

NBME Form 27 Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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Table of Contents

Copyright	1
Table of Contents	2
Introduction	3
How to Use This Guide	4
Questions	5
Answers	8
Explanations	10
Next Steps	16

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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. Zellweger syndrome is caused by the absence of which cellular component?**
 - A. Peroxisomes**
 - B. Mitochondria**
 - C. Lysosomes**
 - D. Nucleus**

- 2. What is a defining symptom of sialidosis?**
 - A. Hepatosplenomegaly**
 - B. Coarse facial features**
 - C. Cherry-red macules**
 - D. Corneal clouding**

- 3. What does the third pharyngeal arch develop into?**
 - A. All intrinsic muscles of the larynx**
 - B. Stylopharyngeus muscle and glossopharyngeal nerve**
 - C. Muscles of the soft palate and thyroid cartilage**
 - D. Facial muscles and the stapedius**

- 4. Where do the ovaries first drain into lymph nodes?**
 - A. Along the ovarian arteries**
 - B. Into the pelvic lymph nodes**
 - C. Into the axillary lymph nodes**
 - D. Along the umbilical artery**

- 5. Brachial cleft cysts develop due to failure in the fusion of what anatomical structures?**
 - A. Branchial arches**
 - B. Maxillary and mandibular processes**
 - C. Palatine prominences**
 - D. Facial swellings**

- 6. What role does eosinophilia serve in the diagnosis of acute inflammatory nephritis (AIN)?**
- A. It indicates a bacterial infection**
 - B. It suggests an allergic reaction**
 - C. It confirms chronic kidney disease**
 - D. It is unrelated to renal conditions**
- 7. How do tetracyclines disrupt bacterial protein synthesis?**
- A. By inhibiting DNA replication**
 - B. By reversibly binding to bacterial ribosomal 30S subunit**
 - C. By interfering with cell wall synthesis**
 - D. By preventing RNA polymerase activity**
- 8. When accessing renal arteries from the femoral artery, where should the catheter be advanced after entering the aorta?**
- A. Above the renal arteries**
 - B. Just superior to the takeoff of the testicular artery**
 - C. Near the diaphragm**
 - D. Below the aortic bifurcation**
- 9. Which primary inflammatory mediators are known to promote vasodilation in the initial immune response?**
- A. Histamine, bradykinin, and prostaglandin-E2**
 - B. Cytokines, leukotrienes, and nitric oxide**
 - C. Prostaglandin I2, thromboxane, and leukotriene B4**
 - D. Complement proteins, interleukins, and histamine**
- 10. What type of stroke is characterized by impairment in both Broca's and Wernicke's areas?**
- A. Hemorrhagic stroke**
 - B. Thrombotic stroke**
 - C. Embolic stroke**
 - D. Transient ischemic attack**

Answers

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

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Explanations

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1. Zellweger syndrome is caused by the absence of which cellular component?

- A. Peroxisomes**
- B. Mitochondria**
- C. Lysosomes**
- D. Nucleus**

Zellweger syndrome is a genetic disorder characterized by the absence of functional peroxisomes, which are essential organelles in the cell responsible for various metabolic functions, including the breakdown of fatty acids and the detoxification of hydrogen peroxide. In individuals with Zellweger syndrome, the deficiency in peroxisomes leads to the accumulation of very long-chain fatty acids and other toxic substances, resulting in severe neurological, hepatic, and developmental abnormalities. Peroxisomes play a critical role in lipid metabolism and contribute to the production of plasmalogens, which are important for proper cellular function, especially in the brain and lungs. The absence of these organelles disrupts the normal metabolic processes, leading to the characteristic manifestations of the disease, such as hypotonia, seizures, and other systemic issues. The other cellular components listed—mitochondria, lysosomes, and the nucleus—are involved in different cellular functions. Mitochondria are primarily responsible for energy production through oxidative phosphorylation, lysosomes are involved in waste degradation and recycling, and the nucleus contains genetic material and regulates gene expression. While dysfunctions in these components can lead to other disorders and syndromes, they are not the underlying cause of Zellweger syndrome. Thus, the correct

2. What is a defining symptom of sialidosis?

- A. Hepatosplenomegaly**
- B. Coarse facial features**
- C. Cherry-red macules**
- D. Corneal clouding**

Sialidosis is a lysosomal storage disorder characterized primarily by the accumulation of sialic acid. One of the hallmark features of sialidosis is the presence of cherry-red macules, which are bright red spots typically found on the retina. This feature is particularly significant in differentiating sialidosis from other lysosomal storage diseases. As the disease progresses, individuals may experience neurological deterioration and skeletal abnormalities, but the cherry-red macules can serve as an important diagnostic indicator. The unique appearance of these macules can help in the visual diagnosis during a clinical examination, providing crucial evidence of the disorder. The other symptoms associated with this condition, while they may appear in other storage disorders, are not definitive for sialidosis, thereby emphasizing the importance of the presence of cherry-red macules in establishing the diagnosis.

