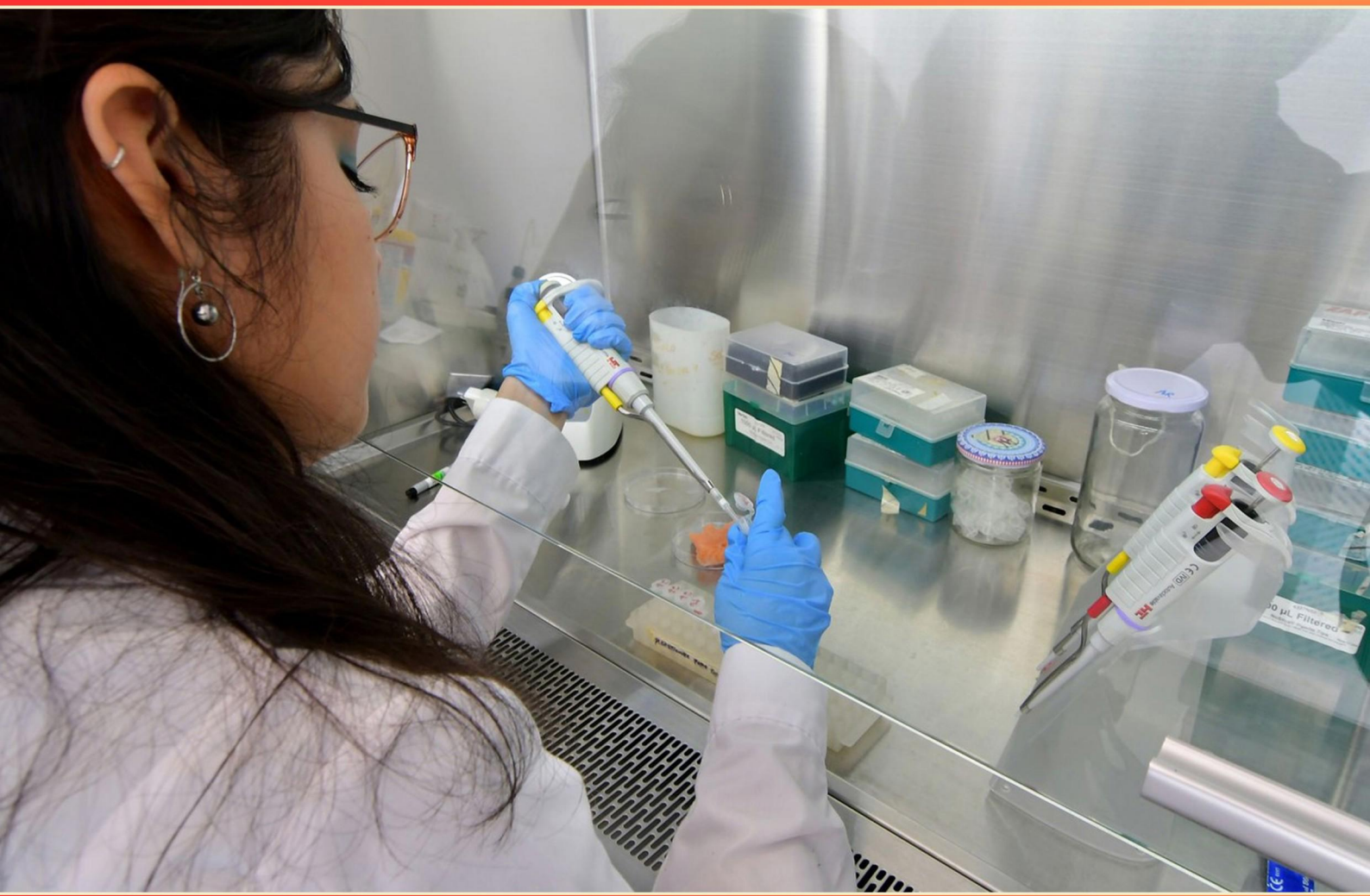
ANTITUBERCULAR DRUGS PRACTICE TEST (SAMPLE)

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.

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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!

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Questions

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1. What is the major hepatotoxicity risk with isoniazid and how is monitoring performed?

