

NBME 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.

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. Clonorchis sinensis infection is most commonly acquired through which route?**
 - A. Undercooked fish
 - B. Undercooked pork
 - C. Contaminated water
 - D. Inhalation of eggs

- 2. Parvovirus B19 infection can cause which complication in patients with sickle cell disease?**
 - A. Parvovirus B19
 - B. Adenovirus
 - C. Rotavirus
 - D. Enterovirus

- 3. In neutropenic patients, which organism is most commonly associated with invasive pulmonary infection?**
 - A. Aspergillus fumigatus
 - B. Histoplasma capsulatum
 - C. Cryptococcus neoformans
 - D. Candida albicans

- 4. Kaposi sarcoma is associated with which human herpesvirus?**
 - A. EBV
 - B. HHV-8
 - C. HHV-6
 - D. HSV-2

- 5. Which organism is a common cause of neonatal sepsis presenting with meningitis?**
 - A. Streptococcus agalactiae
 - B. Listeria monocytogenes
 - C. Staphylococcus aureus
 - D. Escherichia coli

6. Which nematode causes ileocecal infection and may obstruct the biliary tree?
- A. *Ancylostoma duodenale*
 - B. *Trichinella spiralis*
 - C. *Ascaris lumbricoides*
 - D. *Enterobius vermicularis*
7. Allergic bronchopulmonary aspergillosis (ABPA) is most commonly associated with which organism?
- A. *Aspergillus flavus*
 - B. *Mucor* species
 - C. *Candida albicans*
 - D. *Aspergillus fumigatus*
8. Describe the rubella rash pattern.
- A. Maculopapular rash beginning at face and spreading downward
 - B. Vesicular rash on palms and soles
 - C. Petechial rash on trunk
 - D. Urticarial rash all over body
9. Which test differentiates *Streptococcus pneumoniae* from *Streptococcus viridans*?
- A. Optochin sensitivity
 - B. Oxidase activity
 - C. Bacitracin sensitivity
 - D. Catalase activity
10. *Listeria monocytogenes* infection in pregnancy is particularly linked to which outcome due to soft cheese consumption?
- A. Neonatal tetanus
 - B. Congenital rubella
 - C. Spontaneous abortion
 - D. Neonatal pneumonia

Answers

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

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Explanations

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1. Clonorchis sinensis infection is most commonly acquired through which route?

- A. Undercooked fish**
- B. Undercooked pork
- C. Contaminated water
- D. Inhalation of eggs

Clonorchis sinensis infection is acquired by eating raw or undercooked freshwater fish containing metacercariae. Once swallowed, these larvae excyst in the intestine and migrate to the biliary ducts, where they mature and lay eggs that exit in the stool. The life cycle requires the fish as the second intermediate host, which is why undercooked fish is the route of infection. Pork would transmit different parasites, contaminated water is not how this fluke typically enters the body, and inhaling eggs isn't a transmission route for clonorchiasis.

2. Parvovirus B19 infection can cause which complication in patients with sickle cell disease?

- A. Parvovirus B19**
- B. Adenovirus
- C. Rotavirus
- D. Enterovirus

Parvovirus B19 can cause a transient cessation of red blood cell production in bone marrow, leading to an aplastic crisis in patients with sickle cell disease. In sickle cell, red cell turnover is already high, so when the virus infects erythroid precursors (via the P antigen), it halts erythropoiesis for a short period. The result is a sudden drop in hemoglobin with an inappropriately low reticulocyte count, while white cells and platelets remain typically normal. Clinically, this presents as marked anemia and fatigue after a recent viral-like illness. Diagnosis is supported by evidence of Parvovirus B19 infection and reticulocytopenia, and treatment is supportive care, often with red blood cell transfusion if needed. This is the specific complication Parvovirus B19 causes in sickle cell disease.

3. In neutropenic patients, which organism is most commonly associated with invasive pulmonary infection?

- A. Aspergillus fumigatus**
- B. Histoplasma capsulatum
- C. Cryptococcus neoformans
- D. Candida albicans

In neutropenic patients, the lungs are most commonly invaded by Aspergillus fumigatus. The lack of neutrophils removes the main defense against hyphal fungi, allowing inhaled Aspergillus hyphae to penetrate alveolar walls and blood vessels, causing necrotizing, angioinvasive pneumonia that can spread beyond the lungs. Clinically this often presents with fever and respiratory symptoms, and imaging may show pulmonary nodules with a halo sign due to surrounding hemorrhage. The organism is a mold with septate hyphae that branch at acute angles, and positive galactomannan testing can support the diagnosis. Histoplasma capsulatum can cause severe disease in immunocompromised hosts but tends to involve intracellular yeast within macrophages and is not the classic angioinvasive pulmonary infection seen with neutropenia. Cryptococcus neoformans is more associated with meningitis in severely immunocompromised patients and less typically causes the primary invasive pulmonary infection in this setting. Candida albicans commonly causes candidemia and disseminated infection rather than a focal invasive pulmonary process in neutropenic patients.

4. Kaposi sarcoma is associated with which human herpesvirus?

- A. EBV
- B. HHV-8**
- C. HHV-6
- D. HSV-2

Kaposi sarcoma is driven by infection with a specific human herpesvirus known as Kaposi sarcoma-associated herpesvirus (KSHV), also called HHV-8. This virus persists in infected cells and expresses proteins that promote endothelial cell proliferation and new blood vessel formation, leading to the characteristic violaceous lesions. The cancer tends to appear or worsen in settings of immunosuppression, such as AIDS, where the oncogenic activity of HHV-8 can drive tumor growth. The other viruses listed are linked to different diseases—EBV is associated with Burkitt lymphoma and nasopharyngeal carcinoma, HHV-6 with roseola, and HSV-2 with genital herpes—so HHV-8 is the specific association with Kaposi sarcoma.

