

NBME Form 29 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. A 28-year-old man develops an abscess after a splinter injury on his finger. What adhesion molecule is primarily involved in the inflammation process?**
 - A. Cadherins**
 - B. Selectins**
 - C. Proteoglycans**
 - D. Integrins**

- 2. What type of lung cancer is characterized by cavitory lesions and is often located centrally?**
 - A. Adenocarcinoma**
 - B. Small cell carcinoma**
 - C. Squamous cell carcinoma**
 - D. Large cell carcinoma**

- 3. Where does the ureter narrow just above the sacroiliac joint, making it a common site for kidney stones to obstruct?**
 - A. External iliac vessels**
 - B. Infundibulopelvic ligament**
 - C. Internal pudendal vessels**
 - D. Left colic vessels**

- 4. What condition is characterized by tenesmus, mucoid bloody diarrhea, and cramping abdominal pain?**
 - A. Crohn disease**
 - B. Diverticulitis**
 - C. Pseudomembranous enterocolitis**
 - D. Ulcerative colitis**

- 5. For an elderly patient with a history of tuberculosis and calcified aortic valve, what is the best explanation for the clinical findings?**
 - A. Calcification due to aging**
 - B. Adverse effect of medication**
 - C. Coronary artery disease**
 - D. Infection complications**

- 6. Which diagnosis is likely for a 15-year-old boy with a lytic skull lesion based on histological findings?**
- A. Langerhans cell histiocytosis**
 - B. Meningioma**
 - C. Metastatic carcinoma**
 - D. Osteosarcoma**
- 7. A patient in septic shock shows signs of cortical necrosis in the kidneys. Which nephron structure is most likely to be affected?**
- A. Collecting ducts**
 - B. Loop of Henle**
 - C. Proximal convoluted tubules**
 - D. Papillary ducts**
- 8. Which neurotransmitter pathway is activated by drugs such as cocaine and amphetamines, contributing to their rewarding effects?**
- A. A dopaminergic from the nucleus accumbens to the prefrontal cortex**
 - B. An endocannabinoid from the anterior thalamic nuclei to the somatosensory cortex**
 - C. An endorphin (opioid) from the substantia gelatinosa to the ventral tegmental area**
 - D. A GABAergic**
- 9. In septic shock, which of the following receptors should be stimulated to increase systemic vascular resistance?**
- A. β -Adrenoreceptors**
 - B. α -Adrenoreceptors**
 - C. Dopamine receptors**
 - D. Muscarinic receptors**

10. A 55-year-old man with chronic alcohol use presents with right upper quadrant pain and liver abnormalities. Which vein is likely experiencing hypertension?

- A. Hepatic**
- B. Renal**
- C. Portal**
- D. Suprarenal**

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Answers

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

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Explanations

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1. A 28-year-old man develops an abscess after a splinter injury on his finger. What adhesion molecule is primarily involved in the inflammation process?

- A. Cadherins
- B. Selectins**
- C. Proteoglycans
- D. Integrins

In the context of inflammation, selectins play a crucial role during the initial stages of leukocyte recruitment to sites of injury or infection. After a splinter injury, the body responds with an inflammatory process that involves the movement of white blood cells from the bloodstream into the damaged tissue. Selectins are adhesion molecules that mediate the rolling of leukocytes along the endothelial surface of blood vessels. They bind to specific carbohydrates on the surface of leukocytes, allowing these immune cells to slow down, roll, and eventually adhere to the endothelium. This is a critical step before the leukocytes can migrate through the vessel wall into the tissues where they can help combat infection and clear debris. The other adhesion molecules mentioned do have roles in cell adhesion and immune responses, but they function at different stages or in different contexts. Cadherins are primarily involved in cell-cell adhesion within tissues, integrins facilitate tight adhesion and signaling between cells and the extracellular matrix, and proteoglycans are important for structural integrity and signaling in tissues rather than direct leukocyte adhesion. Therefore, selectins are specifically important for the acute inflammatory response associated with leukocyte rolling and initial adhesion during the inflammatory process.

2. What type of lung cancer is characterized by cavitory lesions and is often located centrally?

- A. Adenocarcinoma
- B. Small cell carcinoma
- C. Squamous cell carcinoma**
- D. Large cell carcinoma

Squamous cell carcinoma of the lung is closely associated with cavitory lesions and is commonly found in the central regions of the lungs, particularly in the bronchi. This type of cancer arises from the epithelial cells lining the airways and is often linked to a history of smoking, which is a significant risk factor for lung cancer overall. The presence of cavitory lesions occurs because squamous cell carcinoma can lead to tissue necrosis and resultant cavity formation within the lung tissue. Furthermore, due to its central location, it can obstruct air passages, leading to collapse of the surrounding lung tissue and contributing to the cavitation process. Understanding this characteristic helps in differentiating squamous cell carcinoma from other types of lung cancer, which may have different typical presentations and histological features. For instance, adenocarcinoma usually appears peripherally and may not present with cavitory lesions in the initial stages, while small cell carcinoma tends to grow rapidly and is more often associated with metastatic disease rather than cavitory lesions. Large cell carcinoma can present in a variety of ways but lacks the specific association with cavitory formation as seen in squamous cell carcinoma.