A. Nephrotoxicity; monitor creatinine.

B. Neurotoxicity; monitor ammonia.

C. Cardiovascular toxicity; monitor ECG.

D. Hepatotoxicity; monitor liver enzymes (ALT/AST) and symptoms.

2. XDR-TB is defined as MDR plus resistance to which classes?

A. MDR plus resistance to fluoroquinolones and at least one second-line injectable

B. MDR only

C. Resistance to isoniazid and ethambutol

D. Resistance to all drugs

3. Which safety concern requires monitoring when using bedaquiline or delamanid?

A. Nephrotoxicity

B. Visual impairment

C. QT interval prolongation

D. Hyperglycemia

4. Baseline liver enzyme testing is required before starting isoniazid and how often thereafter?

A. Monthly

B. Weekly

C. Biweekly

D. Quarterly

5. Which anti-TB drug is commonly associated with peripheral neuropathy, mitigated by pyridoxine?

A. Rifampin

B. Ethambutol

C. Isoniazid

D. Pyrazinamide

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6. Isoniazid is activated by which bacterial enzyme?

A. KasA.

B. InhA.

C. AhpC.

D. KatG.

7. What is the recommended TB regimen for pregnant patients?

A. Typically includes isoniazid, rifampin, ethambutol, and sometimes pyrazinamide; avoid streptomycin; monitor liver function; dosing is adjusted for pregnancy.

B. Exclude ethambutol

C. Use streptomycin in pregnancy

D. Only rifampin is used in pregnancy

8. What is the mechanism of action of delamanid?

A. Inhibits mycolic acid synthesis and generates reactive nitrogen species.

B. Inhibits ribosomal protein synthesis.

C. Inhibits RNA polymerase.

D. Inhibits folate synthesis.

9. What is the most significant drug interaction concern with rifampin?

A. Potent hepatic enzyme induction that reduces levels of many drugs (e.g., antiretrovirals, OCPs, anticoagulants).

B. Inhibits metabolism of many drugs.

C. No significant interactions.

D. Increases absorption of other TB drugs.

10. What is the interaction between rifampin and oral contraceptives?

A. No interaction with oral contraceptives.

B. Oral contraceptives increase Rifampin clearance.

C. Rifampin induces hepatic enzymes, reducing OC effectiveness.

D. Rifampin has a mild interaction with oral contraceptives.

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Answers

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

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Explanations

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1. What is the major hepatotoxicity risk with isoniazid and how is monitoring performed?

A. Nephrotoxicity; monitor creatinine.

B. Neurotoxicity; monitor ammonia.

C. Cardiovascular toxicity; monitor ECG.

D. Hepatotoxicity; monitor liver enzymes (ALT/AST) and symptoms.

Isoniazid's major risk is hepatotoxicity. Isoniazid can cause drug-induced hepatitis, and the chance of it occurring rises with age, preexisting liver disease, heavy alcohol use, and use of other liver-toxic drugs. Because of this, monitoring focuses on liver function tests and watching for liver-related symptoms. Start with baseline liver tests (ALT and AST, and bilirubin if available) before therapy. Then check liver enzymes periodically during treatment—typically in the first couple of months—and reassess promptly if symptoms develop. Patients should be told to report fatigue, loss of appetite, nausea, vomiting, right upper quadrant pain, dark urine, or yellowing of the skin or eyes, as these suggest liver injury. If enzyme elevations are significant or liver injury is suspected, discontinue isoniazid and evaluate further. (Note: while neuropathy is another known risk with isoniazid, prevented with pyridoxine, the question focuses on hepatotoxicity.)

2. XDR-TB is defined as MDR plus resistance to which classes?

A. MDR plus resistance to fluoroquinolones and at least one second-line injectable

B. MDR only

C. Resistance to isoniazid and ethambutol

D. Resistance to all drugs

XDR-TB builds on MDR-TB by adding resistance to two major classes of second-line drugs: fluoroquinolones and at least one second-line injectable (such as amikacin, kanamycin, or capreomycin). Fluoroquinolones are among the most important oral options for TB treatment, and the injectables are critical alternatives when oral drugs fail. When MDR-TB is accompanied by resistance to both of these classes, treatment choices become extremely limited, which is why this exact combination defines XDR-TB. The other patterns don't fit: MDR alone lacks the additional resistance in the two key second-line classes; resistance to only isoniazid and ethambutol involves first-line drugs and doesn't specify the required second-line class resistance; resistance to all drugs would be a broader, different scenario not used in the formal definition of XDR-TB.

