

ASCP Specialist in Hematology (SH) 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. What factor is responsible for activating the intrinsic pathway of blood coagulation?**
 - A. Factor VIII**
 - B. Factor XII (Hageman factor)**
 - C. Factor X**
 - D. Factor V**

- 2. Which laboratory test is commonly used to evaluate iron status in patients?**
 - A. Complete blood count**
 - B. Serum ferritin**
 - C. Prothrombin time**
 - D. Blood glucose test**

- 3. Which of the following conditions is a genetic mutation associated with increased risk of thrombosis?**
 - A. Factor V Leiden mutation**
 - B. Sickle cell disease**
 - C. Chronic granulomatous disease**
 - D. Hemophilia B**

- 4. What is the term for the aggregation of platelets at the site of vascular injury?**
 - A. Secondary hemostasis**
 - B. Coagulation**
 - C. Fibrinolysis**
 - D. Primary hemostasis**

- 5. What abnormality is often seen in patients with Vitamin K deficiency?**
 - A. Increased platelet count**
 - B. Prolonged Prothrombin Time (PT)**
 - C. Decreased fibrinogen levels**
 - D. Elevated activated partial thromboplastin time (aPTT)**

- 6. What is necessary for the absorption of Vitamin B12?**
- A. Intrinsic factor**
 - B. Folic acid**
 - C. Gastrin**
 - D. Insulin**
- 7. In what type of patients would you expect to see a “left shift” in the white blood cell differential?**
- A. In patients experiencing chronic inflammation**
 - B. In patients with allergies**
 - C. In patients with acute infection or stress**
 - D. In patients recovering from chemotherapy**
- 8. What is the primary function of erythrocytes?**
- A. To regulate body temperature**
 - B. To transport oxygen and carbon dioxide**
 - C. To produce antibodies for immune defense**
 - D. To produce hormones**
- 9. In a normal peripheral blood, which statement is true about leukocytes?**
- A. They only comprise a small percentage of total blood volume.**
 - B. They are primarily composed of monocytes.**
 - C. They do not play a role in immune response.**
 - D. They include neutrophils and lymphocytes.**
- 10. Pseudothrombocytopenia can be caused by which phenomenon?**
- A. High platelet turnover**
 - B. Platelet satellitism**
 - C. Lipid abnormalities**
 - D. Erythrocyte agglutination**

Answers

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

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Explanations

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1. What factor is responsible for activating the intrinsic pathway of blood coagulation?

- A. Factor VIII
- B. Factor XII (Hageman factor)**
- C. Factor X
- D. Factor V

The intrinsic pathway of blood coagulation is initiated by the activation of Factor XII, also known as Hageman factor. This factor is crucial as it comes into contact with negatively charged surfaces, such as collagen exposed by vascular injury, triggering a cascade of enzymatic reactions that lead to the activation of other clotting factors. Once Factor XII is activated, it activates Factor XI, which in turn activates Factor IX. This cascade continues, ultimately leading to the activation of Factor X, which is the common pathway for both the intrinsic and extrinsic coagulation pathways. Therefore, the activation of Factor XII is fundamental for the intrinsic pathway to function properly and is a key player in the overall process of hemostasis. The other factors listed, like Factor VIII, are involved in the intrinsic pathway but are activated downstream of Factor XII. Factor X and Factor V play roles in the common pathway, but they do not initiate the intrinsic pathway; rather, they are part of the amplification of the clotting process that occurs after the intrinsic pathway has been activated.

2. Which laboratory test is commonly used to evaluate iron status in patients?

- A. Complete blood count
- B. Serum ferritin**
- C. Prothrombin time
- D. Blood glucose test

Serum ferritin is a widely used laboratory test for assessing iron status in patients. Ferritin is a protein that stores iron in the body, and its serum levels reflect the amount of stored iron. When determining iron deficiency or iron overload, serum ferritin levels provide critical insights. Low levels of ferritin indicate depleted iron stores, suggesting iron deficiency anemia, while elevated levels can suggest conditions such as hemochromatosis or inflammatory responses. In contrast, a complete blood count provides information about various blood components, such as hemoglobin, hematocrit, and red blood cell indices, but it does not specifically assess iron status. Prothrombin time measures the time it takes for blood to clot and is primarily used to evaluate coagulation factors rather than iron levels. The blood glucose test measures blood sugar levels and is not related to iron evaluation. Therefore, serum ferritin is specifically designed to assess iron levels in the body, making it the optimal choice for evaluating iron status in patients.

