtheriae**
- 7. Hepatitis D infection is only carried with Hepatitis B as a superinfection.**
- A. False**
  - B. True**
  - C. It occurs independently of Hep B**
  - D. It is prevented by Hepatitis A vaccine**
- 8. Toxic shock syndrome is primarily associated with which bacteria?**
- A. Staphylococcus epidermidis**
  - B. Staphylococcus aureus**
  - C. Streptococcus pyogenes**
  - D. Streptococcus pneumoniae**
- 9. Which of the following is NOT considered a gram negative bacteria?**
- A. Corynebacterium diphtheriae**
  - B. Klebsiella pneumoniae**
  - C. Proteus mirabilis**
  - D. Bordetella pertussis**
- 10. Which virus is most commonly linked to cervical cancer?**
- A. HSV**
  - B. CMV**
  - C. HPV**
  - D. Adenovirus**

## Answers

SAMPLE

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

SAMPLE

## **Explanations**

SAMPLE

**1. Which of the following is an acid fast bacteria that is associated with night sweats, fever, and weight loss?**

- A. Actinomyces
- B. Mycobacteria**
- C. Neisseria gonorrhoeae
- D. Chlamydia trachomatis

Acid-fast bacteria have a waxy, mycolic-acid-rich cell wall that resists decolorization with acid-alcohol, so they retain the primary stain when using methods like Ziehl-Neelsen or auramine-rhodamine staining. This staining property is a hallmark used to identify Mycobacterium, the genus that includes the tuberculosis pathogen. The clinical clue of night sweats, fever, and weight loss is classic for tuberculosis, an infection caused by this acid-fast bacillus, which explains why this organism is the best match. The other organisms listed do not have acid-fast cell walls and are associated with different diseases or presentations: Actinomyces is non-acid-fast and forms sulfur granules; Neisseria gonorrhoeae is a Gram-negative diplococcus; Chlamydia trachomatis is an intracellular bacterium without acid-fast staining.

**2. Is Adenovirus a DNA or RNA virus?**

- A. RNA
- B. DNA**
- C. Double-stranded RNA
- D. Single-stranded DNA

Adenovirus is a double-stranded DNA virus. Its genome is linear and consists of double-stranded DNA, so it belongs to the group of DNA viruses rather than RNA viruses. This means its replication occurs in the host cell nucleus using the host's transcription machinery, with viral genes expressed in an organized early-to-late pattern. The other options describe RNA genomes (single- or double-stranded) or single-stranded DNA, which do not match the actual genome type of adenovirus.

**3. Which hepatitis virus is transmitted via the fecal-oral route and has a vaccine available?**

- A. Hepatitis A**
- B. Hepatitis B
- C. Hepatitis C
- D. Hepatitis D

Fecal-oral transmission with a vaccine available is the clue. Hepatitis A is spread when people ingest food or water contaminated with the virus from an infected person, a pattern common in areas with limited sanitation or during outbreaks linked to contaminated food like shellfish. There is an effective hepatitis A vaccine that provides protection and is routinely recommended for travelers and at-risk populations. The other hepatitis viruses are not primarily spread by the fecal-oral route: hepatitis B and D are transmitted through blood and bodily fluids (D requires hepatitis B infection), and hepatitis C is mainly blood-borne and currently has no widely used vaccine.

**4. Which color do Gram-positive bacteria stain after Gram staining?**

- A. Colorless
- B. Purple**
- C. Pink
- D. Brown

Gram-positive bacteria stain purple after Gram staining because their thick peptidoglycan layer traps the crystal violet-iodine complex during the decolorization step. This prevents the dye from washing out, so the cells retain the purple color. In contrast, Gram-negative bacteria have a thinner peptidoglycan layer and an outer membrane that is disrupted by alcohol, allowing the crystal violet to wash out and the counterstain to color them pink. The other colors listed don't appear in this method.

**5. Which of the following is the primary hallmark distinguishing prokaryotes from eukaryotes?**

- A. Presence of a nucleus
- B. Lack of a nucleus**
- C. Membrane-bound organelles
- D. Cytoskeleton

The main distinction between prokaryotes and eukaryotes is where their genetic material is housed. Prokaryotes lack a true nucleus; their DNA sits in a nucleoid region within the cytoplasm, not enclosed by a nuclear membrane. Eukaryotes, in contrast, have a defined nucleus protected by a nuclear envelope. Because this feature of a nucleus (or its absence) is the fundamental organizational difference, the lack of a nucleus is the best answer. If a cell has a nucleus, it's a hallmark of a eukaryote, not a prokaryote. Membrane-bound organelles and cytoskeletons are related differences, but they don't define the simplest, most universal distinction as clearly as the presence or absence of a nucleus.