3. Where does the ureter narrow just above the sacroiliac joint, making it a common site for kidney stones to obstruct?

- A. External iliac vessels**
- B. Infundibulopelvic ligament**
- C. Internal pudendal vessels**
- D. Left colic vessels**

The ureter experiences several anatomical constrictions along its course, and one of the most notable is the location just above the sacroiliac joint, where it approaches the external iliac vessels. This narrow point is significant because it serves as a common site for obstruction due to kidney stones. When a stone travels down the urinary tract, it can become lodged at these constricted points, leading to pain and potentially complications such as hydronephrosis if the obstruction is not resolved. The external iliac vessels are situated adjacent to the ureter as it traverses the pelvis, specifically at the point right before the ureter courses into the bladder. Recognizing this anatomical relationship is crucial for understanding the pathophysiology of ureteral obstruction caused by nephrolithiasis (kidney stones). The other structures listed in the choices are not located at the same critical juncture where the ureter narrows in relation to the common presentation of kidney stones. Consequently, this anatomical location is a key consideration for clinicians when evaluating patients with flank pain or urinary obstruction symptoms.

4. What condition is characterized by tenesmus, mucoid bloody diarrhea, and cramping abdominal pain?

- A. Crohn disease**
- B. Diverticulitis**
- C. Pseudomembranous enterocolitis**
- D. Ulcerative colitis**

The condition characterized by tenesmus, mucoid bloody diarrhea, and cramping abdominal pain is ulcerative colitis. This form of inflammatory bowel disease primarily affects the colon and rectum, leading to inflammation and ulceration of the mucosal layer. Tenesmus refers to the feeling of incomplete evacuation after a bowel movement, which is common in ulcerative colitis due to rectal involvement. The characteristic mucoid bloody diarrhea results from the inflammation and ulceration in the colonic mucosa, which can produce mucus and blood. Cramping abdominal pain is also frequently reported, stemming from the spastic contractions of the affected intestinal segments. In contrast, Crohn disease, while it can also cause abdominal pain and diarrhea, typically presents with a more varied pattern of symptoms, including non-bloody diarrhea and can affect any part of the gastrointestinal tract. Diverticulitis often presents with localized pain and does not commonly include tenesmus or mucoid diarrhea. Pseudomembranous enterocolitis is usually associated with antibiotic use and *Clostridium difficile* infection, leading to a distinct set of symptoms, including watery diarrhea rather than mucoid bloody stools. Ulcerative colitis is therefore the most fitting diagnosis given

5. For an elderly patient with a history of tuberculosis and calcified aortic valve, what is the best explanation for the clinical findings?

- A. Calcification due to aging**
- B. Adverse effect of medication**
- C. Coronary artery disease**
- D. Infection complications**

The clinical findings in an elderly patient with a calcified aortic valve can be primarily attributed to the natural aging process, which often results in the calcification of heart valves, particularly the aortic valve. This type of calcification is commonly associated with age-related degenerative changes and can lead to aortic stenosis, where the valve becomes narrowed and restricts blood flow from the heart. While tuberculosis can have systemic effects, and calcified aortic valves may also involve previous infections or inflammatory processes, in the context of an elderly individual, the most straightforward explanation for the calcification is the wear and tear associated with aging rather than an active disease process. Other potential explanations, such as adverse effects from medications or complications from infections, do not account for the typical presentation of calcified valves seen in the geriatric population as clearly as age-related calcification does. Therefore, the primary reason for the findings in this scenario centers on the degenerative changes that occur in the heart as people age, making the understanding of age-related calcific changes in heart valves critical in evaluating similar clinical presentations.

6. Which diagnosis is likely for a 15-year-old boy with a lytic skull lesion based on histological findings?

- A. Langerhans cell histiocytosis**
- B. Meningioma**
- C. Metastatic carcinoma**
- D. Osteosarcoma**

In a 15-year-old boy presenting with a lytic skull lesion, the diagnosis of Langerhans cell histiocytosis is favored, especially when correlating with histological findings. This condition is characterized by the proliferation of Langerhans cells, which are dendritic cells involved in immune response. Histologically, these cells typically manifest as a notable presence of eosinophils and foamy macrophages, and the lesion may demonstrate a "Birbeck granule" appearance under electron microscopy. Langerhans cell histiocytosis can present as solitary bone lesions, often referred to as eosinophilic granulomas, which are the most common form of the disease in children and can appear in the skull. The demographic and the presentation of a lytic lesion align well with this diagnosis, as it often affects younger populations and is known for causing bone lesions characterized by lytic change. While other conditions also present with lytic bone lesions, their histological features differ significantly. For example, meningiomas arise from the meninges and typically show a different cellular pattern and solid growth rather than the lytic pattern associated with Langerhans cell histiocytosis. Metastatic carcinoma tends to involve older individuals and usually

7. A patient in septic shock shows signs of cortical necrosis in the kidneys. Which nephron structure is most likely to be affected?