3. Which safety concern requires monitoring when using bedaquiline or delamanid?

A. Nephrotoxicity

B. Visual impairment

C. QT interval prolongation

D. Hyperglycemia

The main idea is that bedaquiline and delamanid can prolong the heart's repolarization, shown as QT interval prolongation on an ECG. Because this effect can trigger dangerous arrhythmias like torsades de pointes, the safety plan centers on cardiac monitoring rather than kidney function or vision. Before starting treatment, obtain a baseline ECG and check electrolytes (potassium, magnesium, calcium). During therapy, repeat ECGs periodically and whenever changing other medications. Correct any electrolyte abnormalities, and avoid combining these drugs with other medicines that also extend the QT interval. If the QTc becomes too long (a threshold often around 500 ms or a large rise from baseline), consider adjusting or stopping therapy to prevent serious rhythm problems. Other safety concerns such as nephrotoxicity, visual impairment, or hyperglycemia are not the primary monitoring focus for these drugs, so they aren't the key safety checks in this context.

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4. Baseline liver enzyme testing is required before starting isoniazid and how often thereafter?

A. Monthly

B. Weekly

C. Biweekly

D. Quarterly

Isoniazid can cause hepatotoxicity, so you want a baseline measure of liver function before starting therapy to know if there is already liver impairment. Once therapy begins, monthly liver enzyme testing is recommended because the risk of isoniazid-related liver injury can develop during treatment, sometimes suddenly. Regular monthly checks help detect even asymptomatic rises in liver enzymes early, allowing you to pause or adjust treatment before meaningful liver damage occurs. The risk is higher in older patients, those with preexisting liver disease, or with alcohol use, which is why ongoing monitoring is important. If someone develops symptoms such as fatigue, abdominal pain, or jaundice, or if enzymes rise significantly, you'd reassess immediately.

5. Which anti-TB drug is commonly associated with peripheral neuropathy, mitigated by pyridoxine?

A. Rifampin

B. Ethambutol

C. Isoniazid

D. Pyrazinamide

Peripheral neuropathy is a classic adverse effect of isoniazid because the drug can cause pyridoxine (vitamin B6) deficiency. Isoniazid interferes with the body's ability to activate pyridoxine to its active form, pyridoxal-5'-phosphate, and it can also form an inactive complex with this cofactor. Without enough active vitamin B6, nerves don't get the necessary cofactors for neurotransmitter synthesis and myelin maintenance, leading to numbness, tingling, and weakness, especially in a symmetric distal distribution. To prevent this toxicity, pyridoxine supplementation is routinely given with isoniazid-containing regimens. The other anti-TB drugs have different toxicity profiles—rifampin commonly causes hepatotoxicity and drug interactions; ethambutol can cause optic neuritis; pyrazinamide may cause hyperuricemia and hepatotoxicity—so peripheral neuropathy tied to vitamin B6 deficiency is most characteristic of isoniazid.

6. Isoniazid is activated by which bacterial enzyme?

A. KasA.

B. InhA.

C. AhpC.

D. KatG.

Isoniazid is a prodrug that must be activated by a mycobacterial enzyme to work. The enzyme that does this is KatG, a catalase-peroxidase. When KatG oxidizes isoniazid, it converts it into an active species that then forms an adduct with NAD+. This activated complex inhibits InhA, the enoyl-ACP reductase in the fatty acid synthase II pathway, which blocks synthesis of mycolic acids essential for the mycobacterial cell wall. Without proper mycolic acid production, the bacterium cannot maintain its cell wall and cannot replicate effectively. Other proteins listed aren't responsible for activating isoniazid: InhA is the target inhibited after activation, KasA is another enzyme in the same biosynthetic pathway, and AhpC is a peroxide-detoxifying enzyme that may be upregulated in some resistance scenarios but does not activate the drug.

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7. What is the recommended TB regimen for pregnant patients?

A. Typically includes isoniazid, rifampin, ethambutol, and sometimes pyrazinamide; avoid streptomycin; monitor liver function; dosing is adjusted for pregnancy.