**6. Which organism would be least susceptible to penicillin due to the absence of a cell wall?**

- A. *Staphylococcus aureus*
- B. *Streptococcus epidermidis*
- C. *Mycoplasma pneumoniae***
- D. *Corynebacterium diphtheriae*

Penicillin works by inhibiting the enzymes that build and cross-link peptidoglycan in the bacterial cell wall. If an organism lacks a cell wall, there is nothing for penicillin to target, so the drug is ineffective. *Mycoplasma pneumoniae* fits this scenario because it has no peptidoglycan and instead relies on a cholesterol-rich cell membrane for structure. That's why it is inherently resistant to beta-lactam antibiotics like penicillin and is typically treated with non-beta-lactam agents such as macrolides or tetracyclines. The other organisms listed possess cell walls with peptidoglycan, so penicillin can disrupt their wall synthesis under normal circumstances (though resistance can occur in some strains for other reasons, the absence of a cell wall is the defining reason penicillin wouldn't work for the organism without one).

7. Hepatitis D infection is only carried with Hepatitis B as a superinfection.

A. False

**B. True**

C. It occurs independently of Hep B

D. It is prevented by Hepatitis A vaccine

Hepatitis D virus depends on hepatitis B virus to replicate. It uses HBV's surface antigen to form its own envelope, so HDV cannot establish infection in someone who is HBV-negative. Because of this dependency, HDV infections occur only in people who have hepatitis B—either at the same time as HBV (coinfection) or as a superinfection in someone with chronic HBV. That's why the statement is true: HDV is carried with HBV, in the sense that HDV infection always requires HBV. A Hepatitis A vaccine doesn't affect HDV risk, whereas vaccination against Hepatitis B would prevent HDV by eliminating the needed helper virus.

8. Toxic shock syndrome is primarily associated with which bacteria?

A. Staphylococcus epidermidis

**B. Staphylococcus aureus**

C. Streptococcus pyogenes

D. Streptococcus pneumoniae

Toxic shock syndrome is a toxin-mediated illness most commonly caused by Staphylococcus aureus producing the toxin TSST-1, a potent superantigen. This toxin bridges MHC class II molecules on antigen-presenting cells with T-cell receptors, triggering a massive, non-specific T-cell activation and a cytokine storm. The result is fever, low blood pressure, a diffuse red rash, and potential multi-organ dysfunction. While Streptococcus pyogenes can also cause a toxic shock-like syndrome via its own exotoxins, the classic and most typical association is with Staphylococcus aureus. The other organisms listed are not the usual culprits for TSS.

9. Which of the following is NOT considered a gram negative bacteria?

**A. Corynebacterium diphtheriae**

B. Klebsiella pneumoniae

C. Proteus mirabilis

D. Bordetella pertussis

Gram staining hinges on cell wall structure. Gram-positive bacteria have a thick peptidoglycan layer that traps crystal violet and they appear purple, while Gram-negative bacteria have a thinner peptidoglycan layer plus an outer membrane and take up the counterstain, appearing pink. Corynebacterium diphtheriae is a Gram-positive rod, so it does not belong to the Gram-negative group. The other organisms listed—Klebsiella pneumoniae, Proteus mirabilis, and Bordetella pertussis—are all Gram-negative bacteria, so they fit the Gram-negative category.

**10. Which virus is most commonly linked to cervical cancer?**

- A. HSV
- B. CMV
- C. HPV**
- D. Adenovirus

Cervical cancer is most strongly linked to infection with high-risk human papillomavirus (HPV). When a persistent infection with these high-risk types occurs, the viral oncoproteins E6 and E7 disrupt key tumor suppressor pathways (like p53 and Rb), leading to unregulated cell growth and the development of precancerous changes that can progress to invasive cancer over time. HPV types 16 and 18 are responsible for the majority of cervical cancers worldwide, and the infection is transmitted sexually, with many cases cleared by the immune system while persistence increases risk. Vaccines target the most oncogenic HPV types and screening with Pap tests and HPV DNA testing helps detect precancerous changes early. The other listed viruses do not cause cervical cancer—HSV causes genital ulcers, CMV is linked to congenital infections and other illnesses, and adenovirus can cause respiratory and ocular infections but not cervical cancer.

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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://nbeomicrobiology.examzify.com>**

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

SAMPLE