

AAB Medical Technologist (MT) - Hematology Practice Exam (Sample)

Study Guide



Everything you need from our exam experts!

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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.

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 of the following conditions can result in erroneous counts in hematology analyzers?**
 - A. Thrombocytopenia**
 - B. Leukemia**
 - C. Dehydration**
 - D. All of the above**

- 2. What role do platelets play in hemostasis?**
 - A. Clot formation**
 - B. Blood vessel constriction**
 - C. Fibrinolysis**
 - D. Coagulation factor activation**

- 3. What is the diluent used in the cyanmethemoglobin method for the determination of hemoglobin?**
 - A. Normal saline**
 - B. Drabkin's solution**
 - C. Sodium citrate solution**
 - D. Phosphate buffer**

- 4. What is the role of fibrinogen in the blood?**
 - A. Stabilizes red blood cells**
 - B. Promotes infection**
 - C. Facilitates blood clotting**
 - D. Transports oxygen**

- 5. The cyanmethemoglobin method measures all hemoglobin pigments EXCEPT which one?**
 - A. Methemoglobin**
 - B. Sulfhemoglobin**
 - C. Fetal hemoglobin**
 - D. Myoglobin**

6. What is the primary laboratory test abnormality in a patient with liver disease?

- A. Prolonged PTT**
- B. Normal serum indices**
- C. Increased platelet count**
- D. Elevated D-dimer**

7. All of the following are characteristic of bone marrow in Waldenstrom's macroglobulinemia EXCEPT?

- A. Increased plasma cells**
- B. Marked rouleaux formation**
- C. Relative/absolute lymphocytosis**
- D. Increased megakaryocytes**

8. Which coagulation factor is also known as 'Stuart-Prower factor'?

- A. Factor VII**
- B. Factor X**
- C. Factor IX**
- D. Factor II**

9. What is the primary function of hemoglobin in red blood cells?

- A. Transporting carbon dioxide**
- B. Transporting oxygen**
- C. Regulating pH**
- D. Producing energy**

10. Which hereditary platelet disorder is characterized by decreased platelet production accompanied by Dohle bodies in polymorphonuclear cells?

- A. Amegakaryocytic thrombocytopenia**
- B. Bernard-Soulier syndrome**
- C. May-Hegglin anomaly**
- D. Glanzmann's thrombasthenia**

Answers

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

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Explanations

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1. Which of the following conditions can result in erroneous counts in hematology analyzers?

- A. Thrombocytopenia**
- B. Leukemia**
- C. Dehydration**
- D. All of the above**

Erroneous counts in hematology analyzers can occur due to various conditions, as each can impact how blood cells are counted and classified. Thrombocytopenia, or low platelet count, can lead to inaccurate platelet measurements. Hematology analyzers rely on specific thresholds and algorithms to detect platelet numbers, and when these thresholds are exceeded or not met due to thrombocytopenia, the analyzers may misinterpret the data. Leukemia can introduce complexities as well. The presence of abnormal cells in the blood can disrupt the normal patterns that analyzers use to identify and count different cell types. For instance, the sheer number of leukemic cells can skew white blood cell counts and result in false readings of other parameters. Dehydration, on the other hand, leads to a relative increase in the concentration of blood cells due to reduced plasma volume, which can falsely elevate cell counts. For example, dehydration can make hemoglobin or cell counts appear higher than they actually are. All these conditions create scenarios where hematology analyzers may not provide accurate counts, highlighting the importance of understanding underlying health issues when interpreting results. Thus, the answer being "All of the above" recognizes that each of these conditions can independently cause erroneous results in hematology

2. What role do platelets play in hemostasis?

- A. Clot formation**
- B. Blood vessel constriction**
- C. Fibrinolysis**
- D. Coagulation factor activation**

Platelets, also known as thrombocytes, play a crucial role in hemostasis primarily through clot formation. When a blood vessel is injured, platelets are activated and rapidly adhere to the site of the injury. They aggregate to form a temporary "platelet plug," which serves as an initial barrier to blood loss. This process is fundamental in stopping bleeding and is part of the larger hemostatic response, which includes the coagulation cascade that further stabilizes the clot. The formation of clots involves the interaction between platelets and various clotting factors, but the primary and immediate response of platelets is their ability to clump together and initiate plug formation. Without this action, the body would be unable to stop bleeding effectively, highlighting the essential nature of platelets in the hemostatic process.

