NBME Form 16 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

1. What is the effect of cigarette smoke on airway cilia?

A. Ciliary beat frequency increases

B. Reid index unchanged

C. Cilia are destroyed, reducing mucociliary clearance

D. Cilia proliferate

2. An increase in iron inside cultured hepatocytes leads to increased ferritin protein detected by Western blot but not by Northern blot or PCR. This indicates iron increases the frequency of which cellular process?

A. Transcription of ferritin mRNA

B. mRNA stability of ferritin

C. Translation of ferritin mRNA

D. Protein degradation of ferritin

3. Chronic pyelonephritis is best characterized by which imaging finding?

A. Hydronephrosis

B. Renal stones

C. Blunted calyces with scarring

D. Renal abscess

4. In a liver biopsy showing centrilobular pallor and swelling of hepatocytes due to decreased ATP production, what is the most likely mechanism of cellular swelling?

A. Decreased Na/K ATPase activity due to ATP deficit

B. Increased protein synthesis

C. Enhanced fatty acid oxidation

D. Activation of lysosomal enzymes

5. In a scenario where exogenous angiotensin II is administered with a drug that blocks angiotensin II formation, what best describes the drug's action?

A. Full agonist at ATII receptor

B. Partial agonist at ATII receptor

C. Competitive antagonist at ATII receptor

D. Irreversible inhibitor of ACE

6. Which statement about fecal occult blood testing for colon cancer screening is correct?

A. Not sensitive

B. Very sensitive

C. Most sensitive

D. Moderately sensitive

7. In a child with sudden progressive dyspnea, eosinophilia, and Charcot-Leyden crystals, which mediator is primarily involved in the pathogenesis of asthma?

A. Histamine

B. Acetylcholine

C. Leukotrienes

D. Prostaglandin E2

8. Which histologic feature is most characteristic of ulcerative colitis?

A. Crypt abscesses

B. Noncaseating granulomas

C. Transmural inflammation

D. Goblet cell hyperplasia in deep crypts without neutrophils

9. Which antiretroviral inhibits HIV entry by preventing fusion of the viral envelope with the host cell membrane?

A. Zidovudine

B. Enfuvirtide

C. Efavirenz

D. Lamivudine

10. Rupture of which artery leads to a third nerve palsy with pupillary involvement?

A. Posterior communicating artery

B. Anterior cerebral artery

C. Middle cerebral artery

D. Basilar artery

Answers

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

Explanations

1. What is the effect of cigarette smoke on airway cilia?

A. Ciliary beat frequency increases

B. Reid index unchanged

C. Cilia are destroyed, reducing mucociliary clearance

D. Cilia proliferate

Cigarette smoke damages the ciliated cells of the airway lining, and over time destroys these cilia, leading to a marked drop in mucociliary clearance. That system normally sweeps mucus and trapped particles out of the airways; when cilia are lost, mucus accumulates, infection risk rises, and conditions like chronic bronchitis can develop. It's not an increase in beat frequency or cilia proliferation; the key effect is ciliary destruction and impaired clearance. (Smoking also causes mucous gland changes that raise the Reid index, but that relates to mucus production rather than direct ciliary loss.)

2. An increase in iron inside cultured hepatocytes leads to increased ferritin protein detected by Western blot but not by Northern blot or PCR. This indicates iron increases the frequency of which cellular process?

A. Transcription of ferritin mRNA

B. mRNA stability of ferritin

C. Translation of ferritin mRNA

D. Protein degradation of ferritin

Iron-regulated translation of ferritin is controlled by iron-responsive elements in ferritin mRNA. When iron rises, iron regulatory proteins release the iron-responsive elements, allowing ribosomes to translate ferritin mRNA more efficiently. This increases ferritin protein levels without changing the amount of ferritin mRNA, which is why a Western blot shows more ferritin protein while Northern blot or PCR show no change in mRNA. In short, the rise in ferritin protein reflects enhanced translation, a post-transcriptional control mechanism responsive to cellular iron.

3. Chronic pyelonephritis is best characterized by which imaging finding?

A. Hydronephrosis

B. Renal stones

C. Blunted calyces with scarring

D. Renal abscess

Chronic pyelonephritis is driven by long-standing infection that causes tubulointerstitial inflammation and scarring of the renal papillae and calyces. Over time this scarring distorts the collecting system, leading to blunted, irregular calyces and cortical scarring on imaging. This calyceal distortion is the classic, lasting change you'd expect to see, often with asymmetric kidney involvement. Other findings like hydronephrosis reflect dilatation from obstruction rather than the chronic scarring process, renal stones aren't specific to chronic infection, and a renal abscess represents an acute focal complication rather than the chronic changes described here.

4. In a liver biopsy showing centrilobular pallor and swelling of hepatocytes due to decreased ATP production, what is the most likely mechanism of cellular swelling?

A. Decreased Na/K ATPase activity due to ATP deficit

B. Increased protein synthesis

C. Enhanced fatty acid oxidation

D. Activation of lysosomal enzymes

Cell swelling in early reversible liver injury comes from a failure of energy-dependent ion pumps. When ATP is depleted, the Na+/K+ ATPase cannot maintain the ionic gradients, so Na+ accumulates inside hepatocytes. Water follows this osmotic signal, producing cytoplasmic swelling (hydropic change) and the pale centrilobular appearance. This is a classic response to hypoxic/ischemic stress where ATP production drops first in the centrilobular zones. Other mechanisms described would not produce this immediate osmotic swelling: increasing protein synthesis doesn't cause acute cellular edema, enhanced fatty acid oxidation is a metabolic shift rather than a pump-driven swelling, and activation of lysosomal enzymes leads to degradation rather than the initial water-driven swelling seen with ATP depletion.