B. Exclude ethambutol

C. Use streptomycin in pregnancy

D. Only rifampin is used in pregnancy

In pregnancy, the aim is to treat TB effectively while minimizing risk to the fetus, so the regimen of choice includes isoniazid, rifampin, ethambutol, and often pyrazinamide. This combination is highly effective, helps shorten therapy, and has a safety profile that is generally acceptable for both mother and baby. Streptomycin is avoided during pregnancy because it can cause fetal hearing loss, a serious concern that makes it unsuitable in most cases. Isoniazid is given with vitamin B6 (pyridoxine) to prevent neuropathy, and all drugs are monitored for liver toxicity since pregnancy can influence how the body handles medications. Pyrazinamide is included in many guidelines because it helps shorten treatment to about six months, though its use may vary by local guidelines and susceptibility data. Dosing is adjusted for pregnancy to account for physiological changes that affect drug levels, ensuring the regimen remains both safe and effective.

8. What is the mechanism of action of delamanid?

A. Inhibits mycolic acid synthesis and generates reactive nitrogen species.

B. Inhibits ribosomal protein synthesis.

C. Inhibits RNA polymerase.

D. Inhibits folate synthesis.

Delamanid works by blocking the production of mycolic acids, vital components of the Mycobacterium tuberculosis cell wall. It's a prodrug that the bacterium activates via a specific F420-dependent nitroreductase, Ddn. Once activated, it releases reactive nitrogen species, notably nitric oxide, which disrupts cell-wall lipid synthesis and weakens the mycobacterial envelope. The result is inhibited formation of methoxy- and ketomycolates, leading to a bactericidal effect, especially in drug-resistant TB. This is distinct from inhibitors of ribosomal protein synthesis, RNA polymerase, or folate synthesis, which target completely different cellular processes.

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9. What is the most significant drug interaction concern with rifampin?

A. Potent hepatic enzyme induction that reduces levels of many drugs (e.g., antiretrovirals, OCPs, anticoagulants).

B. Inhibits metabolism of many drugs.

C. No significant interactions.

D. Increases absorption of other TB drugs.

Rifampin is a potent inducer of hepatic drug-metabolizing enzymes, especially the cytochrome P450 system (notably CYP3A4) and certain transporters. This induction speeds up the metabolism and clearance of many coadministered drugs, often driving their levels down into subtherapeutic ranges. That makes this the most significant drug interaction concern with rifampin. Clinically, it can compromise antiretroviral therapy by lowering exposure and risking virologic failure and resistance, reduce the effectiveness of hormonal contraceptives leading to unintended pregnancy, and produce inadequate anticoagulation with drugs like warfarin. Other affected drugs include various anticonvulsants, methadone, corticosteroids, and many others. Because the effect results from enzyme induction, it develops over days to weeks after starting rifampin and can persist for a while after stopping, so careful monitoring and possible regimen adjustment are needed. Rifampin does not inhibit metabolism nor does it reliably increase absorption of other TB drugs, which is why those options aren't the primary concern.

10. What is the interaction between rifampin and oral contraceptives?

A. No interaction with oral contraceptives.

B. Oral contraceptives increase Rifampin clearance.

C. Rifampin induces hepatic enzymes, reducing OC effectiveness.

D. Rifampin has a mild interaction with oral contraceptives.

Rifampin is a strong inducer of liver drug-metabolizing enzymes, which speeds up the breakdown of oral contraceptives. It mainly activates enzymes like CYP3A4 and related pathways, increasing the clearance of the hormones in birth control pills (the estrogen and progestin components). When these hormone levels drop faster, the pills' ability to suppress ovulation diminishes, raising the chance of breakthrough ovulation and unintended pregnancy. Because enzyme induction takes time to develop and lasts for a while after rifampin is stopped, this interaction is clinically important during therapy and for a period afterward. In practice, women on rifampin should use an alternative or nonhormonal method of contraception, or at least rely on a backup method, during treatment and for some time after finishing rifampin to ensure contraception remains effective. Why the other statements don't fit: it's not a matter of no interaction, and rifampin does not increase OC levels; it reduces them by accelerating metabolism, and the interaction is more than mild.

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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://antituberculardrugs.examzify.com

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

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