3. What does the third pharyngeal arch develop into?

- A. All intrinsic muscles of the larynx
- B. Stylopharyngeus muscle and glossopharyngeal nerve**
- C. Muscles of the soft palate and thyroid cartilage
- D. Facial muscles and the stapedius

The third pharyngeal arch plays a crucial role in the development of specific muscles and cranial nerves. It gives rise to the stylopharyngeus muscle, which is important for swallowing. This muscle is innervated by the glossopharyngeal nerve, the ninth cranial nerve, which is responsible for both motor and sensory functions in the pharynx and tongue. The significance of the third pharyngeal arch lies not only in its contribution to the muscular structure but also in its association with the glossopharyngeal nerve, which is essential for various functions in the head and neck region, including the gag reflex and taste sensation from the posterior one-third of the tongue. This arch's development highlights the intricate relationships between muscle formation and nerve innervation during embryonic growth. In comparison, the other options refer to structures derived from different pharyngeal arches. For instance, the intrinsic muscles of the larynx originate from the sixth pharyngeal arch, muscles of the soft palate arise from the fourth arch, and facial muscles and the stapedius are associated with the second pharyngeal arch. Thus, the third pharyngeal arch's primary contributions to the stylopharyngeus

4. Where do the ovaries first drain into lymph nodes?

- A. Along the ovarian arteries**
- B. Into the pelvic lymph nodes
- C. Into the axillary lymph nodes
- D. Along the umbilical artery

The correct response indicates that the ovaries first drain into lymph nodes along the ovarian arteries, which is rooted in the anatomical and physiological pathways of lymphatic drainage. The ovaries are primarily supplied by the ovarian arteries, which branch directly from the abdominal aorta. The lymphatic vessels that accompany these arteries transport lymph from the ovaries to the para-aortic (or lumbar) lymph nodes located near the aorta in the abdominal cavity. This pathway is significant because it highlights the connection between the ovaries and the systemic circulation through the aorta, demonstrating that the lymphatic drainage from the ovaries is more closely associated with abdominal structures rather than pelvic or other lymphatic regions. Understanding these connections is crucial in clinical contexts, such as cancer staging or surgical planning, as the spread of ovarian cancer can be assessed by examining these lymph nodes. In contrast, lymph drainage directly into pelvic lymph nodes, axillary lymph nodes, or along the umbilical artery does not accurately reflect the primary lymphatic pathway for the ovaries. These sites typically serve other regions or structures and do not involve direct lymph drainage from the ovaries.

5. Brachial cleft cysts develop due to failure in the fusion of what anatomical structures?

- A. Branchial arches**
- B. Maxillary and mandibular processes**
- C. Palatine prominences**
- D. Facial swellings**

Brachial cleft cysts are a result of the incomplete fusion of the branchial arches during embryonic development. Specifically, they are remnants of the branchial apparatus, which includes the branchial (or pharyngeal) arches, grooves, and pouches. During normal development, these structures form various components of the head and neck, such as muscles, arteries, and skeletal elements. When there is a failure in their fusion, it can lead to the persistence of these structures. This persistence results in the formation of a cystic lesion known as a brachial cleft cyst, commonly located along the lateral neck. The other options refer to separate structures and processes in facial or neck development but are not directly related to the formation of brachial cleft cysts. The maxillary and mandibular processes are involved in the formation of the lower face, palatine prominences are related to palate development, and facial swellings contribute to facial morphology but do not specifically lead to the existence of brachial cleft cysts. Therefore, the fusion failure of the branchial arches is the key condition leading to the development of these cysts.

6. What role does eosinophilia serve in the diagnosis of acute inflammatory nephritis (AIN)?

- A. It indicates a bacterial infection**
- B. It suggests an allergic reaction**
- C. It confirms chronic kidney disease**
- D. It is unrelated to renal conditions**

Eosinophilia serves as an important indicator in the diagnosis of acute inflammatory nephritis (AIN), particularly in cases where the condition is related to hypersensitivity reactions or allergic processes. In AIN, which can be precipitated by medications, infections, or autoimmune diseases, the presence of eosinophils in the urine is often associated with an allergic response to certain triggers, indicating that the immune system is reacting to a perceived threat. When eosinophils are elevated in the bloodstream (eosinophilia) and then found in the urine, it strongly suggests that the inflammation occurring in the kidneys may be due to an allergic reaction rather than a purely infectious cause. This association helps clinicians distinguish AIN from other renal pathologies, particularly those caused by bacterial infections, which typically do not present with significant eosinophil involvement. Given that eosinophils are primarily involved in allergic reactions and responses to parasitic infections, their presence in the context of AIN helps to confirm that the inflammation is likely due to a hypersensitivity reaction rather than other causes. Thus, eosinophilia is a critical clue in diagnosing AIN when considering patient history, recent medication use, or exposure to allergens.

