AAB MEDICAL TECHNOLOGIST (MT) – HEMATOLOGY PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Table of Contents

Copyright 1

Table of Contents 2

Introduction 3

How to Use This Guide 4

Questions 5

Answers 8

Explanations 10

Next Steps 16

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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.

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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!

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Questions

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1. **What cytological finding helps differentiate acute myelogenous leukemia from acute lymphocytic leukemia?**

   A. Presence of Auer rods

   B. Presence of large lymphoblasts

   C. Presence of immature cells

   D. Presence of hypersegmented neutrophils

2. **Which red blood cell inclusion is characteristic of hemoglobin C disease?**

   A. Howell-Jolly bodies

   B. Rod-shaped crystals

   C. Basophilic stippling

   D. Pappenheimer bodies

3. **What type of cell shows a distinct hypochromic area around the nucleus?**

   A. Target cell

   B. Leptocyte

   C. Schistocyte

   D. Echinocyte

4. **What substance should be added to correct a prolonged coagulation test due to plasma factor deficiency?**

   A. Normal saline

   B. Normal plasma

   C. Activated charcoal

   D. Calcium chloride

5. **Which of the following inclusions represents a remnant of nuclear DNA in an RBC?**

   A. Cabot rings

   B. Howell-Jolly body

   C. Pappenheimer bodies

   D. Basophilic stippling

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6. Which hemoglobins are differentiated by the Kleihauer-Betke technique?

A. Hb-A from Hb-S

B. Hb-A1 from Hb-F

C. Hb-C from Hb-D

D. Hb-F from Hb-A2

7. What lab results are found in iron deficiency anemia but not in thalassemia?

A. Elevated ferritin and low total iron binding capacity

B. Normal serum iron and normal total iron binding capacity

C. High serum iron and low total iron binding capacity

D. Low serum iron and high total iron binding capacity

8. What characterizes the blood smear of a patient with Hemoglobin C?

A. Presence of target cells and microspherocytes

B. Hypersegmented neutrophils

C. Anisocytosis and poikilocytosis

D. Increased red cell fragility

9. When centrifuging a sample for hematocrit measurement, which layer will contain the most white blood cells?

A. Bottom layer

B. Packed red blood cell layer

C. Buffy coat

D. Top plasma layer

10. Idiopathic thrombocytopenic purpura is usually characterized by which of the following?

A. Increased platelet production

B. Decreased platelet destruction

C. Increased platelet destruction

D. Normal platelet function

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Answers

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

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Explanations

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1. What cytological finding helps differentiate acute myelogenous leukemia from acute lymphocytic leukemia?

A. Presence of Auer rods

B. Presence of large lymphoblasts

C. Presence of immature cells

D. Presence of hypersegmented neutrophils

The presence of Auer rods is a key cytological finding that helps differentiate acute myelogenous leukemia (AML) from acute lymphocytic leukemia (ALL). Auer rods are elongated, needle-like structures that can be found within the cytoplasm of myeloid cells. Their presence indicates myeloid differentiation, which is characteristic of acute myeloid leukemia. In contrast, acute lymphocytic leukemia involves the proliferation of lymphoblasts, which do not form Auer rods. The identification of Auer rods is, therefore, a critical diagnostic feature that supports the classification of the leukemia as myeloid rather than lymphoid. Other cytological findings, such as immature cells or the presence of large lymphoblasts, could be seen in both types of leukemia, making them less definitive for differentiation. Hypersegmented neutrophils are typically associated with megaloblastic anemia and are not a distinguishing feature for either acute myeloid or acute lymphocytic leukemia. Hence, the specific identification of Auer rods is what makes this finding significant in differentiating these two types of acute leukemia.

2. Which red blood cell inclusion is characteristic of hemoglobin C disease?

A. Howell-Jolly bodies

B. Rod-shaped crystals

C. Basophilic stippling

D. Pappenheimer bodies

The characteristic inclusion associated with hemoglobin C disease is the presence of rod-shaped crystals within the red blood cells. In individuals with hemoglobin C disease, the abnormal hemoglobin (hemoglobin C) can precipitate within the red blood cells, forming these unique rod-shaped crystals. This distinct morphology helps differentiate hemoglobin C disease from other hemoglobinopathies and is a key feature that medical technologists look for when examining blood smears for hematological disorders. Other inclusions listed, such as Howell-Jolly bodies, basophilic stippling, and Pappenheimer bodies, may be seen in various other conditions but are not specific to hemoglobin C disease. Howell-Jolly bodies are remnants of nuclear material often associated with asplenia or ineffective erythropoiesis. Basophilic stippling reflects lead poisoning or impaired hemoglobin synthesis, while Pappenheimer bodies are iron-containing inclusions typically seen in conditions like sideroblastic anemia or thalassemia. Therefore, identifying rod-shaped crystals specifically points to hemoglobin C disease, reinforcing the correct understanding of this hematological condition.

