

NBME Form 11 Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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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. Which of the following is a Bradford Hill criterion for causality?**
 - A. Temporal relationship**
 - B. P-value threshold**
 - C. Randomization**
 - D. Standard error**

- 2. Which treatment for hyponatremia carries risk of osmotic demyelination if corrected too rapidly?**
 - A. Hypertonic saline**
 - B. Isotonic saline**
 - C. Dextrose infusion**
 - D. Half saline**

- 3. Aseptic meningitis typically presents with fever, headache, stiff neck. CSF findings include what pattern, and which viruses are responsible for >90% of cases?**
 - A. Normal glucose, elevated protein, lymphocytosis; Enteroviruses account for >90% of cases**
 - B. Low glucose, elevated protein, neutrophilic predominance; bacterial meningitis**
 - C. Elevated glucose, low protein; Herpes viruses**
 - D. Normal glucose, normal protein, lymphocytosis; Retroviruses**

- 4. Autoimmune destruction targets which cells in Type 1 diabetes?**
 - A. Alpha cells**
 - B. Beta cells**
 - C. Acinar cells**
 - D. Ductal cells**

- 5. Vaccinia virus is a related virus used in which vaccine?**
 - A. Smallpox**
 - B. Measles**
 - C. Influenza**
 - D. Polio**

- 6. Which statement best describes the interpretation of relative risk reduction?**
- A. It is important to understand the magnitude of the risk in the control group in order to determine the impact**
 - B. The p-value alone determines significance**
 - C. Only sample size matters for RRR**
 - D. RRR is independent of baseline risk**
- 7. Which error occurs when no pathology is noted when it is actually present?**
- A. Type II Error**
 - B. Type I Error**
 - C. False Positive**
 - D. False Negative**
- 8. Which equation gives serum osmolality?**
- A. $\text{Na} + \text{BUN}/2.8 + \text{glucose}/18$**
 - B. $2*\text{Na} + \text{BUN}/2.8 + \text{glucose}/18$**
 - C. $2*\text{Na} + \text{BUN}/3 + \text{glucose}/18$**
 - D. $2*\text{Na} + \text{BUN}/2.5 + \text{glucose}/18$**
- 9. Which organism is a common cause of ring-enhancing brain lesions most commonly in AIDS patients?**
- A. Toxoplasma gondii**
 - B. Cryptococcus neoformans**
 - C. Mycobacterium tuberculosis**
 - D. JC virus**
- 10. For infective endocarditis prophylaxis in dental procedures for patients without penicillin allergy, which antibiotic is commonly used?**
- A. Clindamycin**
 - B. Amoxicillin**
 - C. Azithromycin**
 - D. Doxycycline**

Answers

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

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Explanations

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1. Which of the following is a Bradford Hill criterion for causality?

- A. Temporal relationship**
- B. P-value threshold**
- C. Randomization**
- D. Standard error**

The main idea is temporality: for something to cause an outcome, the exposure must occur before the outcome develops. This timing is essential because without it, you can't establish a causal direction or rule out reverse causation. In the Bradford Hill framework, temporality is a necessary condition for causal inference in observational data. The other options don't serve as causality criteria. A p-value threshold speaks to statistical significance, not whether exposure truly causes the outcome. Randomization is a study design feature that helps reduce bias and confounding, not a criterion used to judge causality after the fact. Standard error measures precision of an estimate, not causal relation.

2. Which treatment for hyponatremia carries risk of osmotic demyelination if corrected too rapidly?

- A. Hypertonic saline**
- B. Isotonic saline**
- C. Dextrose infusion**
- D. Half saline**

Hypertonic saline is the treatment that can rapidly raise serum sodium to relieve brain edema in severe hyponatremia, but it carries the risk of osmotic demyelination if the correction is too fast. When hyponatremia develops, brain cells adapt by losing osmolytes; a sudden rise in extracellular osmolality pulls water out of cells, and if sodium is corrected too quickly—especially in chronic cases—the rapid shift can injure myelin, most notably in the central pons. That's why using hypertonic saline requires careful monitoring and controlled pacing of correction (for example, aiming for a modest increase in the first 6 hours and not exceeding about 8-12 mEq/L in the first 24 hours). The other options don't provide the same rapid, controlled correction and thus don't carry the same immediate osmotic demyelination risk in the same way. Isotonic saline can raise sodium more slowly and may be appropriate in hypovolemic patients, dextrose solutions can dilute sodium or eventually introduce free water, and half-normal saline is hypotonic and would more likely worsen hyponatremia if used for correction.

