

# NBEO Pharmacology Practice Exam (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. What is the classification of Loratadine?**
  - A. 1st-generation Antihistamine**
  - B. 3rd-generation Antihistamine**
  - C. 2nd-generation Antihistamine**
  - D. Topical Antihistamine**
- 2. Which anti-fungal drug is considered the "go to" and is FDA approved?**
  - A. Fluconazole**
  - B. Amphotericin B**
  - C. Natamycin**
  - D. Nystatin**
- 3. Patients with which condition should avoid using topical beta-blockers?**
  - A. Hyperthyroid**
  - B. Hypertension**
  - C. Glaucoma**
  - D. Rheumatoid arthritis**
- 4. What mechanism of action do sulfonamide antibiotics primarily use?**
  - A. Inhibit protein synthesis**
  - B. Inhibit step 1 of folate synthesis**
  - C. Inhibit DNA gyrase**
  - D. Inhibit cell wall synthesis**
- 5. Which of the following medications is NOT classified as a Mast cell stabilizer/Antihistamine combo?**
  - A. Epinastine**
  - B. Ketotifen**
  - C. Olopatadine**
  - D. Prednisolone**

**6. Which ocular condition is treated with Triamcinolone?**

- A. Allergic conjunctivitis**
- B. Chalazia**
- C. Diabetic macular edema**
- D. Retinal detachment**

**7. Which sulfonamide antibiotic was mentioned as effective against both gram-positive and gram-negative bacteria?**

- A. Penicillin**
- B. Sulfisoxazole**
- C. Ciprofloxacin**
- D. Clindamycin**

**8. Sildenafil is primarily used as what type of medication?**

- A. Antidepressant**
- B. Antihypertensive**
- C. Phosphodiesterase inhibitor**
- D. Antidiabetic**

**9. How is Labetolol classified?**

- A. Beta-1 specific adrenergic antagonist**
- B. Non-selective beta adrenergic antagonist**
- C. Alpha-1 adrenergic antagonist**
- D. Alpha-2 adrenergic agonist**

**10. Which antibiotic class is known to inhibit bacterial DNA synthesis?**

- A. Cephalosporins**
- B. Tetracyclines**
- C. Sulfonamides**
- D. Aminoglycosides**

## **Answers**

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

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## **Explanations**

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## 1. What is the classification of Loratadine?

- A. 1st-generation Antihistamine**
- B. 3rd-generation Antihistamine**
- C. 2nd-generation Antihistamine**
- D. Topical Antihistamine**

Loratadine is classified as a 2nd-generation antihistamine. This classification is based on its chemical structure and pharmacological profile. 2nd-generation antihistamines, such as loratadine, are designed to be more selective for peripheral H1 receptors, which helps to minimize central nervous system (CNS) sedative effects that are commonly associated with 1st-generation antihistamines. Loratadine is known for its long duration of action, allowing for once-daily dosing, and it effectively alleviates allergy symptoms such as sneezing, runny nose, and itching, with a lower incidence of drowsiness compared to its 1st-generation counterparts like diphenhydramine. This makes loratadine a preferred choice for treating allergic rhinitis and chronic urticaria, particularly in situations where sedation could be problematic, such as in patients who need to maintain alertness at work or school. Understanding the distinctions among antihistamines is crucial for choosing the appropriate treatment for allergy symptoms while considering the potential side effects.

## 2. Which anti-fungal drug is considered the "go to" and is FDA approved?

- A. Fluconazole**
- B. Amphotericin B**
- C. Natamycin**
- D. Nystatin**

Natamycin is indeed an antifungal agent, but in the context of treating a variety of fungal infections, fluconazole is often referred to as the "go-to" choice and has FDA approval for several indications, including candidiasis and cryptococcal meningitis. Fluconazole's broad-spectrum activity against numerous fungal pathogens and its oral bioavailability make it a preferred option in many clinical situations. Amphotericin B, while effective against severe systemic fungal infections, is typically reserved for more serious cases due to its potential for significant side effects, including nephrotoxicity. Nystatin is primarily used for topical fungal infections, particularly in mucosal areas like the mouth or skin, and is not as broadly utilized for systemic infections. Consequently, fluconazole stands out as a widely used and FDA-approved antifungal medication for various clinical indications, making it the most suitable choice in overall practice.

