

ACVIM General Boards 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. What is the mechanism of action of maropitant?**
 - A. Histamine receptor antagonist**
 - B. NK-1 receptor antagonist**
 - C. Dopamine receptor agonist**
 - D. Serotonin receptor inhibitor**

- 2. In what form is CO₂ primarily transported in blood?**
 - A. Carbonic acid**
 - B. Bicarbonate (HCO₃⁻)**
 - C. Carbamino compounds**
 - D. Dissolved CO₂**

- 3. What would increase cerebral blood flow?**
 - A. Decreased O₂**
 - B. Decreased CO₂**
 - C. Increased CO₂**
 - D. Increased O₂**

- 4. Which treatment is contraindicated in patients with head trauma?**
 - A. Aspirin**
 - B. Corticosteroids**
 - C. Anticoagulants**
 - D. Analgesics**

- 5. What is the mechanism of action of enrofloxacin?**
 - A. Protein synthesis inhibitor**
 - B. DNA gyrase inhibitor**
 - C. Cell wall synthesis inhibitor**
 - D. Nucleic acid synthesis inhibitor**

- 6. Which electrolyte imbalance may worsen in patients with acute kidney injury?**
 - A. Hyperkalemia**
 - B. Hypocalcemia**
 - C. Hyponatremia**
 - D. Hyperchloremia**

- 7. What can induce a hemolytic crisis in a dog with PFK deficiency?**
- A. Rest**
 - B. Cold weather**
 - C. Exercise**
 - D. Heat exposure**
- 8. How does tetanus antitoxin function?**
- A. Inactivates GABA receptors**
 - B. Binds free toxin**
 - C. Enhances muscle relaxation**
 - D. Stimulates immune response to the toxin**
- 9. Which immunoglobulin is found in the highest concentration in the blood?**
- A. IgM**
 - B. IgA**
 - C. IgE**
 - D. IgG**
- 10. What are the main effects of growth hormone?**
- A. Stimulates fat storage and carbohydrate utilization**
 - B. Stimulates body growth and protein synthesis**
 - C. Inhibits protein synthesis and fat mobilization**
 - D. Stimulates glycogen synthesis and glucose uptake**

Answers

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

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Explanations

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1. What is the mechanism of action of maropitant?

- A. Histamine receptor antagonist
- B. NK-1 receptor antagonist**
- C. Dopamine receptor agonist
- D. Serotonin receptor inhibitor

Maropitant functions as a neurokinin-1 (NK-1) receptor antagonist, which is essential for its effectiveness in managing nausea and vomiting in animals, particularly in dogs and cats. The NK-1 receptors are part of the substance P pathway, which is involved in the vomiting reflex. By blocking these receptors, maropitant prevents substance P from binding, thereby inhibiting the emetic response and providing relief from nausea. This mechanism distinguishes maropitant from other antiemetic drugs that may act on different receptors, such as those for dopamine, histamine, or serotonin. The specific action on the NK-1 receptor makes maropitant particularly useful for the treatment of motion sickness and for managing emesis associated with chemotherapy or other causes.

2. In what form is CO₂ primarily transported in blood?

- A. Carbonic acid
- B. Bicarbonate (HCO₃⁻)**
- C. Carbamino compounds
- D. Dissolved CO₂

Carbon dioxide (CO₂) is primarily transported in the blood as bicarbonate ions (HCO₃⁻). The process begins when CO₂ diffuses into red blood cells, where it is enzymatically converted to carbonic acid (H₂CO₃) by the action of the enzyme carbonic anhydrase. Carbonic acid is unstable and quickly dissociates into bicarbonate and hydrogen ions. The bicarbonate ions then diffuse out of the red blood cells into the plasma, where they travel to the lungs for exhalation. This bicarbonate formation is critical for maintaining acid-base balance in the body and plays a significant role in the respiratory process of gas exchange. While CO₂ can be transported in other forms, such as dissolved CO₂ and as carbamino compounds (which are formed when CO₂ binds to hemoglobin and other proteins), these forms represent a much smaller fraction of CO₂ transport compared to bicarbonate. Carbonic acid itself is not a major transport form since it exists transiently before dissociating into bicarbonate and hydrogen ions. Therefore, the predominant form of CO₂ in the blood is bicarbonate ions.