- A. Collecting ducts**
- B. Loop of Henle**
- C. Proximal convoluted tubules**
- D. Papillary ducts**

In the context of septic shock and its impact on the kidneys, cortical necrosis typically affects areas of the nephron that are particularly susceptible to ischemia due to their high metabolic activity and oxygen demand. The proximal convoluted tubules are critical in reabsorbing nutrients, electrolytes, and water from the filtrate, which requires significant energy. During septic shock, there is often a reduction in renal blood flow and subsequent ischemia, particularly affecting the outer cortex of the kidney where the proximal convoluted tubules are located. These cells are not only metabolically active but also vulnerable to ischemic injury, rendering them the most likely nephron structure to be damaged in this scenario. While the other structures, such as the collecting ducts, loop of Henle, and papillary ducts, play important roles in kidney function, they are less susceptible to the immediate ischemic effects seen in septic shock when compared to the proximal convoluted tubules. In summary, the combination of high metabolic demands and specific anatomical location makes the proximal convoluted tubules the most likely nephron structure affected in cases of cortical necrosis due to septic shock.

8. Which neurotransmitter pathway is activated by drugs such as cocaine and amphetamines, contributing to their rewarding effects?

- A. A dopaminergic from the nucleus accumbens to the prefrontal cortex**
- B. An endocannabinoid from the anterior thalamic nuclei to the somatosensory cortex**
- C. An endorphin (opioid) from the substantia gelatinosa to the ventral tegmental area**
- D. A GABAergic**

The correct answer, which refers to the dopaminergic pathway from the nucleus accumbens to the prefrontal cortex, is significant because it highlights the central role of dopamine in the brain's reward system. Cocaine and amphetamines increase dopamine levels in this pathway, which enhances feelings of pleasure and euphoria. The nucleus accumbens is a key component of the brain's reward circuitry, and its activation is associated with reinforcing behaviors, particularly those related to addiction. When cocaine and amphetamines are used, they inhibit the reuptake of dopamine or promote its release, leading to increased dopamine concentration in the synaptic cleft. This heightened dopaminergic activity is directly linked to the rewarding effects experienced by users, often contributing to compulsive drug-seeking behavior. In contrast, the other pathways do not primarily involve the same mechanisms or structures related to the rewarding properties of cocaine and amphetamines. Options mentioning endocannabinoids or opioids likely pertain to different aspects of pain modulation or stress responses rather than the specific rewarding effects of stimulant drugs. GABAergic pathways, on the other hand, typically involve inhibitory neurotransmission and do not provide the same rewarding effects associated with increased dopaminergic activity. Thus, the dopaminergic pathway is the most likely to be activated by these drugs.

9. In septic shock, which of the following receptors should be stimulated to increase systemic vascular resistance?

- A. β -Adrenoreceptors**
- B. α -Adrenoreceptors**
- C. Dopamine receptors**
- D. Muscarinic receptors**

In the context of septic shock, stimulating alpha-adrenoreceptors is crucial for increasing systemic vascular resistance. Alpha-1 adrenergic receptors, when activated, cause vasoconstriction of blood vessels. This action counteracts the vasodilatory effects often seen in septic shock, where systemic vascular resistance is reduced due to widespread inflammatory responses and vascular permeability changes. By stimulating these receptors, the body can restore blood pressure and improve perfusion to vital organs in a state of hypotension associated with septic shock. This becomes particularly important when fluid resuscitation is insufficient to maintain adequate blood pressure. Other receptors, such as beta-adrenoreceptors, have different effects primarily related to heart rate and myocardial contractility rather than directly affecting systemic vascular resistance. Dopamine receptors, when stimulated at lower doses, can result in vasodilation rather than vasoconstriction, while muscarinic receptors are part of the parasympathetic nervous system and generally promote vasodilation and decrease heart rate. Thus, alpha-adrenoreceptor stimulation is the key mechanism for addressing the vascular issues in septic shock.

10. A 55-year-old man with chronic alcohol use presents with right upper quadrant pain and liver abnormalities. Which vein is likely experiencing hypertension?

- A. Hepatic**
- B. Renal**
- C. Portal**
- D. Suprarenal**

The most likely vein experiencing hypertension in this scenario is the portal vein. In cases of chronic alcohol use, liver damage can lead to cirrhosis, which results in increased resistance to blood flow through the liver. This puts pressure on the portal vein, causing portal hypertension. Portal hypertension is a significant consequence of liver cirrhosis, leading to a range of complications such as variceal bleeding, splenomegaly, and ascites. The portal vein carries blood from the gastrointestinal tract and spleen to the liver, and any obstruction or increased resistance in the liver can lead to heightened pressure in this vein. In contrast, other veins mentioned, such as the hepatic, renal, and suprarenal veins, do not directly relate to the type of hypertension described. Hepatic vein issues could arise from liver cirrhosis but are secondary to the portal hypertension itself. Renal and suprarenal veins do not have a direct connection to the liver's blood flow and are not typically affected by alcohol-related liver disease in the context of the presented symptoms. Thus, portal hypertension is the primary concern in this situation.

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://nbmeform29.examzify.com>

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

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