### 3. Patients with which condition should avoid using topical beta-blockers?

- A. Hyperthyroid**
- B. Hypertension**
- C. Glaucoma**
- D. Rheumatoid arthritis**

Topical beta-blockers are generally contraindicated in patients with hyperthyroidism due to the potential for exacerbating the condition. In hyperthyroid patients, there is an increased sensitivity to beta-adrenergic stimulation, and the use of beta-blockers can mask certain signs of hyperthyroidism, such as tachycardia, potentially leading to a delay in diagnosis and treatment. While topical beta-blockers can be effective in managing conditions like glaucoma, their systemic absorption can have significant effects in individuals with hyperthyroidism, making it crucial for these patients to avoid their use. In contrast, beta-blockers are commonly utilized in treating hypertension and glaucoma, as they can effectively lower intraocular pressure and help manage high blood pressure. Rheumatoid arthritis is not directly affected by the use of topical beta-blockers, although caution is always advisable with any medication in patients with chronic conditions. Thus, in the context of topical beta-blockers, hyperthyroidism presents a particular risk that justifies avoidance, emphasizing the need for careful consideration of systemic effects in certain populations.

### 4. What mechanism of action do sulfonamide antibiotics primarily use?

- A. Inhibit protein synthesis**
- B. Inhibit step 1 of folate synthesis**
- C. Inhibit DNA gyrase**
- D. Inhibit cell wall synthesis**

Sulfonamide antibiotics primarily act by inhibiting step 1 of folate synthesis, which is a critical pathway for bacterial growth and reproduction. These antibiotics specifically target and inhibit the enzyme dihydropteroate synthase. This enzyme is involved in the condensation of para-aminobenzoic acid (PABA) with pteridine to form dihydropteroic acid, a precursor in the synthesis of folate. Folate is essential for bacteria as it is required for the synthesis of nucleic acids and amino acids necessary for their growth and division. By inhibiting this step, sulfonamides effectively starve the bacteria of folate, thereby impeding their ability to proliferate. This mechanism is unique to bacteria, as humans do not synthesize folate and instead obtain it from dietary sources, making sulfonamides selectively toxic to bacteria. The other mechanisms mentioned do not accurately represent the action of sulfonamides. For instance, the inhibition of protein synthesis is characteristic of other antibiotic classes, such as tetracyclines or macrolides. DNA gyrase inhibitors, like fluoroquinolones, work on a different target involved in DNA replication, and cell wall synthesis inhibitors, such as penicill

**5. Which of the following medications is NOT classified as a Mast cell stabilizer/Antihistamine combo?**

- A. Epinastine**
- B. Ketotifen**
- C. Olopatadine**
- D. Prednisolone**

Prednisolone stands out as it is a corticosteroid rather than a mast cell stabilizer or antihistamine combination. Mast cell stabilizers work by preventing the release of histamine and other inflammatory mediators from mast cells, thereby reducing allergic responses. Antihistamines block the action of histamine, alleviating symptoms associated with allergic reactions. Medications such as epinastine, ketotifen, and olopatadine possess both mast cell stabilizing properties and antihistaminic effects, making them effective for managing allergic conjunctivitis and other allergic conditions. In contrast, prednisolone is used primarily for its anti-inflammatory properties and to modulate immune responses, which does not fall within the mast cell stabilizer or antihistamine classifications.

**6. Which ocular condition is treated with Triamcinolone?**

- A. Allergic conjunctivitis**
- B. Chalazia**
- C. Diabetic macular edema**
- D. Retinal detachment**

Triamcinolone is a corticosteroid that is commonly used in the treatment of diabetic macular edema, an ocular condition characterized by swelling in the retina due to fluid accumulation. In diabetic patients, elevated blood sugar levels can lead to damage to the retinal blood vessels, resulting in increased vascular permeability and subsequent edema. Triamcinolone helps to reduce inflammation and suppress immune responses in the retina, thereby decreasing vascular permeability and fluid leakage. Its efficacy in addressing diabetic macular edema can lead to improvements in visual acuity and reduction of central retinal thickness, making it a valuable treatment option for this condition. The other conditions listed do not typically utilize Triamcinolone as a first-line treatment. Allergic conjunctivitis is often treated with antihistamines or mast cell stabilizers, while chalazia can benefit from warm compresses and possibly surgical intervention if persistent. Retinal detachment usually requires surgical intervention and does not respond to corticosteroid therapy like Triamcinolone.