3. Which of the following conditions is a genetic mutation associated with increased risk of thrombosis?

- A. Factor V Leiden mutation**
- B. Sickle cell disease**
- C. Chronic granulomatous disease**
- D. Hemophilia B**

The Factor V Leiden mutation is associated with an increased risk of thrombosis because it causes a genetic alteration in the Factor V protein, which is crucial for the regulation of blood clotting. Specifically, this mutation leads to a resistance to activated protein C, a key anticoagulant that normally degrades Factor V, thereby preventing excessive clot formation. As a result, individuals with this mutation have a higher propensity for developing abnormal blood clots, particularly in the deep veins of the legs, which can lead to conditions such as deep vein thrombosis (DVT) and pulmonary embolism. In contrast, conditions like sickle cell disease primarily affect red blood cell shape and can lead to vaso-occlusive crises, but they do not inherently predispose to thrombosis in the same manner. Chronic granulomatous disease is an immunodeficiency that does not relate to clotting risks, while hemophilia B is a bleeding disorder caused by a deficiency of Factor IX, which does not favor thrombosis but instead leads to difficulty in clot formation. Therefore, the recognition of Factor V Leiden as a mutation that directly impacts thrombosis risk is key to identifying its significance in hemostatic disorders.

4. What is the term for the aggregation of platelets at the site of vascular injury?

- A. Secondary hemostasis**
- B. Coagulation**
- C. Fibrinolysis**
- D. Primary hemostasis**

The aggregation of platelets at the site of vascular injury is known as primary hemostasis. This is the initial response to vascular damage, where platelets rapidly adhere to the exposed subendothelial structures via specific receptors and, upon activation, release various substances that enhance aggregation and attract more platelets to the site. This process is crucial for forming a temporary plug that helps to seal small breaches in the vascular system and prevents excessive bleeding. In the context of hemostasis, this phase is clearly distinct from secondary hemostasis, which involves the complex cascade of coagulation factors leading to the formation of a stable fibrin clot. While coagulation is critical for effective hemostatic function, it follows the initial platelet aggregation and is often referred to as secondary hemostasis. Fibrinolysis, on the other hand, is the process by which the fibrin clot is dissolved after the vascular integrity is restored, completely separate from the aggregation phase that defines primary hemostasis. Understanding these phases helps clarify the sequential events in the overall hemostatic process following injury to the blood vessel.

5. What abnormality is often seen in patients with Vitamin K deficiency?

A. Increased platelet count

B. Prolonged Prothrombin Time (PT)

C. Decreased fibrinogen levels

D. Elevated activated partial thromboplastin time (aPTT)

In patients with Vitamin K deficiency, the most prominent finding is a prolonged Prothrombin Time (PT). Vitamin K is essential for the synthesis of several clotting factors, specifically factors II (prothrombin), VII, IX, and X, all of which are crucial for the coagulation cascade. When there is a deficiency in Vitamin K, the synthesis of these factors is impaired, leading to a decrease in their functional forms. Consequently, this disruption results in a longer time required for the prothrombin to convert into thrombin, which is why PT is prolonged. Monitoring PT is especially important in assessing coagulopathy because it specifically reflects extrinsic and common pathway factors that depend on Vitamin K. The other options do not directly align with the core consequences of Vitamin K deficiency. For instance, an increased platelet count is not typically associated with Vitamin K deficiency, and instead, it might suggest another underlying condition. Decreased fibrinogen levels could occur in certain scenarios, but it is not a primary feature of Vitamin K deficiency; it is more indicative of disseminated intravascular coagulation (DIC) or severe liver disease. Elevated aPTT is generally linked to deficiencies in factors specific to the intrinsic pathway (e.g.,

6. What is necessary for the absorption of Vitamin B12?

A. Intrinsic factor

B. Folic acid

C. Gastrin

D. Insulin

The absorption of Vitamin B12 is critically dependent on intrinsic factor, a glycoprotein produced by the parietal cells of the stomach. Intrinsic factor binds to Vitamin B12 in the intestinal lumen, which protects it from degradation and facilitates its absorption in the terminal ileum. Without adequate intrinsic factor, Vitamin B12 cannot be properly absorbed, leading to potential deficiencies and conditions such as pernicious anemia. Other substances, while important in various metabolic processes, do not play a direct role in the absorption of Vitamin B12. Folic acid is essential for DNA synthesis and red blood cell production but does not facilitate the uptake of Vitamin B12. Gastrin, a hormone that stimulates gastric acid secretion, plays a role in digestion but is not involved in the absorption mechanism of Vitamin B12. Insulin is crucial for glucose metabolism and regulating blood sugar levels but does not influence the absorption or metabolism of Vitamin B12. Thus, the necessity of intrinsic factor for Vitamin B12 absorption is a fundamental concept in hematology and nutrition.

