NBEO Microbiology Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

Table of Contents

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. The etiologic agent of toxoplasmosis is which organism?

A. Toxoplasma gondii

B. Plasmodium falciparum

C. Giardia lamblia

D. Cryptosporidium parvum

2. What is the leading cause of blindness in a patient with AIDS?

A. HIV

B. HSV

C. CMV

D. VZV

3. Most common cause of bacterial pneumonia, meningitis, and otitis media?

A. Staph aureus

B. Streptococcus pyogenes

C. Streptococcus pneumoniae

D. Staph epidermidis

4. Which of the following groups is the correct classification for roundworms?

A. Trematode

B. Cestode

C. Acanthocephalan

D. Nematode

5. What type of genome does Herpes Simplex Virus have?

A. RNA

B. DNA

C. Both RNA and DNA

D. Circular RNA

6. 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

7. Which virus is the most common viral STD in the US?

A. HSV

B. HIV

C. CMV

D. HPV

8. Which spirochete is primarily associated with syphilis?

A. Treponema pallidum

B. Borrelia burgdorferi

C. Leptospira interrogans

D. Helicobacter pylori

9. Which of the following is also known as a fluke?

A. Trematode

B. Cestode

C. Nematode

D. Acanthocephalan

10. Which medium would you use to culture Acanthamoeba from a suspected infection?

A. Thayer Martin agar

B. Non-nutrient agar with heat-killed E. coli

C. Blood agar

D. Chocolate agar

Answers

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

Explanations

1. The etiologic agent of toxoplasmosis is which organism?

A. Toxoplasma gondii

B. Plasmodium falciparum

C. Giardia lamblia

D. Cryptosporidium parvum

Toxoplasma gondii is the etiologic agent of toxoplasmosis. It is an intracellular protozoan that forms tissue cysts and can invade many warm-blooded hosts, including humans. People typically acquire it by ingesting oocysts from cat feces or tissue cysts in undercooked meat. In healthy individuals it often causes no symptoms, but it can cause serious disease in congenital infections or in immunocompromised people, such as encephalitis or retinochoroiditis. The other organisms listed cause different infections: Plasmodium falciparum causes malaria; Giardia lamblia causes giardiasis; Cryptosporidium parvum causes cryptosporidiosis.

2. What is the leading cause of blindness in a patient with AIDS?

A. HIV

B. HSV

C. CMV

D. VZV

In AIDS, the most common cause of blindness is CMV retinitis. When CMV reactivates in someone with a severely weakened immune system (often with CD4 counts below about 50 cells/µL), it invades the retina and causes necrotizing retinitis with hemorrhages along the retinal vessels. This progressive damage can lead to retinal detachment and irreversible vision loss if not treated. The classic fundoscopic look is a granular, hemorrhagic retina described as a "pizza pie" pattern because of the combination of retinal whitening and intraretinal hemorrhages. Diagnosis is made by seeing these changes on eye exam, with confirmation from CMV testing in blood or intraocular fluid. Treatment combines systemic antiviral therapy (such as ganciclovir or valganciclovir) with ART to restore immune function, and sometimes local intravitreal antiviral injections to control the infection quickly. HSV and VZV can also cause retinal infections, but they are less common causes of blindness in AIDS, and HIV itself predisposing to opportunistic infections does not directly cause the retinal damage.

3. Most common cause of bacterial pneumonia, meningitis, and otitis media?

A. Staph aureus

B. Streptococcus pyogenes

C. Streptococcus pneumoniae

D. Staph epidermidis

This is about the pathogen most likely to cause the three infections together: Streptococcus pneumoniae. Its ability to colonize the nasopharynx and then invade sterile sites makes it a leading cause of several common bacterial infections. The pneumococcus has a polysaccharide capsule that helps it resist being eaten by immune cells, which enables it to spread from the upper airway to the lungs, meninges, and middle ear. As a result, it is the most frequent bacterial cause of community-acquired pneumonia, a major cause of bacterial meningitis in both adults and children, and the leading cause of acute otitis media in children. In the lab, it's a Gram-positive, lancet-shaped diplococcus that is encapsulated and typically optochin sensitive and bile soluble, which helps distinguish it from other bacteria. While Staph aureus, Strep pyogenes, and Staph epidermidis can cause some of these infections in particular settings, they do not have the same overall prominence across all three conditions.