7. How do tetracyclines disrupt bacterial protein synthesis?

- A. By inhibiting DNA replication
- B. By reversibly binding to bacterial ribosomal 30S subunit**
- C. By interfering with cell wall synthesis
- D. By preventing RNA polymerase activity

Tetracyclines disrupt bacterial protein synthesis by reversibly binding to the bacterial ribosomal 30S subunit. This binding interferes with the attachment of aminoacyl-tRNA to the mRNA-ribosomal complex during the translation process, which is crucial for synthesizing proteins. The inhibition of this step ultimately leads to a decrease in the production of essential proteins needed for bacterial growth and replication. This mechanism specifically targets the 30S subunit, which is a distinct feature of prokaryotic ribosomes, allowing tetracyclines to selectively inhibit bacterial protein synthesis without affecting eukaryotic ribosomes significantly. This selectivity is what makes tetracyclines effective antibiotics for treating a variety of bacterial infections. The correct mechanism highlights how tetracyclines disrupt protein synthesis directly at the ribosomal level, which is fundamental to their action as antibiotics.

8. When accessing renal arteries from the femoral artery, where should the catheter be advanced after entering the aorta?

- A. Above the renal arteries
- B. Just superior to the takeoff of the testicular artery**
- C. Near the diaphragm
- D. Below the aortic bifurcation

To advance a catheter to access renal arteries from the femoral artery after entering the aorta, it is crucial to position the catheter appropriately relative to the anatomical landmarks. The renal arteries typically branch off from the abdominal aorta approximately at the level of the L1-L2 vertebrae, which is generally above the level of the testicular arteries. Advancing the catheter just superior to the takeoff of the testicular artery is a strategic choice because this positioning allows for optimal access to the renal arteries without overshooting them. The testicular arteries arise from the abdominal aorta usually around the same level or slightly inferior to the renal arteries, making this specific location ideal for accessing the renal arteries effectively. This technique ensures that the catheter is placed in such a way that it can be easily maneuvered to visualize and/or catheterize the renal arteries without the risk of causing complications at other arterial branches or regions. Understanding the anatomical relationships between these vessels is key when performing such procedures in interventional radiology or vascular surgery.

9. Which primary inflammatory mediators are known to promote vasodilation in the initial immune response?

- A. Histamine, bradykinin, and prostaglandin-E2**
- B. Cytokines, leukotrienes, and nitric oxide**
- C. Prostaglandin I2, thromboxane, and leukotriene B4**
- D. Complement proteins, interleukins, and histamine**

The selection of histamine, bradykinin, and prostaglandin E2 as primary inflammatory mediators promoting vasodilation in the initial immune response is well-grounded in their roles in inflammation. Histamine is released from mast cells and basophils during an immune response. It is a potent vasodilator, leading to increased blood flow and vascular permeability, which are critical for the delivery of immune cells and substances to the site of injury or infection. Bradykinin is part of the kinin system that is activated during inflammation. It also causes vasodilation and increases vascular permeability, contributing to the classical signs of inflammation, including redness and swelling. Prostaglandin E2 is produced by various cells at the site of inflammation and has a role in promoting vasodilation and increasing vascular permeability as well. It enhances the effects of other inflammatory mediators and is involved in both local and systemic effects during inflammatory responses. Together, these mediators initiate and amplify the inflammatory process by enhancing blood flow to affected areas, facilitating the influx of immune cells, and promoting healing while also contributing to pain and other symptoms associated with inflammation.

10. What type of stroke is characterized by impairment in both Broca's and Wernicke's areas?

- A. Hemorrhagic stroke**
- B. Thrombotic stroke**
- C. Embolic stroke**
- D. Transient ischemic attack**

The type of stroke characterized by impairment in both Broca's and Wernicke's areas is typically a thrombotic stroke. This type of stroke occurs when a blood clot forms in the arteries supplying blood to the brain, often due to atherosclerosis, which leads to a reduction in blood flow. Consequently, it can result in damage to various brain regions, including critical areas responsible for language processing and production. Broca's area, located in the frontal lobe, is crucial for speech production, while Wernicke's area, situated in the temporal lobe, is essential for language comprehension. Damage to both areas often results in significant language deficits, characterized by the inability to produce coherent speech and difficulty understanding language, known as global aphasia. Other types of strokes, such as hemorrhagic or embolic strokes, can also lead to language impairments depending on the specific brain regions affected, but the classic presentation of language deficits involving both Broca's and Wernicke's areas aligns more closely with the mechanism behind thrombotic strokes that cause broader areas of cerebral infarction due to prolonged ischemia. A transient ischemic attack, on the other hand, typically presents with temporary symptoms that resolve quickly, not leading to lasting impairments.

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://nbmeform27.examzify.com>

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

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