7. In what type of patients would you expect to see a “left shift” in the white blood cell differential?

- A. In patients experiencing chronic inflammation**
- B. In patients with allergies**
- C. In patients with acute infection or stress**
- D. In patients recovering from chemotherapy**

A "left shift" in the white blood cell differential refers to the presence of an increased number of immature white blood cells, particularly neutrophils, in circulation. This phenomenon is commonly observed in conditions characterized by an acute inflammatory response, primarily due to infection or significant physiological stress. In cases of acute infection, the body rapidly responds to the presence of pathogens by increasing the production and release of white blood cells from the bone marrow. As the infection progresses, there is not only a rise in the total number of white blood cells but also a relative increase in immature forms, such as band neutrophils. This state signifies that the body is trying to mobilize its defenses quickly to combat the infectious agent, hence the term "left shift," which is a reference to how these cells are positioned on the white blood cell differential chart. For acute infection or stress, this response is essential as it indicates an active fight against potential threats, showcasing the body's efforts to maintain homeostasis. While chronic inflammation and allergies can lead to various changes in white blood cell counts and types, they typically do not present with a classic "left shift" as seen in acute processes. Similarly, during recovery from chemotherapy, the bone marrow is regaining its normal function, which may

8. What is the primary function of erythrocytes?

- A. To regulate body temperature**
- B. To transport oxygen and carbon dioxide**
- C. To produce antibodies for immune defense**
- D. To produce hormones**

The primary function of erythrocytes, or red blood cells, is to transport oxygen from the lungs to the tissues throughout the body and carry carbon dioxide from the tissues back to the lungs for exhalation. This vital role is accomplished through the protein hemoglobin, which binds oxygen in the lungs and releases it in the surrounding tissues where it's needed for cellular respiration. Erythrocytes are specialized for this task due to their biconcave shape, which provides a large surface area for gas exchange and allows them to deform as they pass through narrow capillaries. In addition to their role in gas transport, erythrocytes also play a part in maintaining acid-base balance (pH) in the blood. Their efficient functioning is crucial for sustaining metabolic processes and overall cellular health, underlining why their primary role is centered around the transport of oxygen and carbon dioxide.

9. In a normal peripheral blood, which statement is true about leukocytes?

- A. They only comprise a small percentage of total blood volume.**
- B. They are primarily composed of monocytes.**
- C. They do not play a role in immune response.**
- D. They include neutrophils and lymphocytes.**

Leukocytes, or white blood cells, play a crucial role in the body's immune response, and they are comprised of several different types of cells, including neutrophils and lymphocytes. Neutrophils are the most abundant type of white blood cell and are essential for combating infections, particularly bacterial infections. Lymphocytes are vital for both the adaptive and innate immune responses, including the production of antibodies and the destruction of virus-infected cells. In a normal peripheral blood sample, the presence of both neutrophils and lymphocytes reflects the diversity of immune functions that leukocytes perform. This combination allows for a robust response to a variety of pathogens and helps maintain overall health. The various types of leukocytes, including basophils, eosinophils, monocytes, neutrophils, and lymphocytes, collectively interact to form a functional immune system capable of protecting the body from disease. Thus, the inclusion of neutrophils and lymphocytes is a fundamental aspect of leukocyte composition in the blood.

10. Pseudothrombocytopenia can be caused by which phenomenon?

- A. High platelet turnover**
- B. Platelet satellitism**
- C. Lipid abnormalities**
- D. Erythrocyte agglutination**

Pseudothrombocytopenia occurs when there is a false decrease in platelet count, often due to in vitro conditions rather than an actual low platelet count in the patient. Platelet satellitism is a phenomenon where platelets surround or cling to leukocytes, interfering with automated counting methods used in many hematology analyzers. This clumping can lead to an erroneous low platelet count reading, which is characteristic of pseudothrombocytopenia. This mechanism is particularly important in recognizing when laboratory results do not correlate with the clinical situation. Identifying that the count may be falsely low helps in determining the patient's true hemostatic function, allowing for appropriate clinical management. In contrast, high platelet turnover is associated with conditions that lead to increased destruction or consumption of platelets, rather than an artifact seen in testing. Lipid abnormalities can affect the morphology and function of platelets but do not directly cause pseudothrombocytopenia. Erythrocyte agglutination can cause falsely decreased red blood cell counts but is not directly related to platelet counts in the context of pseudothrombocytopenia.

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://ascpspecialistinhematology.examzify.com>

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

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