

AAB Medical Technologist (MT) - Immunology Practice Exam (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. At what speed and duration does the RPR test need to be rotated?**
 - A. 50 RPM for 10 minutes**
 - B. 100 RPM for 8 minutes**
 - C. 150 RPM for 5 minutes**
 - D. 200 RPM for 6 minutes**

- 2. Which type of cells ingest and destroy bacteria, damaged host cells, and tumor cells?**
 - A. Neutrophils**
 - B. Lymphocytes**
 - C. Macrophages**
 - D. Monocytes**

- 3. Which of the following methods has a high degree of specificity when typing the herpes simplex virus (HSV)?**
 - A. Western blot**
 - B. Direct fluorescent antibody method**
 - C. Enzyme-linked immunosorbent assay (ELISA)**
 - D. Radioimmunoassay**

- 4. What is the role of B cells in the immune response?**
 - A. Pathogen surveillance**
 - B. Antigen presenting**
 - C. Antibody production**
 - D. Cellular immunity**

- 5. The J chain is associated with which immunoglobulins?**
 - A. IgM and IgD**
 - B. IgA and IgE**
 - C. IgG and IgM**
 - D. IgM and IgA**

- 6. Why might someone prefer monoclonal antibodies over polyclonal antibodies?**
- A. Monoclonal antibodies are cheaper to produce**
 - B. Monoclonal antibodies can provide consistent results**
 - C. Monoclonal antibodies are faster to produce**
 - D. Monoclonal antibodies are always more effective**
- 7. The Mantoux skin test is an example of which type of hypersensitivity reaction?**
- A. Type I**
 - B. Type II**
 - C. Type III**
 - D. Type IV**
- 8. What term describes the binding strength of an antibody for an antigen?**
- A. Avidity**
 - B. Affinity**
 - C. Elegance**
 - D. Potency**
- 9. What is the stability of the VDRL antigen suspension?**
- A. 12 hours**
 - B. 48 hours**
 - C. 24 hours**
 - D. 72 hours**
- 10. Which serological method is routinely used for rubella testing?**
- A. Western blot test**
 - B. Radioimmunoassay (RIA)**
 - C. Enzyme-linked immunosorbent assay (ELISA) test**
 - D. Complement fixation test**

Answers

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

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Explanations

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1. At what speed and duration does the RPR test need to be rotated?

- A. 50 RPM for 10 minutes**
- B. 100 RPM for 8 minutes**
- C. 150 RPM for 5 minutes**
- D. 200 RPM for 6 minutes**

The RPR (Rapid Plasma Reagin) test is a crucial serological test used to screen for syphilis. The rotation speed and duration are vital for the test's accuracy and reliability. In the context of the RPR test, the recommended rotation speed of 100 RPM for 8 minutes is optimal to ensure adequate mixing of the reagents and plasma while allowing the formation of visible agglutination if reagin antibodies are present. This specific combination of speed and time helps maintain the integrity of the reaction, permitting the appropriate formation of charcoal particles that are indicative of a positive result. Using a rotation speed that is too high or too low, or a duration that is not aligned with recommended practices, could potentially lead to inconclusive or inaccurate test outcomes, as the agglutination process may be compromised. While other options suggest different speeds and durations, they do not align with the established guidelines for the RPR test, which prioritize both the efficiency of the test and the clarity of the results. Thus, 100 RPM for 8 minutes remains the most effective parameter for conducting the RPR test accurately.

2. Which type of cells ingest and destroy bacteria, damaged host cells, and tumor cells?

- A. Neutrophils**
- B. Lymphocytes**
- C. Macrophages**
- D. Monocytes**

Macrophages are key players in the immune system, known for their ability to ingest and destroy a wide variety of targets, including bacteria, damaged host cells, and tumor cells. They are derived from monocytes, which circulate in the bloodstream and migrate into tissues where they mature into macrophages. This transition allows macrophages to become highly effective at phagocytosis, the process of engulfing and breaking down cellular debris and pathogens. One of the main roles of macrophages is antigen presentation, which is crucial for connecting innate and adaptive immunity. When macrophages ingest pathogens, they process and display fragments of these pathogens on their surface, using major histocompatibility complex (MHC) molecules. This allows T lymphocytes to recognize and respond to the specific antigens, further enhancing the immune response. In addition to their phagocytic activity, macrophages produce a variety of cytokines and chemokines that help orchestrate the overall immune response, attracting other immune cells to the site of infection or damage. Their versatility and coordination in immune responses highlight their essential role in maintaining health and combating disease.