5. Which organism is a common cause of neonatal sepsis presenting with meningitis?

- A. Streptococcus agalactiae
- B. Listeria monocytogenes
- C. Staphylococcus aureus
- D. Escherichia coli**

Neonatal meningitis often stems from bacteria acquired during birth, and Escherichia coli is a leading cause, especially in early-onset disease when sepsis is present. E. coli strains that cause neonatal infection frequently have a K1 capsule and other virulence factors that help them invade the central nervous system and resist host defenses. Perinatal transmission from the maternal birth canal can lead to bacteremia, which seeds the meninges and produces meningitis in the newborn. This organism's ability to cross the immature blood–brain barrier and its prevalence in neonatal sepsis make it a common cause of meningitis in newborns. While group B Streptococcus is also a well-known neonatal pathogen, the emphasis here is on E. coli's high frequency and neurotropic potential in meningitis accompanying sepsis. Staphylococcus aureus is less typical for neonatal meningitis, and Listeria monocytogenes, though important, is less common than E. coli in many settings.

6. Which nematode causes ileocecal infection and may obstruct the biliary tree?

- A. Ancylostoma duodenale
- B. Trichinella spiralis
- C. Ascaris lumbricoides**
- D. Enterobius vermicularis

Ascaris lumbricoides is the nematode that fits this scenario because it is known for its potential to migrate from the intestinal lumen into the biliary and pancreatic ducts. After establishing in the small intestine, these worms can wander through the ampulla of Vater and obstruct the biliary tree, leading to biliary colic, cholangitis, or even pancreatitis. In heavy infections, the worm burden in the ileocecal region can also cause intestinal symptoms or obstruction. Other nematodes listed have different clinical patterns. Hookworms like Ancylostoma duodenale mainly cause iron-deficiency anemia from blood loss in the small intestine and do not characteristically obstruct the biliary tract. Trichinella spiralis causes trichinellosis from eating undercooked meat, with larvae encysting in muscle tissue and presenting with GI symptoms followed by myositis, not biliary obstruction. Enterobius vermicularis (pinworm) typically causes perianal itching and is confined largely to the large intestine, without biliary tree involvement.

7. Allergic bronchopulmonary aspergillosis (ABPA) is most commonly associated with which organism?

- A. *Aspergillus flavus*
- B. *Mucor* species
- C. *Candida albicans*
- D. *Aspergillus fumigatus***

*Allergic bronchopulmonary aspergillosis is a hypersensitivity reaction to inhaled fungi colonizing the airways, most commonly caused by *Aspergillus fumigatus*. This species is particularly linked to ABPA because its spores easily reach the bronchi and it frequently establishes airway colonization in atopic individuals such as those with asthma or cystic fibrosis, triggering IgE- and immune-complex-mediated inflammation. The result is allergic airway disease with mucus plugging and often central bronchiectasis. Other fungi listed can cause other infections (*Mucorales* with invasive disease, *Candida albicans* with mucosal or bloodstream infections, and *Aspergillus flavus* causing various aspergillosis forms), but ABPA is classically associated with *Aspergillus fumigatus*.*

8. Describe the rubella rash pattern.

- A. Maculopapular rash beginning at face and spreading downward**
- B. Vesicular rash on palms and soles
- C. Petechial rash on trunk
- D. Urticarial rash all over body

Rubella causes a maculopapular exanthem that begins on the face and spreads downward (craniocaudal progression) to the trunk and limbs. This pattern is classic for rubella: a pink, fine rash that appears on the face and moves to the body over a short time, often with accompanying posterior cervical or suboccipital lymphadenopathy. The rash is not vesicular, so a vesicular pattern on palms and soles would point to other infections such as hand-foot-and-mouth disease. It is also not petechial or purpuric, which would suggest hemorrhagic or purpuric conditions, nor urticarial, which would imply an allergic or drug-related reaction.

9. Which test differentiates *Streptococcus pneumoniae* from *Streptococcus viridans*?

- A. Optochin sensitivity**
- B. Oxidase activity
- C. Bacitracin sensitivity
- D. Catalase activity

*Optochin sensitivity is the test that differentiates these two. The pneumococcus is inhibited by optochin, producing a zone of inhibition around the optochin disk on a blood agar plate, whereas viridans streptococci grow right up to the disk (are optochin resistant). This simple disk-diffusion difference lets you separate *S. pneumoniae* from *S. viridans* in the lab. Other notes that help context: *S. pneumoniae* is typically alpha-hemolytic and bile soluble, with lancet-shaped diplococci, while viridans are usually bile insoluble and not inhibited by optochin. The other tests mentioned aren't useful for distinguishing these two: oxidase and catalase tests are not discriminatory for streptococci (they're generally negative), and bacitracin sensitivity mainly separates *S. pyogenes* from viridans, not pneumococcus from viridans.*

10. *Listeria monocytogenes* infection in pregnancy is particularly linked to which outcome due to soft cheese consumption?

- A. Neonatal tetanus
- B. Congenital rubella
- C. Spontaneous abortion
- D. Neonatal pneumonia

*The key idea is that *Listeria* infection during pregnancy often leads to fetal loss because the bacteria can cross the placenta and infect the fetus after ingestion, especially from contaminated soft cheeses. *Listeria monocytogenes* has a tendency to invade cells and survive inside phagocytes, enabling transmission from mother to fetus and causing placental infection that can result in spontaneous abortion, particularly in early pregnancy. Although infection later in pregnancy can lead to neonatal sepsis or meningitis, the classic association tested is abortion due to placental infection from soft cheese exposure. The other conditions listed are not typical outcomes of *Listeria* infection acquired in this way.*

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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://nbmemicrobiology.examzify.com>

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

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