3. What is the diluent used in the cyanmethemoglobin method for the determination of hemoglobin?

- A. Normal saline**
- B. Drabkin's solution**
- C. Sodium citrate solution**
- D. Phosphate buffer**

The cyanmethemoglobin method for the determination of hemoglobin employs Drabkin's solution as its diluent. This solution is critical because it contains potassium ferricyanide and potassium cyanide, which react with hemoglobin to form cyanmethemoglobin, a stable derivative that can be measured spectrophotometrically. This method is widely used due to its accuracy and ability to quantify total hemoglobin levels in a blood sample. In contrast, normal saline primarily serves as a general fluid replacement and does not facilitate the chemical reactions needed for hemoglobin determination. Sodium citrate acts as an anticoagulant and is often used in blood collection but does not participate in the colorimetric analysis required for this hemoglobin measurement. Phosphate buffer provides a stable pH environment for various biochemical reactions but is not specifically designed for the cyanmethemoglobin reaction. Thus, Drabkin's solution is specifically formulated to enable the accurate determination of hemoglobin levels through its chemical interactions.

4. What is the role of fibrinogen in the blood?

- A. Stabilizes red blood cells**
- B. Promotes infection**
- C. Facilitates blood clotting**
- D. Transports oxygen**

Fibrinogen plays a crucial role in the process of blood coagulation, which is essential for stopping bleeding following an injury. It is a soluble protein that is converted into fibrin through the action of thrombin during the clotting cascade. This transformation allows fibrin to form a mesh-like structure that traps blood cells and platelets, creating a stable clot that seals the wound or injury site. This process is vital for maintaining hemostasis, preventing excessive blood loss, and providing a temporary barrier against pathogens at the site of injury. The other roles mentioned in the options do not pertain to fibrinogen. While stabilizing red blood cells or transporting oxygen is essential to the function of hemoglobin and the red blood cell itself, fibrinogen does not perform these roles. Additionally, promoting infection is not a function of any normal blood component, as the body utilizes various immune cells to address infections, rather than components like fibrinogen.

5. The cyanmethemoglobin method measures all hemoglobin pigments EXCEPT which one?

- A. Methemoglobin**
- B. Sulfhemoglobin**
- C. Fetal hemoglobin**
- D. Myoglobin**

The cyanmethemoglobin method is a laboratory technique primarily used to quantify the concentration of hemoglobin in a blood sample. This method involves converting the various forms of hemoglobin present in the blood to a stable compound known as cyanmethemoglobin, which can then be measured spectrophotometrically. When considering the different types of pigments related to hemoglobin, sulfhemoglobin is unique in that it cannot be converted to cyanmethemoglobin. It results from the irreversible oxidation of hemoglobin by sulfur compounds, leading to a stable form that does not participate in the cyanmethemoglobin formation that the method relies upon. Consequently, while the cyanmethemoglobin method is effective for measuring various hemoglobin forms like methemoglobin, fetal hemoglobin, and myoglobin, it is not applicable to sulfhemoglobin due to its distinct biochemical characteristics. This is why the correct answer identifies sulfhemoglobin as the pigment not measured by the cyanmethemoglobin method.

6. What is the primary laboratory test abnormality in a patient with liver disease?

- A. Prolonged PTT**
- B. Normal serum indices**
- C. Increased platelet count**
- D. Elevated D-dimer**

In patients with liver disease, the primary laboratory test abnormality often observed is a prolonged prothrombin time (PTT). The liver plays a critical role in the synthesis of many clotting factors that are essential for normal hemostasis, including factors II, V, VII, IX, and X. When liver function is impaired due to disease, the production of these factors is diminished, leading to a prolonged coagulation time as reflected in the PTT. Monitoring the PTT is especially important in patients with liver disease since it can indicate both the degree of liver dysfunction and the risk of bleeding complications. As the liver's ability to produce clotting factors declines, patients may also demonstrate clinical signs such as easy bruising and prolonged bleeding after injury. The other options relate to different aspects of hematology or may not accurately reflect the primary coagulopathy associated with liver disease. Normal serum indices may not highlight any specific abnormalities related to liver function, an increased platelet count is not typically observed in liver disease (often leading to thrombocytopenia instead), and elevated D-dimer is usually indicative of coagulopathy or thrombosis rather than a direct reflection of liver function. Thus, the prolonged PTT is the most relevant and representative finding in