3. What would increase cerebral blood flow?

- A. Decreased O₂
- B. Decreased CO₂
- C. Increased CO₂**
- D. Increased O₂

Increased levels of carbon dioxide (CO₂) in the blood lead to vasodilation of cerebral blood vessels, which ultimately increases cerebral blood flow. This response is a key mechanism of cerebral autoregulation, where the blood vessels in the brain respond to changes in metabolic demand. When CO₂ levels rise, the pH of the blood decreases (making it more acidic), which signals the vascular smooth muscle to relax and widen the blood vessels, allowing more blood to flow through. This is particularly important in situations where neuronal activity increases, as heightened metabolic activity generates more CO₂, necessitating increased blood flow to deliver oxygen and remove waste products. In contrast, decreased levels of CO₂ would lead to vasoconstriction, thereby reducing cerebral blood flow. Additionally, decreased oxygen (O₂) levels can also trigger vasodilation, but the direct and more immediate driver of increased cerebral blood flow in response to metabolic demand is the increase in CO₂. Therefore, increased CO₂ is a critical factor in manipulating cerebral blood flow effectively in response to the brain's needs.

4. Which treatment is contraindicated in patients with head trauma?

- A. Aspirin
- B. Corticosteroids**
- C. Anticoagulants
- D. Analgesics

Corticosteroids are contraindicated in patients with head trauma primarily due to their potential to exacerbate secondary brain injury. In the context of head trauma, the focus is on minimizing the risk of increased intracranial pressure and promoting optimal conditions for recovery. Corticosteroids have been shown in various studies to have limited efficacy in reducing mortality or improving outcomes in head injury cases. Furthermore, they can impair the immune response and healing processes, making them inappropriate for managing traumatic brain injuries. Aspirin, anticoagulants, and analgesics also require careful consideration in head trauma cases; however, corticosteroids are particularly problematic due to their systemic effects and the absence of evidence supporting their use in this context. In contrast, while anticoagulants and aspirin can complicate bleeding risks, they may still be considered based on the individual clinical scenario, recognizing the need to weigh their use against the risks involved. Analgesics, depending on the type, can be managed cautiously to ensure they do not mask important neurological signs or symptoms. Therefore, corticosteroids stand out as the most clearly contraindicated treatment option in patients with head trauma.

5. What is the mechanism of action of enrofloxacin?

- A. Protein synthesis inhibitor
- B. DNA gyrase inhibitor**
- C. Cell wall synthesis inhibitor
- D. Nucleic acid synthesis inhibitor

Enrofloxacin functions primarily as a DNA gyrase inhibitor, which makes it a member of the fluoroquinolone antibiotic class. DNA gyrase is an essential enzyme that introduces negative supercoils into DNA, a crucial process for DNA replication, transcription, and repair. By binding to DNA gyrase, enrofloxacin effectively disrupts the DNA supercoiling process, leading to interference with the DNA replication machinery. This results in bactericidal activity, as the bacterial cell cannot successfully proliferate or respond to cellular damage. The other mechanisms mentioned, like protein synthesis inhibition, cell wall synthesis inhibition, and nucleic acid synthesis inhibition, pertain to different classes of antibiotics. For instance, protein synthesis inhibitors target the ribosomes to prevent translation, which is distinct from the action of enrofloxacin. Similarly, cell wall synthesis inhibitors typically act on the peptidoglycan layer in bacteria, while broad nucleic acid synthesis inhibitors would affect RNA and DNA synthesis more generically, not specifically targeting DNA gyrase. Understanding this mechanism is essential for effectively utilizing enrofloxacin in treating infections caused by susceptible bacteria, particularly in veterinary medicine.

6. Which electrolyte imbalance may worsen in patients with acute kidney injury?

- A. Hyperkalemia**
- B. Hypocalcemia
- C. Hyponatremia
- D. Hyperchloremia

Hyperkalemia is the most likely electrolyte imbalance to worsen in patients with acute kidney injury (AKI). In AKI, the kidneys' ability to excrete potassium is impaired, leading to its accumulation in the blood. This can have serious consequences, as high potassium levels can result in dangerous cardiac arrhythmias. Due to the diminished renal function, potassium retention becomes pronounced, especially if there are additional factors at play, such as tissue breakdown from muscle injury or hemolysis, which releases potassium into the bloodstream. As a result, monitoring and managing potassium levels is crucial in patients with AKI to prevent further complications. While other electrolyte imbalances, such as hypocalcemia, hyponatremia, and hyperchloremia, can occur in the context of AKI, hyperkalemia specifically stands out as a direct and critical consequence of the kidneys' failure to excrete potassium. The prominence of hyperkalemia in this scenario highlights the importance of recognizing and addressing electrolyte disturbances in the management of acute kidney injury.

