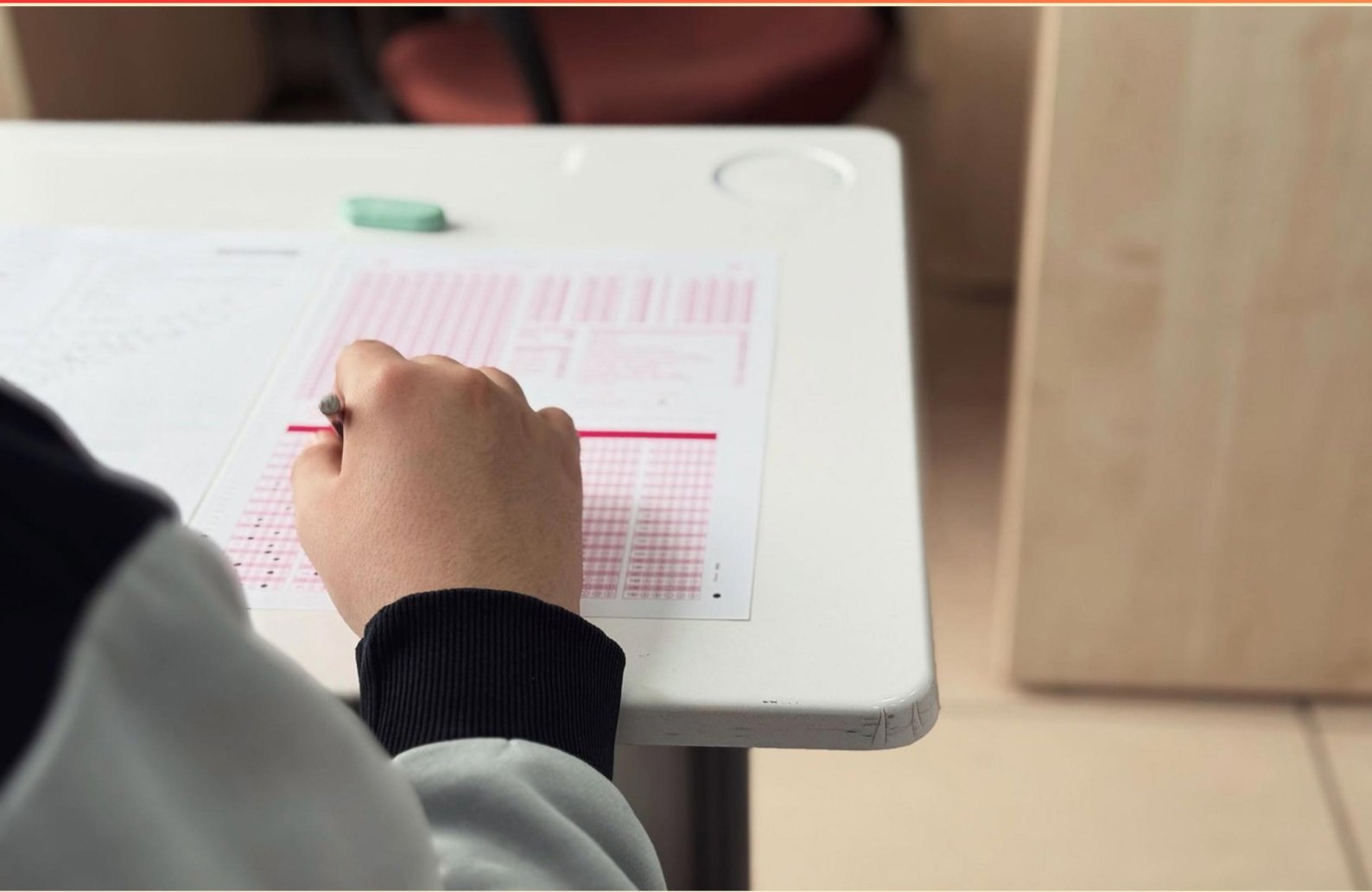


ACAAI BOARD PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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THE FULL VERSION STUDY GUIDE