7. All of the following are characteristic of bone marrow in Waldenstrom's macroglobulinemia EXCEPT?

- A. Increased plasma cells**
- B. Marked rouleaux formation**
- C. Relative/absolute lymphocytosis**
- D. Increased megakaryocytes**

In Waldenstrom's macroglobulinemia, the bone marrow typically exhibits an increase in plasma cells due to the disease's association with monoclonal immunoglobulin production, which characterizes this condition. This means that options indicating increased plasma cells and conditions associated with hyperviscosity, such as marked rouleaux formation, are consistent with the disease's pathophysiology. Moreover, there is often a relative or absolute lymphocytosis observed in patients because the condition involves an abnormal proliferation of small, mature lymphocytes, specifically affecting B-cells. In contrast, an increase in megakaryocytes is not a characteristic feature of Waldenstrom's macroglobulinemia. Megakaryocytes are the precursor cells for platelets, and their proliferation is typically associated with other conditions, such as primary myelofibrosis or essential thrombocythemia, rather than Waldenstrom's macroglobulinemia. Thus, the statement regarding increased megakaryocytes is not consistent with the patterns expected in bone marrow from patients with Waldenstrom's macroglobulinemia, making it the exception among the characteristics listed.

8. Which coagulation factor is also known as 'Stuart-Prower factor'?

- A. Factor VII**
- B. Factor X**
- C. Factor IX**
- D. Factor II**

The term 'Stuart-Prower factor' specifically refers to Factor X. This factor plays a crucial role in the coagulation cascade, where it acts as a key component in the conversion of prothrombin to thrombin. Thrombin is essential for the formation of fibrin, which ultimately leads to the stabilization of a blood clot. Factor X can be activated by both the intrinsic and extrinsic pathways of coagulation, further emphasizing its central role in hemostasis. Understanding this factor is vital for diagnosing and treating coagulation disorders, as deficiencies or dysfunctions can lead to bleeding disorders.

9. What is the primary function of hemoglobin in red blood cells?

- A. Transporting carbon dioxide**
- B. Transporting oxygen**
- C. Regulating pH**
- D. Producing energy**

The primary function of hemoglobin in red blood cells is to transport oxygen from the lungs to the tissues throughout the body. Hemoglobin has a high affinity for oxygen, allowing it to efficiently pick up oxygen in the lungs and release it in areas where it is needed for metabolic processes. This function is crucial for maintaining the energy levels of cells, as oxygen is essential for aerobic respiration, which produces the energy currency, ATP. While hemoglobin does play a role in the transport of carbon dioxide back to the lungs for exhalation, this is not its primary function. The regulation of pH is influenced by carbonic acid and bicarbonate, among other factors, but is not a central role of hemoglobin itself. Additionally, hemoglobin does not produce energy; rather, it is involved in the delivery of oxygen, which is necessary for the metabolic processes that generate energy. Thus, the primary role of hemoglobin as an oxygen transporter is fundamental to the overall function of red blood cells and to the body's physiology.

10. Which hereditary platelet disorder is characterized by decreased platelet production accompanied by Dohle bodies in polymorphonuclear cells?

- A. Amegakaryocytic thrombocytopenia**
- B. Bernard-Soulier syndrome**
- C. May-Hegglin anomaly**
- D. Glanzmann's thrombasthenia**

The condition characterized by decreased platelet production and the presence of Dohle bodies in polymorphonuclear cells is indeed May-Hegglin anomaly. This hereditary disorder involves a qualitative defect in platelets leading to thrombocytopenia, which is a lower than normal number of platelets. In May-Hegglin anomaly, Dohle bodies, which are small, grayish-blue inclusion bodies found in the cytoplasm of neutrophils, are indicative of the disorder and are formed due to ribosomal RNA aggregates. The presence of these inclusion bodies is a key cytological finding in individuals with this condition. In contrast, the other disorders mentioned do not typically involve Dohle bodies or are characterized by different hematological features. Amegakaryocytic thrombocytopenia is primarily associated with a lack of megakaryocytes in the bone marrow, leading to reduced platelet production but without the presence of Dohle bodies. Bernard-Soulier syndrome is characterized by a defect in platelet adhesion due to the absence of the glycoprotein Ib-IX-V complex but does not involve Dohle bodies. Glanzmann's thrombasthenia is highlighted by a defect in platelet aggregation due to the absence of glycoprotein IIb/

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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