3. Which of the following methods has a high degree of specificity when typing the herpes simplex virus (HSV)?

A. Western blot

B. Direct fluorescent antibody method

C. Enzyme-linked immunosorbent assay (ELISA)

D. Radioimmunoassay

The enzyme-linked immunosorbent assay (ELISA) is recognized for its high degree of specificity when typing herpes simplex virus (HSV). This method utilizes specific antibodies that target unique HSV antigens. The process involves coating wells with viral antigens, allowing any present antibodies in the patient's serum to bind. After a series of washes and additions of enzyme-linked secondary antibodies, a substrate is added that produces a measurable signal, often leading to a color change. The specificity of ELISA stems from the ability to tailor the assay with specific antigenic markers that distinguish between different types of HSV, such as HSV-1 and HSV-2. This differentiation is crucial for accurate diagnosis and treatment decisions. In contrast, other methods like the Western blot, while also specific, can be more complex and time-consuming, making them less suitable for routine typing. The direct fluorescent antibody method, though useful, may not provide the same level of specificity for differentiating HSV types. Radioimmunoassay, while sensitive, may not be as widely available or implemented for HSV typing compared to ELISA. Therefore, the ease of use, adaptability, and specificity of the ELISA make it the preferred choice for typing herpes simplex virus.

4. What is the role of B cells in the immune response?

A. Pathogen surveillance

B. Antigen presenting

C. Antibody production

D. Cellular immunity

B cells play a critical role in the immune response primarily through their ability to produce antibodies. When B cells encounter an antigen, they can differentiate into plasma cells that secrete antibodies specific to that antigen. These antibodies are crucial for neutralizing pathogens, marking them for destruction, and facilitating their clearance from the body. In addition to their antibody production function, B cells also contribute to the adaptive immune response by forming memory cells, which can provide long-lasting immunity after the initial infection has been cleared. This memory allows for a more rapid and effective response upon re-exposure to the same pathogen. While other immune system components, such as T cells, engage in cellular immunity and antigen presentation, the hallmark function of B cells distinctly revolves around their role in antibody production, making this the correct answer regarding their primary role in immune responses.

5. The J chain is associated with which immunoglobulins?

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

The J chain is a polypeptide that plays a critical role in the formation of certain immunoglobulin structures, particularly in the assembly of multimeric antibodies. It is predominantly found in association with immunoglobulin M (IgM) and immunoglobulin A (IgA). In the case of IgM, the J chain assists in the polymerization of monomeric IgM units into a pentamer form, which is functionally important because this pentamer is much more effective at complement activation and agglutination than a single monomeric unit. Similarly, for IgA, the J chain is crucial in the formation of the dimeric structure that IgA often takes in secretions (like saliva and breast milk), allowing for effective immunological functions at mucosal surfaces. This structural association enhances the functionality of these immunoglobulins in the immune response, particularly in their roles in the mucosal immunity and the early stages of the immune response. Understanding the role of the J chain with IgM and IgA is fundamental in immunology, particularly in distinguishing the different types of immune responses these antibody classes facilitate.

6. Why might someone prefer monoclonal antibodies over polyclonal antibodies?

- A. Monoclonal antibodies are cheaper to produce
- B. Monoclonal antibodies can provide consistent results**
- C. Monoclonal antibodies are faster to produce
- D. Monoclonal antibodies are always more effective

Monoclonal antibodies are preferred primarily because they provide consistent results. This consistency arises from their uniformity; monoclonal antibodies are derived from a single clone of B cells, making them identical in structure and specificity for a particular antigen. This quality ensures that whenever the antibody is used, it will have the same binding affinity and behavior, leading to reliable and reproducible outcomes in various applications, such as diagnostics and therapeutics. In contrast, polyclonal antibodies are generated from a variety of B cell clones, which can lead to a diverse array of antibodies that recognize multiple epitopes on the same antigen. While this diversity can have its advantages, it can also introduce variability in results, making it harder to achieve consistent measurements or effects. The choice of monoclonal antibodies is particularly advantageous in clinical settings where precision and reproducibility are crucial, such as in assays for disease markers or in targeted therapies where exact specificity is needed. This property makes them highly valuable in both research and clinical laboratories.