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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. Which cell surface marker is deficient in paroxysmal nocturnal hemoglobinuria?**
 - A. CD55
 - B. CD16
 - C. CD45
 - D. CD95
- 2. A 4-year-old boy presents with an itchy rash and chronic diarrhea. What conditions does he likely have?**
 - A. Eczema and lactose intolerance
 - B. Dermatitis herpetiformis and celiac disease
 - C. Atopic dermatitis and Crohn's disease
 - D. Hives and ulcerative colitis
- 3. Which test for CGD diagnosis is mostly a qualitative measurement of NADPH oxidase activity?**
 - A. Dihydrorhodamine 123 test
 - B. NBT test
 - C. Enzyme-linked immunosorbent assay
 - D. Flow cytometry analysis
- 4. Which cytokine is a crucial growth factor for B cells and T cells and is produced by stromal cells in bone marrow and thymus?**
 - A. Interleukin 6 (IL-6)
 - B. Interleukin 7 (IL-7)
 - C. Interleukin 2 (IL-2)
 - D. Interleukin 3 (IL-3)
- 5. What type of immunoglobulin can activate the alternative complement pathway?**
 - A. IgA
 - B. IgG1
 - C. IgM
 - D. IgE

- 6. Which monoclonal antibody is known for decreasing high-affinity IgE receptors on basophils?**
- A. Rituximab
 - B. Eculizumab
 - C. Omalizumab
 - D. Adalimumab
- 7. Which cell surface marker is defective in autoimmune lymphoproliferative syndrome (ALPS) leading to apoptosis?**
- A. CD27
 - B. CD3
 - C. CD95
 - D. CD16
- 8. SNP variants in which cytokine are overexpressed in biopsy tissue of eosinophilic esophagitis?**
- A. IL-4
 - B. IL-13
 - C. SLP
 - D. GM-CSF
- 9. What symptoms are typically associated with anti-synthetase syndrome in dermatomyositis or polymyositis?**
- A. Chest pain and fever
 - B. Rash and joint swelling
 - C. Arthritis and myositis
 - D. Fatigue and night sweats
- 10. In flow cytometry, what does side scatter help measure?**
- A. Cell size
 - B. Cell surface markers
 - C. Cell complexity and granularity
 - D. Cell membrane potential

Answers

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

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Explanations

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1. Which cell surface marker is deficient in paroxysmal nocturnal hemoglobinuria?

- A. CD55**
- B. CD16
- C. CD45
- D. CD95

In paroxysmal nocturnal hemoglobinuria (PNH), there is a deficiency of specific cell surface markers due to mutations in the PIGA gene, which leads to a lack of glycosylphosphatidylinositol (GPI)-anchored proteins. CD55, also known as decay-accelerating factor (DAF), is one of these GPI-anchored proteins. Its primary role is to regulate the complement system and prevent complement-mediated lysis of red blood cells. In patients with PNH, the absence of CD55 on the surface of erythrocytes renders them susceptible to uncontrolled complement activation, resulting in hemolysis and the release of hemoglobin into the urine, which is characteristic of the condition. This lack of protective factors on the cell surface is fundamental to understanding the pathology of PNH, as it highlights the immunological mechanisms that lead to the anemia and associated symptoms seen in affected individuals. In contrast, the other markers listed do not have the same direct association with PNH. CD16, CD45, and CD95 are not GPI-anchored proteins and are not deficient in this specific hematological disorder. Their roles are related to other immune functions or cell signaling pathways, making

2. A 4-year-old boy presents with an itchy rash and chronic diarrhea. What conditions does he likely have?

- A. Eczema and lactose intolerance
- B. Dermatitis herpetiformis and celiac disease**
- C. Atopic dermatitis and Crohn's disease
- D. Hives and ulcerative colitis

The presentation of an itchy rash and chronic diarrhea in a 4-year-old boy strongly suggests possible celiac disease, particularly when paired with dermatitis herpetiformis, which is a classic skin manifestation associated with this intestinal condition. Celiac disease arises due to an abnormal immune response to gluten, leading to inflammation and malabsorption in the intestines, which perfectly correlates with chronic diarrhea. Dermatitis herpetiformis is characterized by a blistering, itchy rash that often appears symmetrically on the elbows, knees, and buttocks. Its association with celiac disease is well-documented, making this combination likely when the symptoms of skin irritation and gastrointestinal distress present together. Other conditions listed do not match the clinical picture as closely. For example, while atopic dermatitis is indeed associated with itching and eczema-like rashes, it does not typically involve diarrhea as a prominent feature unless other gastrointestinal conditions are also present. Crohn's disease can lead to diarrhea but is less likely to cause a related itchy rash. Hives and ulcerative colitis also do not logically connect the symptoms of an itchy rash and chronic diarrhea in the same manner as dermatitis herpetiformis and celiac disease do. Therefore, the combination of dermatitis herpetiform

3. Which test for CGD diagnosis is mostly a qualitative measurement of NADPH oxidase activity?

- A. Dihydrorhodamine 123 test
- B. NBT test**
- C. Enzyme-linked immunosorbent assay
- D. Flow cytometry analysis