7. What can induce a hemolytic crisis in a dog with PFK deficiency?

- A. Rest
- B. Cold weather
- C. Exercise**
- D. Heat exposure

A hemolytic crisis in a dog with phosphofructokinase (PFK) deficiency can be induced by exercise. This is because PFK deficiency is a hereditary condition that affects the glycolytic pathway, leading to inadequate energy production in red blood cells during high-intensity activities. When a dog with this condition engages in exercise, the increased metabolic demands can overwhelm the compromised energy production capability, leading to hemolysis of the red blood cells. During exercise, muscles require rapid energy, which the compromised cells cannot provide efficiently due to the metabolic defect. This results in the destruction of the red blood cells, causing a hemolytic crisis characterized by anemia and other related symptoms. In contrast, other factors such as rest, cold weather, or heat exposure do not exert the same acute metabolic demand on the dog's red blood cells and therefore are less likely to trigger a crisis. While extreme environmental conditions may have other physiological effects, exercise stands out as the direct trigger for hemolytic issues in dogs with PFK deficiency due to the high energetic requirements it imposes.

8. How does tetanus antitoxin function?

- A. Inactivates GABA receptors
- B. Binds free toxin**
- C. Enhances muscle relaxation
- D. Stimulates immune response to the toxin

Tetanus antitoxin functions by binding free toxin in the bloodstream. When tetanus toxins, specifically tetanospasmin, are produced by the bacterium *Clostridium tetani*, they can cause severe muscle spasms and rigidity by interfering with normal nervous system signaling. The antitoxin is made up of antibodies that specifically bind to these circulating toxins, neutralizing their harmful effects and preventing them from binding to neuronal tissues. This mechanism effectively interrupts the progression of tetanus symptoms since, without the free unbound toxin, neurological pathways critical for muscle control remain intact. While the immune response to the toxin is certainly vital for overall protection against future infections, the function of tetanus antitoxin is primarily focused on neutralizing the immediate threat posed by the circulating toxin rather than stimulating that response. Similarly, enhancing muscle relaxation and inactivating GABA receptors relates to different physiological actions not directly served by the antitoxin's mechanism.

9. Which immunoglobulin is found in the highest concentration in the blood?

- A. IgM**
- B. IgA**
- C. IgE**
- D. IgG**

The highest concentration of immunoglobulin found in the blood is IgG. This antibody plays a crucial role in the body's immune response by providing the majority of antibody-based immunity against invading pathogens. IgG is known for its ability to cross the placenta, thereby providing passive immunity to the fetus. It accounts for approximately 75-80% of the serum immunoglobulins, which is significantly more than any other immunoglobulin class. In contrast, IgM is primarily present in the early stages of an immune response and is the first antibody produced when the body encounters a new pathogen. Although it is very effective in agglutinating antigens and initiating the complement cascade, it is found in much lower concentrations in serum compared to IgG. IgA is predominantly found in mucosal areas such as the gut, respiratory tract, and in secretions like saliva and breast milk, but it is less abundant in blood circulation. IgE is involved in allergic responses and defense against parasitic infections. However, it exists in very low concentrations in serum, particularly because it is often bound to mast cells and basophils rather than circulating freely. Thus, IgG stands out as the predominant antibody in serum, making it essential for effective long-term immunity.

10. What are the main effects of growth hormone?

- A. Stimulates fat storage and carbohydrate utilization**
- B. Stimulates body growth and protein synthesis**
- C. Inhibits protein synthesis and fat mobilization**
- D. Stimulates glycogen synthesis and glucose uptake**

Growth hormone (GH), also known as somatotropin, plays a critical role in growth and metabolism. It primarily stimulates body growth by promoting the growth of bones and soft tissues. This effect is mainly mediated through the stimulation of insulin-like growth factor 1 (IGF-1) synthesis in the liver and other tissues, which promotes cell division and growth. In addition to stimulating growth, GH enhances protein synthesis, which is vital for muscle development and repair. This anabolic effect helps increase muscle mass and strength, contributing to overall physical performance and health. While growth hormone also does have influences on fat metabolism and carbohydrate metabolism—such as promoting lipolysis and affecting insulin sensitivity—its central role in stimulating growth and protein synthesis is what defines its importance in the body. Thus, the option indicating its effect on stimulating body growth and protein synthesis accurately captures the primary roles of growth hormone.

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://acvimgenboards.examzify.com>

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

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