

AAB MEDICAL TECHNOLOGIST (MT) – HEMATOLOGY 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 enzyme plays a critical role in maintaining hemostasis by breaking down fibrin?**
 - A. Plasmin
 - B. Thrombin
 - C. Factor IX
 - D. Factor XII

- 2. Which vitamin K-dependent factor is involved in the common pathway of coagulation?**
 - A. Factor I
 - B. Factor II
 - C. Factor XIII
 - D. Factor VIII

- 3. A blood smear shows 80 nucleated RBCs per 100 leukocytes with a total leukocyte count of $18.0 \times 10^9/L$. What is the corrected WBC count?**
 - A. 8.0
 - B. 10.0
 - C. 12.0
 - D. 14.0

- 4. In the alternate pathway, which factor activation does NOT occur?**
 - A. Factor I activates plasminogen
 - B. Factor VII activates prekallikrein
 - C. Factor X is activated by Factor IX
 - D. Factor III activates Factor VII

- 5. What could indicate the presence of sickle cell trait in a patient?**
 - A. Nebulization of blood
 - B. Presence of Hgb A and Hgb S
 - C. Absence of Hgb F
 - D. High reticulocyte count

- 6. What peripheral smear finding is consistent with reticulocytosis?**
- A. Hypersegmented neutrophils
 - B. Polychromatophilia
 - C. Target cells
 - D. Sickle cells
- 7. When does the synthesis of Hemoglobin A2 typically begin?**
- A. First trimester
 - B. Mid-second trimester
 - C. Late third trimester
 - D. In adulthood only
- 8. In lupus, which cell phagocytizes the nucleoprotein?**
- A. Macrophages
 - B. Eosinophils
 - C. Lymphocytes
 - D. Neutrophils
- 9. How is abnormal variation in the shape of erythrocytes described?**
- A. Anisocytosis
 - B. Normocytosis
 - C. Poikilocytosis
 - D. Microcytosis
- 10. What is the reference range for mean corpuscular volume (MCV) in adults?**
- A. 70-80 fL/red cell
 - B. 80-96 fL/red cell
 - C. 90-100 fL/red cell
 - D. 100-110 fL/red cell

Answers

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

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Explanations

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1. Which enzyme plays a critical role in maintaining hemostasis by breaking down fibrin?

- A. Plasmin**
- B. Thrombin
- C. Factor IX
- D. Factor XII

Plasmin is the enzyme that plays a crucial role in maintaining hemostasis by breaking down fibrin, a protein that forms the mesh structure of blood clots. This process is known as fibrinolysis, which is essential for regulating clot formation and resolution within the circulatory system. By degrading fibrin, plasmin ensures that clots do not persist longer than necessary, thus helping to restore normal blood flow and preventing potential complications such as thrombosis. Thrombin is primarily involved in the conversion of fibrinogen to fibrin during the clotting process, but it does not participate in the breakdown of fibrin. On the other hand, Factor IX and Factor XII are clotting factors that play roles in the coagulation cascade, contributing to the formation of clots rather than their degradation. Each of these components has distinct functions, but plasmin is uniquely responsible for the breakdown of fibrin, highlighting its critical role in hemostasis.

2. Which vitamin K-dependent factor is involved in the common pathway of coagulation?

- A. Factor I
- B. Factor II**
- C. Factor XIII
- D. Factor VIII

Vitamin K is essential for the synthesis of certain clotting factors, specifically Factor II (Prothrombin), Factor VII, Factor IX, and Factor X. Among these, Factor II is a key player in the common pathway of coagulation, which is where intrinsic and extrinsic pathways converge. Once activated, prothrombin (Factor II) is converted into thrombin, which then plays a central role in converting fibrinogen (Factor I) into fibrin, facilitating the formation of a stable blood clot. Understanding the role of Vitamin K in the synthesis of these factors is crucial in recognizing the mechanisms of coagulation and the importance of Factor II in the clotting cascade.