**7. Which sulfonamide antibiotic was mentioned as effective against both gram-positive and gram-negative bacteria?**

- A. Penicillin**
- B. Sulfisoxazole**
- C. Ciprofloxacin**
- D. Clindamycin**

Sulfisoxazole is a sulfonamide antibiotic that has been noted for its effectiveness against a broad range of bacteria, including both gram-positive and gram-negative strains. As a member of the sulfonamide class, it works by inhibiting bacterial folic acid synthesis, which is necessary for nucleic acid production and ultimately bacterial growth. This mechanism of action allows sulfisoxazole to be effective in treating various bacterial infections caused by organisms such as *Escherichia coli* (a gram-negative bacterium) and *Staphylococcus aureus* (a gram-positive bacterium). The other options do not represent sulfonamide antibiotics and have different mechanisms and spectra of activity. Penicillin primarily targets gram-positive bacteria and some gram-negative bacteria, while ciprofloxacin is a fluoroquinolone that also has broad-spectrum activity but is not a sulfonamide. Clindamycin is effective against many anaerobic bacteria and some gram-positive bacteria, primarily streptococci and staphylococci, but it does not have the same broad spectrum against gram-negative bacteria as sulfisoxazole does. Thus, sulfisoxazole stands out for its relevance to both types of bacteria in the context of sulfonamide antibiotics.

**8. Sildenafil is primarily used as what type of medication?**

- A. Antidepressant**
- B. Antihypertensive**
- C. Phosphodiesterase inhibitor**
- D. Antidiabetic**

Sildenafil is primarily classified as a phosphodiesterase inhibitor, specifically targeting phosphodiesterase type 5 (PDE5). This mechanism is crucial because sildenafil works by blocking the action of PDE5, leading to increased levels of cyclic guanosine monophosphate (cGMP) in the smooth muscle of blood vessels, particularly in the penis. This accumulation of cGMP promotes vasodilation, which facilitates increased blood flow, thus assisting in the treatment of erectile dysfunction. Moreover, sildenafil is also utilized in the treatment of pulmonary arterial hypertension, where its effect on cGMP contributes to relaxation and dilation of blood vessels, lowering pulmonary artery pressure and improving exercise capacity. This dual functionality reinforces the importance of sildenafil as a phosphodiesterase inhibitor rather than fitting into categories like antidepressants or antihypertensives, which have entirely different mechanisms and therapeutic targets.

## 9. How is Labetolol classified?

- A. Beta-1 specific adrenergic antagonist
- B. Non-selective beta adrenergic antagonist**
- C. Alpha-1 adrenergic antagonist
- D. Alpha-2 adrenergic agonist

Labetalol is classified as a non-selective beta adrenergic antagonist, which means that it blocks the beta-1 and beta-2 adrenergic receptors. This dual activity makes it effective in managing a variety of cardiovascular conditions, most notably hypertension. Beta-1 receptors are primarily located in the heart, and their blockade results in decreased heart rate and contractility, leading to lower blood pressure. Meanwhile, beta-2 receptors are located in peripheral blood vessels and the lungs, where their blockade can lead to vasoconstriction; however, labetalol's action on these receptors does not lead to the same degree of bronchoconstriction as some older non-selective beta blockers due to its additional alpha-1 antagonist properties. Thus, labetalol's classification as a non-selective beta antagonist encompasses both its beta-1 and beta-2 receptor blocking capabilities, making it a unique choice in treatment protocols for conditions like hypertension, especially during pregnancy or in hypertensive emergencies.

## 10. Which antibiotic class is known to inhibit bacterial DNA synthesis?

- A. Cephalosporins
- B. Tetracyclines
- C. Sulfonamides**
- D. Aminoglycosides

The sulfonamide class of antibiotics is known to inhibit bacterial DNA synthesis primarily by interfering with the synthesis of folic acid, which is essential for the production of nucleic acids. Sulfonamides mimic para-aminobenzoic acid (PABA), a substrate required for the bacterial enzyme dihydropteroate synthase. By competitively inhibiting this enzyme, sulfonamides effectively prevent the formation of folate, thus disrupting DNA synthesis and ultimately inhibiting bacterial growth. This mechanism is distinct from that of other antibiotic classes mentioned. Cephalosporins and tetracyclines target the bacterial cell wall synthesis and protein synthesis, respectively, without directly interfering with DNA synthesis. Aminoglycosides also primarily function by inhibiting protein synthesis. Therefore, the unique action of sulfonamides in impacting folate synthesis is what makes this antibiotic class specifically effective in inhibiting bacterial DNA synthesis.

# 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://nbeopharmacology.examzify.com>**

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

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