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3. What type of cell shows a distinct hypochromic area around the nucleus?

A. Target cell

B. Leptocyte

C. Schistocyte

D. Echinocyte

The cell that shows a distinct hypochromic area around the nucleus is indeed the leptocyte. Leptocytes are characterized by their thin, flattened appearance and increased surface area, which gives them a distinctive morphology when viewed microscopically. This appearance is often due to an increase in membrane surface area relative to the cell's hemoglobin content. The hypochromic area observed in leptocytes is typically the result of decreased hemoglobin levels or alterations in membrane phospholipids, which can lead to the appearance of clear zones around the nucleus when stained and viewed under a microscope. This feature makes them notable in conditions such as iron deficiency anemia, where the overall hemoglobin content in the red blood cells is reduced, leading to the distinctive hypochromic appearance. Target cells, schistocytes, and echinocytes have different morphological characteristics. Target cells, for instance, have a central spot of hemoglobin surrounded by a ring of pale cytoplasm, which gives a bull's-eye appearance. Schistocytes are fragmented red blood cells typically associated with microangiopathic hemolytic anemia. Echinocytes, or burr cells, possess uneven projections on their surface but do not typically exhibit a hypochromic area around the nucleus. Understanding

4. What substance should be added to correct a prolonged coagulation test due to plasma factor deficiency?

A. Normal saline

B. Normal plasma

C. Activated charcoal

D. Calcium chloride

To correct a prolonged coagulation test resulting from a plasma factor deficiency, the addition of normal plasma is crucial. Normal plasma contains all the necessary coagulation factors in their appropriate concentrations. When a patient has a deficiency of specific clotting factors, the prolonged coagulation time reflects this deficiency, leading to increased bleeding risk. By introducing normal plasma into the test, the missing factors are provided, allowing the coagulation cascade to function correctly. This effectively restores the balance necessary for normal clot formation, thereby reducing the time it takes for clotting to occur. Normal saline, activated charcoal, and calcium chloride do not replace the specific coagulation factors that are deficient and therefore would not correct the prolonged coagulation test appropriately. Normal saline may dilute the sample but will not provide the necessary factors. Activated charcoal is not relevant to coagulation at all, as it is used for absorbing toxins in certain medical scenarios. Calcium chloride plays a role in the coagulation process as it is essential for clotting, but it cannot substitute for missing coagulation factors in the plasma. Thus, normal plasma is the optimal solution for addressing the issue effectively.

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5. Which of the following inclusions represents a remnant of nuclear DNA in an RBC?

A. Cabot rings

B. Howell-Jolly body

C. Pappenheimer bodies

D. Basophilic stippling

Howell-Jolly bodies are indeed the correct choice for representing remnants of nuclear DNA in a red blood cell (RBC). These inclusions are typically small, round structures visible in stained peripheral blood smears. They originate from the nucleus of developing red blood cells and are remnants of DNA that have not been extruded during the maturation process. In normal circumstances, the spleen removes these bodies, so their presence is often associated with cases of splenic dysfunction or absence of the spleen (asplenia). The detection of Howell-Jolly bodies can, therefore, indicate certain morphologic abnormalities in red blood cell development or suggest issues with splenic function. The other options represent different types of inclusions found in red blood cells that do not pertain specifically to remnants of nuclear DNA. For example, Cabot rings are associated with abnormal cell division and are made up of ring structures, while Pappenheimer bodies consist primarily of iron and basophilic stippling reflects disturbances in hemoglobin synthesis, often linked to lead poisoning or other anemias. Each of these inclusions has its clinical significance, but Howell-Jolly bodies directly relate to remnant nuclear DNA, making it the correct answer.

6. Which hemoglobins are differentiated by the Kleihauer-Betke technique?

A. Hb-A from Hb-S

B. Hb-A1 from Hb-F

C. Hb-C from Hb-D

D. Hb-F from Hb-A2

The Kleihauer-Betke test is a specialized laboratory technique used primarily to differentiate between fetal hemoglobin (Hb-F) and adult hemoglobin (Hb-A). This technique is particularly useful in situations involving maternal-fetal hemorrhage, where it is critical to ascertain the presence and amount of fetal blood in the maternal circulation. In the context of the provided choice, the distinction between Hb-A1 and Hb-F is key. Hb-F has a higher affinity for oxygen compared to Hb-A, which is why it remains stable through the Kleihauer-Betke staining process, enabling the differentiation between fetal and adult hemoglobin types. This capability is crucial for assessing cases of potential bleeding complications during pregnancy and ensuring proper maternal and fetal care. The other options do not pertain to the Kleihauer-Betke technique, which is specifically designed for the identification of the fetal hemoglobin type in relation to adult hemoglobin. Therefore, the correct identification of Hb-F from Hb-A1 through the Kleihauer-Betke method illustrates the technique's specialized application in hematology.