7. The Mantoux skin test is an example of which type of hypersensitivity reaction?

- A. Type I**
- B. Type II**
- C. Type III**
- D. Type IV**

The Mantoux skin test, also known as the tuberculin skin test, is a classic example of a Type IV hypersensitivity reaction. This type of hypersensitivity is characterized by a delayed immune response mediated by T cells rather than antibodies. In the Mantoux test, purified protein derivative (PPD) from the *Mycobacterium tuberculosis* bacteria is injected intradermally. If the individual has been previously sensitized to the bacteria, T cells recognize the PPD and mount an immune response, leading to local inflammation, redness, and swelling at the injection site after 48 to 72 hours. The response is not immediate, which is a hallmark feature of Type IV hypersensitivity. In contrast to other types of hypersensitivity, which involve antibodies (like Types I, II, and III), Type IV is strictly cell-mediated. This distinction is crucial in understanding the various mechanisms of immune responses and their implications in diagnostics and therapies. Therefore, recognizing the Mantoux test as a Type IV hypersensitivity is essential for comprehending how the body responds to certain pathogens and the role of T cells in immunological reactions.

8. What term describes the binding strength of an antibody for an antigen?

- A. Avidity**
- B. Affinity**
- C. Elegance**
- D. Potency**

The term that describes the binding strength of an antibody for an antigen is "affinity." Affinity refers to the strength of the interaction between a single antibody binding site and its corresponding antigenic determinant. This interaction is typically characterized by the equilibrium constant for the reaction, indicating how tightly the antibody binds to the antigen. Avidity is often confused with affinity, but it represents the overall strength of binding of an antibody to an antigen when multiple binding sites are involved, such as in the case of multivalent antibodies binding to multivalent antigens. In contrast, affinity pertains to the binding strength of a single site, making it the more precise term for describing the specific interaction between an antibody and a single antigen epitope. Elegance and potency do not pertain to the measurement of binding strength in this context. Elegance is not a recognized term in immunology regarding antibody-antigen interactions, and potency typically refers to the biological activity or effectiveness of a substance at a given concentration, rather than the binding characteristics of antibodies. Understanding the distinction between affinity and avidity is crucial in immunology, as it helps clarify interactions in various immunological responses and therapeutic applications.

9. What is the stability of the VDRL antigen suspension?

- A. 12 hours
- B. 48 hours
- C. 24 hours**
- D. 72 hours

The stability of the VDRL (Venereal Disease Research Laboratory) antigen suspension is critical to ensure accurate test results. The correct timeframe for its stability is indeed 24 hours when prepared in a laboratory setting. This stability period is essential because after this duration, the antigen may begin to degrade or lose its reactivity, which can lead to invalid testing outcomes. In the context of laboratory practices, VDRL tests are used primarily for syphilis screening, and the reagents must maintain their effectiveness for reliable results. The antigen's performance and reliability depend on proper handling and timely use. If the suspension is not used within this 24-hour timeframe, it may yield false negative or false positive results, adversely affecting diagnosis and treatment decisions. While the other provided timeframes suggest longer stability durations, they do not align with established guidelines for the handling of VDRL antigens. It is crucial for medical technologists to adhere to the recommended stability guidelines to ensure patient safety and appropriateness of care.

10. Which serological method is routinely used for rubella testing?

- A. Western blot test
- B. Radioimmunoassay (RIA)
- C. Enzyme-linked immunosorbent assay (ELISA) test**
- D. Complement fixation test

The enzyme-linked immunosorbent assay (ELISA) test is routinely used for rubella testing due to its sensitivity and specificity in detecting antibodies to the rubella virus. ELISA allows for the quantitative measurement of antibodies in a patient's serum, providing essential information about immune response, including whether an individual is immune due to vaccination or previous infection. The assay works by coating a plate with rubella antigens, then adding the patient's serum. If rubella antibodies are present, they will bind to the antigens. A secondary enzyme-linked antibody is introduced, which binds to any patient antibodies. The subsequent enzyme reaction produces a measurable signal, typically a color change, which correlates to the level of antibodies present. This method is favored in clinical laboratories for its ability to process a large number of samples simultaneously, its cost-effectiveness, and the reliability of results, making it an ideal choice for routine testing of rubella, especially in pregnancy screening and serological surveys. Other methods listed, while useful in different contexts, are not routinely used for rubella testing. For instance, the Western blot test is primarily utilized for confirming positive tests rather than for initial screening, radioimmunoassay, although sensitive, is less commonly used in modern laboratories

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://aabmtimmunology.examzify.com>

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

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