3. Aseptic meningitis typically presents with fever, headache, stiff neck. CSF findings include what pattern, and which viruses are responsible for >90% of cases?

A. Normal glucose, elevated protein, lymphocytosis; Enteroviruses account for >90% of cases

B. Low glucose, elevated protein, neutrophilic predominance; bacterial meningitis

C. Elevated glucose, low protein; Herpes viruses

D. Normal glucose, normal protein, lymphocytosis; Retroviruses

Aseptic (viral) meningitis typically shows a CSF pattern of normal glucose, elevated protein, and a lymphocytic predominance of white cells. This reflects inflammation driven by viral infection rather than bacterial metabolism; viruses do not consume CSF glucose the way bacteria do, so glucose stays normal, while the blood-CSF barrier becomes leakier, raising protein, and the immune response is primarily lymphocytes. Enteroviruses (such as echoviruses and coxsackieviruses) are by far the most common causes, responsible for more than 90% of aseptic meningitis cases. Other viruses can cause it but are far less frequent. So the best match is a CSF profile with normal glucose, elevated protein, lymphocytosis, and a cause predominantly by enteroviruses.

4. Autoimmune destruction targets which cells in Type 1 diabetes?

A. Alpha cells

B. Beta cells

C. Acinar cells

D. Ductal cells

Type 1 diabetes arises from autoimmune destruction of the insulin-producing beta cells in the pancreatic islets. When the immune system attacks these cells, insulin production falls, leading to hyperglycemia and dependence on exogenous insulin. This autoimmune process often involves insulinitis with T-cell-mediated damage to beta cells, sometimes accompanied by autoantibodies against islet antigens. The other pancreatic cell types have different roles: alpha cells secrete glucagon and are not the primary target in this disease; acinar cells and ductal cells make up the exocrine pancreas and are not responsible for insulin regulation. Thus, the cells targeted by autoimmunity in this condition are the beta cells.

5. Vaccinia virus is a related virus used in which vaccine?

- A. Smallpox**
- B. Measles**
- C. Influenza**
- D. Polio**

Vaccinia virus is used in the smallpox vaccine because it's a related poxvirus that triggers immune responses cross-protective against variola, the smallpox virus. As a live vaccine, vaccinia replicates in the skin and generates both antibody and T-cell responses that recognize shared antigens with variola, providing immunity to smallpox. The other diseases listed are prevented by vaccines targeting their specific pathogens (measles by a measles virus vaccine, influenza by influenza vaccines, polio by poliovirus vaccines), not by vaccinia.

6. Which statement best describes the interpretation of relative risk reduction?

- A. It is important to understand the magnitude of the risk in the control group in order to determine the impact**
- B. The p-value alone determines significance**
- C. Only sample size matters for RRR**
- D. RRR is independent of baseline risk**

Relative risk reduction expresses how much the risk is reduced in the treatment group compared with the control, as a proportion of the control risk. The key point is that this proportion only makes sense in the context of how big the baseline risk is. The same RRR can mean very different absolute improvements depending on the control group's risk. For example, an RRR of 50% lowers a control risk from 1% to 0.5% (an absolute reduction of 0.5 percentage points) versus from 40% to 20% (an absolute reduction of 20 percentage points). The clinical impact looks very different even though the relative reduction is the same. Therefore, understanding the control group's baseline risk is essential to gauge the real effect size. The other ideas described don't fit because p-values reflect statistical significance, not the magnitude of effect; RRR interpretation is not determined by sample size alone; and RRR does depend on baseline risk for its practical interpretation.