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7. What lab results are found in iron deficiency anemia but not in thalassemia?

A. Elevated ferritin and low total iron binding capacity

B. Normal serum iron and normal total iron binding capacity

C. High serum iron and low total iron binding capacity

D. Low serum iron and high total iron binding capacity

In iron deficiency anemia, the body lacks sufficient iron to produce hemoglobin, leading to lower levels of serum iron and an increased total iron binding capacity (TIBC). This is because, in response to low iron availability, the liver produces more transferrin, the protein responsible for transporting iron, in an attempt to capture any available iron. In contrast, thalassemia is a genetic disorder resulting in disrupted hemoglobin synthesis; it is not due to a deficiency in iron but rather an issue with hemoglobin production. In thalassemia, patients often show normal or increased serum iron levels and a low TIBC. This is due to the body having effective iron stores, despite the anemia being due to impaired hemoglobin formation rather than a lack of iron. Thus, in iron deficiency anemia, low serum iron levels coupled with high total iron binding capacity are characteristic findings, making the identification of low serum iron and high TIBC significant. This difference in lab results is critical in distinguishing between iron deficiency anemia and thalassemia, as it guides appropriate diagnosis and management.

8. What characterizes the blood smear of a patient with Hemoglobin C?

A. Presence of target cells and microspherocytes

B. Hypersegmented neutrophils

C. Anisocytosis and poikilocytosis

D. Increased red cell fragility

The blood smear of a patient with Hemoglobin C is characterized by the presence of target cells and microspherocytes. Target cells, also known as codocytes, appear as a central area of hemoglobin surrounded by a clear zone and then an outer ring of hemoglobin. This morphology arises due to the abnormal hemoglobin characteristics and the changes in the membrane structure of the red blood cells typical in various hemoglobinopathies, including Hemoglobin C. Microspherocytes are small, round red blood cells that lack the typical biconcave shape and can occur due to various reasons, including unstable hemoglobin conditions. In the context of Hemoglobin C disease, the abnormal globin chains lead to membrane damage and, subsequently, to the formation of these microspherocytes. In summary, the distinctive features of target cells and microspherocytes in the blood smear are indicative of the underlying pathophysiology in patients with Hemoglobin C, making it the correct response. Understanding these terms and their implications is vital for recognizing and interpreting hematological disorders.

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9. When centrifuging a sample for hematocrit measurement, which layer will contain the most white blood cells?

A. Bottom layer

B. Packed red blood cell layer

C. Buffy coat

D. Top plasma layer

The correct choice is the buffy coat, which is the thin layer that forms between the packed red blood cells at the bottom and the plasma at the top after centrifugation of a blood sample. The buffy coat contains the majority of the white blood cells, as well as platelets. During the centrifugation process, the blood components separate based on their density: the heaviest components (red blood cells) settle to the bottom, while the lighter components (plasma) remain at the top. The buffy coat, being a transitional layer, is where the white blood cells, which have a density between that of red blood cells and plasma, accumulate. This layer is crucial for various hematology assessments, including those related to immune function and the identification of certain blood disorders.

10. Idiopathic thrombocytopenic purpura is usually characterized by which of the following?

A. Increased platelet production

B. Decreased platelet destruction

C. Increased platelet destruction

D. Normal platelet function

Idiopathic thrombocytopenic purpura (ITP) is characterized by increased platelet destruction. In this condition, the immune system mistakenly targets and destroys platelets, leading to a decrease in their number. This autoimmune response is often linked to the presence of antibodies that specifically bind to platelets, marking them for destruction by the spleen and other components of the immune system. What is critical in ITP is not merely a low platelet count but the underlying mechanism that causes the reduction. Unlike conditions where the body may produce an increased number of platelets to compensate for loss or destruction, ITP features a predominance of destruction rather than a production issue. Additionally, while the platelet function may remain normal in many cases of ITP, the significant aspect that defines the disorder is the increase in destruction leading to thrombocytopenia, which is why this option aligns with the pathophysiology of ITP. Understanding this mechanism is important for diagnosing and managing the condition effectively.

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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://aabmthematology.examzify.com

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

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