The NBT (nitroblue tetrazolium) test is primarily a qualitative measurement of NADPH oxidase activity, specifically assessing the capacity of neutrophils to produce reactive oxygen species (ROS). In patients with Chronic Granulomatous Disease (CGD), there is a defect in the NADPH oxidase enzyme complex, which leads to an inability of phagocytes to generate superoxide and other ROS. During the NBT test, neutrophils are stimulated, and in normal individuals, they will reduce NBT to formazan, indicating the presence of functioning NADPH oxidase activity. Conversely, in individuals with CGD, there is a lack of color change, demonstrating the impaired ability to produce the ROS necessary for NBT reduction. While other tests, such as flow cytometry and dihydrorhodamine 123, also assess oxidative burst activity and may provide more quantitative results, the NBT test's primary function as a qualitative measure of NADPH oxidase activity in the context of CGD diagnosis makes it stand out. Therefore, the specificity of the NBT test in evaluating the functional defect inherent in CGD is pivotal for diagnosis and understanding the underlying pathophysiology of the disease.

4. Which cytokine is a crucial growth factor for B cells and T cells and is produced by stromal cells in bone marrow and thymus?

- A. Interleukin 6 (IL-6)
- B. Interleukin 7 (IL-7)**
- C. Interleukin 2 (IL-2)
- D. Interleukin 3 (IL-3)

Interleukin 7 (IL-7) plays a critical role as a growth factor for both B cells and T cells, supporting their development and survival. This cytokine is primarily produced by stromal cells located in the bone marrow and thymus, which are essential sites for hematopoiesis and lymphocyte maturation. IL-7 acts on precursor cells, helping to initiate the process of lymphocyte differentiation and proliferation. In the bone marrow, it is important for the development of B cells from common lymphoid progenitors. Similarly, in the thymus, IL-7 is essential for the proliferation and maturation of T cell precursors. The interaction of IL-7 with its receptor on these cells is crucial for maintaining their viability and advancing through various stages of development. Other cytokines mentioned, such as Interleukin 6, Interleukin 2, and Interleukin 3, have different roles in the immune response and hematopoiesis. For instance, IL-6 is primarily involved in inflammatory responses and is important for B cell differentiation into antibody-secreting plasma cells, but it is not specifically a growth factor for T and B cell development like IL-7. Interleukin 2 is mainly produced by

5. What type of immunoglobulin can activate the alternative complement pathway?

- A. IgA**
- B. IgG1
- C. IgM
- D. IgE

The correct answer relates to the role of immunoglobulins in the activation of the alternative complement pathway. The alternative complement pathway can be activated by the presence of certain immunoglobulins and other factors, but it is particularly noted for its activation by polysaccharide structures on microbial surfaces rather than directly through immunoglobulins like IgA, IgG, IgM, or IgE. In the context of the alternative pathway, while IgG can engage with complement components, IgM is most notable for its ability to activate complement through the classical pathway due to its structure allowing effective binding and triggering. IgA is predominantly found in mucosal areas and provides protection against pathogens on mucosal surfaces, but it does not significantly activate the alternative pathway. The alternative pathway's activation proceeds through factors such as C3 and factor B, which amplify the complement response and enhance opsonization of pathogens, even in the absence of antibodies, as it serves as a first line of defense. While immunoglobulins typically activate the classical pathway (IgM and IgG), IgA's role does not extend in the same manner to the alternative pathway. Therefore, for the activation of the alternative complement pathway, the focus doesn't specifically lie on any of the

6. Which monoclonal antibody is known for decreasing high-affinity IgE receptors on basophils?

- A. Rituximab
- B. Eculizumab
- C. Omalizumab**
- D. Adalimumab

Omalizumab is effectively used for its ability to decrease the number of high-affinity IgE receptors (FcεRI) on basophils and other immune cells. This action is critical in managing allergic conditions, particularly asthma and chronic urticaria. Omalizumab works by binding to free IgE in circulation, preventing it from binding to its receptors on basophils and mast cells. This reduction in receptor expression leads to a decrease in the activation of these cells in response to allergens, ultimately resulting in a diminished allergic response. In contrast, the other monoclonal antibodies listed serve different therapeutic purposes. Rituximab is mainly used to target CD20 on B cells, particularly in certain malignancies and autoimmune diseases. Eculizumab is a complement inhibitor used to treat conditions like paroxysmal nocturnal hemoglobinuria and atypical hemolytic uremic syndrome. Adalimumab targets TNF-alpha and is utilized in various inflammatory and autoimmune conditions, such as rheumatoid arthritis and Crohn's disease. Each of these antibodies has a distinct mechanism of action that does not focus on IgE or its receptors.