7. Which error occurs when no pathology is noted when it is actually present?

- A. Type II Error**
- B. Type I Error**
- C. False Positive**
- D. False Negative**

The main idea is failing to detect something that is actually there. This is a Type II error, also called a false negative: the test concludes there is no pathology, but pathology truly exists. In statistical terms, you fail to reject the null hypothesis when the alternative is true. This contrasts with a false positive, where a test indicates disease when none is present (a Type I error). Clinically, a Type II error means you miss a real condition, which can delay treatment; improving sensitivity reduces the chance of this error, since higher sensitivity means fewer missed cases. The probability of a Type II error is beta, and power equals 1 minus beta.

8. Which equation gives serum osmolality?

- A. $\text{Na} + \text{BUN}/2.8 + \text{glucose}/18$
- B. $2 \times \text{Na} + \text{BUN}/2.8 + \text{glucose}/18$**
- C. $2 \times \text{Na} + \text{BUN}/3 + \text{glucose}/18$
- D. $2 \times \text{Na} + \text{BUN}/2.5 + \text{glucose}/18$

Serum osmolality is determined by the concentration of osmotically active particles in the blood. The major driver is sodium, because most serum solutes are sodium salts with accompanying anions. To reflect the contribution of sodium plus its accompanying ions, you multiply sodium by 2. The other important contributors are glucose and urea nitrogen (BUN), each added after converting to the same molar units: glucose in mg/dL is divided by 18 to convert to mmol/L, and BUN in mg/dL is divided by 2.8 to convert to mmol/L. Put together, the estimated serum osmolality is $2 \times \text{Na} + \text{glucose}/18 + \text{BUN}/2.8$, giving units of mOsm/kg. This formulation is more accurate than using Na alone or using different conversion constants (like 3 or 2.5 for BUN) because it properly accounts for the osmotic contributions and unit conversions.

9. Which organism is a common cause of ring-enhancing brain lesions most commonly in AIDS patients?

- A. *Toxoplasma gondii***
- B. *Cryptococcus neoformans*
- C. *Mycobacterium tuberculosis*
- D. JC virus

Ring-enhancing brain lesions in an AIDS patient are most classically due to reactivation of latent *Toxoplasma gondii* infection. When CD4 counts are very low, toxoplasma can reactivate in the brain and produce multiple focal areas of inflammation and necrosis. The inflammatory response around these foci creates a ring of enhancement on imaging, which is why these lesions appear with a bright rim and a relatively dark center on CT or MRI. *Toxoplasma gondii* is a protozoan parasite commonly acquired from undercooked meat or cat feces; many people carry latent infection, and immune suppression allows it to reactivate in the CNS, presenting with headaches, fever, confusion, seizures, or focal neurologic deficits. In this context, toxoplasmosis is the most frequent cause of ring-enhancing lesions. Other organisms can cause brain lesions but fit different patterns. *Cryptococcus neoformans* often presents as meningitis with signs like meningitis symptoms and elevated opening pressure, though cryptococcomas can occur. *Mycobacterium tuberculosis* can form tuberculomas that may ring-enhance, but this is less typical as the most common cause in AIDS for ring-enhancing lesions. JC virus causes progressive multifocal leukoencephalopathy, which generally shows non-enhancing demyelinating lesions rather than ring-enhancing masses. So the best-fitting explanation for ring-enhancing brain lesions in this setting is reactivated *Toxoplasma gondii* encephalitis.

10. For infective endocarditis prophylaxis in dental procedures for patients without penicillin allergy, which antibiotic is commonly used?

- A. Clindamycin
- B. Amoxicillin**
- C. Azithromycin
- D. Doxycycline

Protecting patients at risk for infective endocarditis during dental procedures relies on delivering an antibiotic that reliably covers the oral streptococci most often responsible for the condition. Amoxicillin is the best choice for those without penicillin allergy because it is well absorbed orally and reaches protective levels quickly. A common preprocedure dose is 2 grams taken about 30 to 60 minutes before the procedure, ensuring adequate antibiotic presence during the transient bacteremia that dental work can cause. Other drugs on the list are reserved for people with penicillin allergy or specific circumstances. Clindamycin, azithromycin, or doxycycline can be used as alternatives in those cases, but amoxicillin remains the preferred option when there is no penicillin allergy.

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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://nbmeform11.examzify.com>

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

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