4. Which of the following groups is the correct classification for roundworms?

A. Trematode

B. Cestode

C. Acanthocephalan

D. Nematode

Roundworms are nematodes, a distinct phylum of worms that are long, slender, and unsegmented with a protective cuticle and a pseudocoelom acting as a hydrostatic skeleton. They have a complete digestive tract from mouth to anus and typically separate sexes. This body plan sets them apart from the other groups: trematodes and cestodes are flatworms (phatyhelminthes) with leaf-like shapes, and cestodes are segmented; acanthocephalans have a unique thorny proboscis. Because of these anatomical and developmental differences, the correct classification for roundworms is nematodes. Examples you might encounter include Ascaris and Enterobius, both nematodes.

5. What type of genome does Herpes Simplex Virus have?

A. RNA

B. DNA

C. Both RNA and DNA

D. Circular RNA

Herpes simplex virus has a double-stranded DNA genome. It belongs to a family of large, enveloped viruses whose genetic material is linear double-stranded DNA contained in the virion, and replication occurs in the host cell nucleus. While the genomes may circle up as episomes inside the nucleus during replication, the material itself is DNA, not RNA. So, the genome type is DNA. It's not RNA, and it isn't RNA-based or circular RNA.

6. 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.

7. Which virus is the most common viral STD in the US?

A. HSV

B. HIV

C. CMV

D. HPV

HPV is the most common viral STD in the United States. It spreads primarily through sexual contact, and many infections are asymptomatic, so people can transmit the virus without noticing any signs. With over 100 HPV types, most infections clear on their own, but the large number of people infected across the population makes HPV far more prevalent than the other viruses listed. HSV and HIV are serious STDs as well, but their overall prevalence is lower, and CMV, while common in the general population, is not primarily acquired as an STD. The combination of widespread transmission via skin-to-skin contact during sex and frequent asymptomatic carriage explains why HPV tops the list. Vaccination against several high-risk HPV types also helps reduce associated cancers.

8. Which spirochete is primarily associated with syphilis?

A. Treponema pallidum

B. Borrelia burgdorferi

C. Leptospira interrogans

D. Helicobacter pylori

Spirochetes are a group of corkscrew-shaped bacteria that move with a distinct axial-filament-driven motion. Syphilis is caused by Treponema pallidum, a slender spirochete that is the classic etiologic agent of the infection. Among the options, only Treponema pallidum is linked to syphilis; Borrelia burgdorferi causes Lyme disease, Leptospira interrogans causes leptospirosis, and Helicobacter pylori is associated with gastritis and ulcers rather than syphilis.

9. Which of the following is also known as a fluke?

A. Trematode

B. Cestode

C. Nematode

D. Acanthocephalan

Fluke is a common name for trematodes, a group of flatworm parasites. They are usually leaf-shaped and inhabit organs such as the liver, bile ducts, or blood vessels, with life cycles that typically involve a snail as an intermediate host. This combination of body plan and life cycle distinguishes them from other parasitic worms. Cestodes are tapeworms, which are segmented and lack a digestive system. Nematodes are roundworms with a tubular body and a complete digestive tract. Acanthocephalans have a spiny proboscis and are not trematodes. Examples of flukes include the liver fluke Fasciola hepatica and blood flukes like Schistosoma species.

10. Which medium would you use to culture Acanthamoeba from a suspected infection?

A. Thayer Martin agar

B. Non-nutrient agar with heat-killed E. coli

C. Blood agar

D. Chocolate agar

Culturing Acanthamoeba from suspected infection relies on a non-nutrient surface that lets the amoeba feed on a contained food source without allowing bacterial growth to overwhelm the plate. Non-nutrient agar provides no nutrients itself, so the amoeba won't multiply unless a prey source is supplied. Heat-killed E. coli serves as that food source, giving trophozoites something to feed on while preventing bacterial proliferation. This setup lets Acanthamoeba trophozoites with their distinctive acanthopodia and cysts grow, making detection under the microscope feasible. The other media are designed to support bacteria, often Neisseria or Haemophilus, and would not provide the appropriate conditions for observing Acanthamoeba or could be obscured by rapid bacterial growth.

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://nbeomicrobiology.examzify.com

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