5. In a scenario where exogenous angiotensin II is administered with a drug that blocks angiotensin II formation, what best describes the drug's action?

A. Full agonist at ATII receptor

B. Partial agonist at ATII receptor

C. Competitive antagonist at ATII receptor

D. Irreversible inhibitor of ACE

Partial agonists activate receptors but produce a submaximal response compared with a full agonist. In this scenario, angiotensin II is the full agonist at AT1 receptors, so when a drug that blocks angiotensin II formation is present, any exogenous Ang II can still activate the receptors but to a lesser extent if the blocker acts as a partial agonist. The drug will occupy some receptors and provide only partial signaling, thereby dampening the overall Ang II–mediated effect. It's not a pure antagonist because it still produces some receptor activity, and it's not an irreversible ACE inhibitor since the action is at the receptor level, not the enzyme.

6. Which statement about fecal occult blood testing for colon cancer screening is correct?

A. Not sensitive

B. Very sensitive

C. Most sensitive

D. Moderately sensitive

Fecal occult blood testing looks for hidden blood in the stool, which can indicate a lesion in the colon. But bleeding from colorectal cancers or polyps is often intermittent, and some lesions may not bleed at all, especially when they're small. Stool blood can also be missed due to how the sample is collected or handled. Because of these factors, the test misses a substantial number of cancers, so it isn't a highly sensitive screening method. It's useful as a broad screening tool, especially when followed by colonoscopy if the test is positive, but its ability to detect cancer early is limited compared with more definitive tests like colonoscopy (and even newer FIT tests improve but do not achieve perfect sensitivity).

7. In a child with sudden progressive dyspnea, eosinophilia, and Charcot-Leyden crystals, which mediator is primarily involved in the pathogenesis of asthma?

A. Histamine

B. Acetylcholine

C. Leukotrienes

D. Prostaglandin E2

In asthma with eosinophilic inflammation, the key players are leukotrienes released by eosinophils and other inflammatory cells. Leukotrienes such as LTC4, LTD4, and LTE4 are powerful bronchoconstrictors that also promote mucus production and airway edema, driving the sustained airway narrowing that leads to progressive dyspnea. The presence of eosinophilia and Charcot-Leyden crystals supports this eosinophil-driven inflammatory pathway, making leukotrienes the primary mediators in the pathogenesis here. Histamine mediates mainly the immediate, early-phase bronchoconstriction but is not the principal driver of the ongoing airway hyperreactivity in this eosinophilic pattern. Acetylcholine causes bronchoconstriction via the parasympathetic system but isn't the central inflammatory mediator in asthma. Prostaglandin E2 has variable roles and is not the main driver in this eosinophil-rich scenario.

8. Which histologic feature is most characteristic of ulcerative colitis?

A. Crypt abscesses

B. Noncaseating granulomas

C. Transmural inflammation

D. Goblet cell hyperplasia in deep crypts without neutrophils

In ulcerative colitis the inflammation is limited to the mucosa and submucosa of the colon and tends to be continuous from the rectum. The most characteristic histologic feature is neutrophilic infiltration within the glandular crypts, forming crypt abscesses where neutrophils fill and disrupt the crypt epithelium. This reflects active mucosal inflammation and is a classic sign of UC. By contrast, noncaseating granulomas and transmural inflammation are more typical of Crohn disease, which involves deeper wall layers and granulomatous inflammation. Goblet cells can be diminished with chronic inflammation, not hyperplastic, and the hallmark pattern during active disease is the presence of crypt abscesses rather than goblet cell hyperplasia without neutrophils.

9. Which antiretroviral inhibits HIV entry by preventing fusion of the viral envelope with the host cell membrane?

A. Zidovudine

B. Enfuvirtide

C. Efavirenz

D. Lamivudine

Blocking HIV entry by preventing fusion of the viral envelope with the host cell membrane is achieved by fusion inhibitors. Enfuvirtide is a fusion inhibitor that binds the gp41 subunit of the HIV envelope glycoprotein, preventing the conformational changes needed for the viral and cellular membranes to fuse. This stops the virus from entering the cell. It's given by subcutaneous injection and is often used in patients with resistant HIV strains. Other drugs listed work at different steps: zidovudine and lamivudine are nucleoside reverse transcriptase inhibitors that block reverse transcription, and efavirenz is a non-nucleoside reverse transcriptase inhibitor; neither prevents viral entry or fusion.

10. Rupture of which artery leads to a third nerve palsy with pupillary involvement?

A. Posterior communicating artery

B. Anterior cerebral artery

C. Middle cerebral artery

D. Basilar artery

When a third nerve palsy includes a pupil that is blown (dilated), think a compressive lesion affecting the oculomotor nerve, particularly where the parasympathetic fibers run on its surface. An aneurysm of the posterior communicating artery at the junction with the internal carotid is a classic culprit. As it enlarges, it presses on CN III, leading to the eye being "down and out," ptosis, and a dilated pupil due to loss of pupil constriction. This pattern helps distinguish compressive causes from microvascular (ischemic) ones, such as diabetes, where the central motor fibers are involved but the superficial parasympathetic fibers—and thus the pupil—are usually spared. Aneurysms of the anterior cerebral, middle cerebral, or basilar arteries don't classically produce a third nerve palsy with pupil involvement, because they don't compress CN III in the same characteristic way.

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://nbmeform16.examzify.com

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