7. Which cell surface marker is defective in autoimmune lymphoproliferative syndrome (ALPS) leading to apoptosis?

- A. CD27
- B. CD3
- C. CD95**
- D. CD16

In autoimmune lymphoproliferative syndrome (ALPS), the defect is primarily associated with the CD95 receptor, also known as Fas. CD95 is critical in the process of apoptosis, which is the programmed cell death essential for maintaining immune homeostasis by eliminating activated and potentially autoreactive lymphocytes. In individuals with ALPS, mutations or defects in the CD95 pathway result in impaired apoptosis, leading to the accumulation of lymphocytes and an increased risk of autoimmune disorders due to the failure to effectively remove auto-reactive cells. The role of CD95 in apoptosis highlights its importance in regulating immune responses and preventing autoimmunity. When the signaling through CD95 is disrupted, either through genetic mutations or other forms of dysfunction, it leads to the symptoms associated with ALPS, such as lymphadenopathy and splenomegaly due to excessive lymphocyte proliferation. Other options represent different markers involved in immune function but do not specifically relate to the apoptotic pathway affected in ALPS. Understanding the unique role of CD95 in apoptosis underlines its significance in the context of this syndrome.

8. SNP variants in which cytokine are overexpressed in biopsy tissue of eosinophilic esophagitis?

- A. IL-4
- B. IL-13
- C. SLP**
- D. GM-CSF

The correct response is based on the role of various cytokines associated with eosinophilic esophagitis (EoE). EoE is characterized by an inflammatory response primarily driven by eosinophils, and specific cytokines have been identified as influencing this condition. SNP (single nucleotide polymorphism) variants in the cytokine IL-13 are particularly notable in the context of EoE. IL-13 is a key mediator in allergic reactions and has been shown to be significantly involved in driving the eosinophilic infiltration seen in EoE. It plays a critical role in the upregulation of genes associated with tissue remodeling and eosinophil recruitment, contributing to the pathophysiology of the disease. While other options like IL-4 and GM-CSF are also involved in immune responses and allergy, it is IL-13 that is specifically noted for its upregulation in patients with eosinophilic esophagitis based on biopsy study findings. Thus, understanding the functional role and expression of IL-13 provides insights into the mechanisms at play in EoE, making it the more relevant choice in this context. Overall, the emphasis on SNP variants and the specific role of IL-13

9. What symptoms are typically associated with anti-synthetase syndrome in dermatomyositis or polymyositis?

- A. Chest pain and fever
- B. Rash and joint swelling
- C. Arthritis and myositis**
- D. Fatigue and night sweats

Anti-synthetase syndrome is characterized by a combination of symptoms that include myositis (muscle inflammation) and arthritis (joint inflammation). Patients often present with proximal muscle weakness, which is a hallmark of myositis, alongside joint pain and swelling. This syndrome is commonly associated with specific autoantibodies that target aminoacyl-tRNA synthetases, leading to a distinctive clinical picture. In the context of dermatomyositis or polymyositis, myositis and arthritis together encapsulate the key manifestations of the anti-synthetase syndrome. The presence of both muscle and joint symptoms is reflective of the autoimmune processes affecting the tissues involved. Other symptoms associated with the syndrome may include interstitial lung disease, but the primary features highlighted are indeed arthritis and myositis. While the other listed options might present in various diseases, they do not capture the essence of anti-synthetase syndrome as comprehensively as arthritis and myositis do. For instance, chest pain and fever often indicate systemic infections or other conditions, whereas fatigue and night sweats can be seen in myriad diseases, including malignancies or infections. Rash and joint swelling may be indicative of autoimmune conditions but are not as specific to anti-synthetase syndrome

10. In flow cytometry, what does side scatter help measure?

- A. Cell size
- B. Cell surface markers
- C. Cell complexity and granularity**
- D. Cell membrane potential

In flow cytometry, side scatter is primarily utilized to assess cell complexity and granularity. This measurement arises from the interaction of light with cellular structures and is influenced by both the internal structures of the cells, such as organelles, and the presence of granules within the cytoplasm. Cells with a higher degree of granularity, such as granulocytes, will scatter light differently than more uniform or less granular cells, like lymphocytes. This parameter, in combination with forward scatter—which measures cell size—allows for a more detailed characterization of the cellular population. Hence, the relevance of side scatter as it pertains to assessing complexity and granularity within cells makes the choice correct for this question. The other options pertain to different measurements: cell size is specifically assessed via forward scatter, cell surface markers are evaluated using fluorescence from labeled antibodies, and cell membrane potential typically requires additional methodologies not assessed through light scattering alone. This clear distinction underscores why side scatter is specifically linked to complexity and granularity.

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:

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

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