3. A blood smear shows 80 nucleated RBCs per 100 leukocytes with a total leukocyte count of $18.0 \times 10^9/L$. What is the corrected WBC count?

- A. 8.0
- B. 10.0**
- C. 12.0
- D. 14.0

To determine the corrected white blood cell (WBC) count in the presence of nucleated red blood cells (nRBCs), a specific calculation is used. The presence of nRBCs can artificially raise the WBC count, so it is important to correct this value to get an accurate count of only the leukocytes. In your case, the blood smear shows 80 nRBCs in a population of 100 leukocytes. This indicates that out of the total nucleated cells observed, a significant number are nRBCs. The formula for the corrected WBC count is: $\text{Corrected WBC count} = (\text{Total WBC count}) \times (100 / (100 + \text{nRBCs per 100 leukocytes}))$. In this example: 1. The total leukocyte count is provided as $18.0 \times 10^9/L$. 2. The count of nRBCs is 80. Applying the formula: $\text{Corrected WBC count} = 18.0 \times (100 / (100 + 80)) = 18.0 \times (100 / 180) = 18.0 \times (5/9) = 10.0 \times 10^9/L$. Thus, the

4. In the alternate pathway, which factor activation does NOT occur?

- A. Factor I activates plasminogen
- B. Factor VII activates prekallikrein**
- C. Factor X is activated by Factor IX
- D. Factor III activates Factor VII

In the context of the alternate pathway of the coagulation cascade, it's essential to understand the roles of various clotting factors. The pathway involves the activation of factors leading to the formation of thrombin, which subsequently helps in converting fibrinogen to fibrin, ultimately forming a stable clot. The correct choice indicates that Factor VII does not activate prekallikrein in the alternate pathway. Instead, prekallikrein is activated by Factor XII in the intrinsic pathway of coagulation. Factor VII primarily plays a role in the extrinsic pathway, where it is activated by tissue factor (Factor III) and subsequently activates Factor X. Factor I, known as fibrinogen, is acted upon by thrombin to form fibrin and does not directly relate to the alternate pathway mechanics. While Factor X is indeed activated by Factor IX, the pathway's designation and significance are critical when identifying which factors are specifically involved in the alternate pathway versus others. Factor III activating Factor VII pertains to the extrinsic pathway, highlighting the specificity of activation among the factors. Recognizing these pathways and their interactions is crucial for understanding hemostasis and the complexities of coagulation processes.

5. What could indicate the presence of sickle cell trait in a patient?

- A. Nebulization of blood
- B. Presence of Hgb A and Hgb S**
- C. Absence of Hgb F
- D. High reticulocyte count

The presence of hemoglobin A (Hgb A) and hemoglobin S (Hgb S) is a definitive indicator of sickle cell trait. In individuals with sickle cell trait, which is a genetic condition where one allele is normal (Hgb A) and the other is mutated (Hgb S), both types of hemoglobin can be detected in the blood. This combination reflects the carrier status of the individual, as they typically do not display the symptoms associated with sickle cell disease, which occurs when two sickle hemoglobin alleles are present (Hgb S/Hgb S). The identification of Hgb A and Hgb S through techniques such as hemoglobin electrophoresis demonstrates the individual's ability to produce both normal and abnormal hemoglobin. Thus, this finding is characteristic of sickle cell trait, making it the correct choice in this context.

6. What peripheral smear finding is consistent with reticulocytosis?

- A. Hypersegmented neutrophils
- B. Polychromatophilia**
- C. Target cells
- D. Sickle cells

Polychromatophilia is a key finding in a peripheral blood smear that indicates reticulocytosis. Reticulocytes are immature red blood cells that typically have a bluish tint when stained because they contain residual ribosomal RNA. This characteristic color, referred to as polychromatophilia, indicates that the bone marrow is actively producing red blood cells in response to anemia or blood loss. This finding is significant as it reflects the body's compensatory mechanism to increase red blood cell production to restore oxygen-carrying capacity. In patients experiencing conditions like hemolytic anemia or after acute blood loss, the presence of reticulocytes can be markedly increased, leading to the appearance of polychromatophilic red blood cells on the smear. Other options, such as hypersegmented neutrophils, target cells, and sickle cells, are associated with different hematological conditions and do not specifically indicate reticulocytosis. Hypersegmented neutrophils are often seen in megaloblastic anemia, target cells are commonly associated with liver disease or thalassemia, and sickle cells are indicative of sickle cell disease. Thus, their presence does not correlate with the active regeneration of reticulocytes in the context of

7. When does the synthesis of Hemoglobin A2 typically begin?

- A. First trimester
- B. Mid-second trimester
- C. Late third trimester**
- D. In adulthood only

The synthesis of Hemoglobin A2 typically begins in the mid-second trimester of fetal development. Hemoglobin A2 is one of the various types of hemoglobin produced by the body, playing a smaller role compared to Hemoglobin A, which is the primary form of hemoglobin found in adults. Throughout the gestational period, different types of hemoglobins are produced at various stages. Initially, embryonic hemoglobins are predominant in the early stages of development, but fetal hemoglobin gradually takes over. Hemoglobin A2 begins to be synthesized around the mid-second trimester as the fetus develops and its need for oxygen increases. It will continue to be produced and eventually comprises a small percentage of total hemoglobin in healthy individuals after birth. Understanding the timeline of hemoglobin synthesis is crucial for recognizing normal fetal development and the conditions that may arise from abnormal hemoglobin production.

8. In lupus, which cell phagocytizes the nucleoprotein?

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

In the context of lupus, macrophages are particularly significant as they play a crucial role in the immune response, including the phagocytosis of various cellular debris and immune complexes, such as nucleoproteins. Macrophages are the primary cells that ingest and digest cellular material, and in autoimmune conditions like lupus, they often encounter and phagocytize nucleoproteins released from damaged or apoptotic cells. This process is important as it helps regulate inflammation and the immune response by removing potentially harmful cellular debris. Although neutrophils are indeed an important part of the immune system and can participate in phagocytosis, their primary role is more focused on responding to acute infections and inflammation. In contrast, macrophages have a more sustained and regulatory role in the context of chronic inflammatory conditions such as lupus, where they help manage the consequences of autoimmunity by clearing nucleoproteins that can exacerbate the disease process. Understanding the distinct functions of these cells aids in appreciating their specific contributions to diseases like lupus.

9. How is abnormal variation in the shape of erythrocytes described?

- A. Anisocytosis
- B. Normocytosis
- C. Poikilocytosis**
- D. Microcytosis

The term that describes abnormal variation in the shape of erythrocytes is poikilocytosis. This condition indicates that red blood cells (RBCs) are not uniform in shape, which can be observed in various hematological disorders. The observation of poikilocytosis in a blood smear can provide valuable diagnostic information, as different shapes may be associated with specific types of anemia or other underlying health issues. For instance, poikilocytosis can manifest as the presence of oval, tear-drop, or irregularly shaped red blood cells, each potentially indicating different pathological processes. Understanding poikilocytosis is critical for medical technologists in interpreting hematological data and contributing to accurate patient diagnoses.

10. What is the reference range for mean corpuscular volume (MCV) in adults?

- A. 70-80 fL/red cell
- B. 80-96 fL/red cell**
- C. 90-100 fL/red cell
- D. 100-110 fL/red cell

The mean corpuscular volume (MCV) is a crucial parameter in the complete blood count that measures the average volume of a red blood cell. The reference range for MCV in adults typically spans from 80 to 96 femtoliters (fL) per red cell. This range is indicative of normal red blood cell size and assists in the classification of anemias and other hematological conditions. Values lower than this range may suggest microcytic anemia, while higher values can indicate macrocytic anemia, often associated with vitamin B12 or folate deficiencies. The established reference range encompasses most healthy adults and is essential for diagnosing and monitoring various blood disorders.

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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