

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

- 1. What does the hematocrit measure in a blood sample?**
 - A. Volume of plasma in the blood**
 - B. Percentage of red blood cells in blood volume**
 - C. Concentration of hemoglobin**
 - D. Number of white blood cells**

- 2. What is the primary defect in Factor V Leiden mutation?**
 - A. Increased platelets**
 - B. Defective clot lysis**
 - C. Increased pro-coagulation**
 - D. Impaired hemostasis**

- 3. Which of the following leukemias can be excluded as a possible diagnosis if Auer rods are seen in blasts on the peripheral blood smear?**
 - A. Acute myelomonocytic leukemia**
 - B. Acute lymphoblastic leukemia**
 - C. Acute myeloid leukemia without maturation**
 - D. Acute promyelocytic leukemia**

- 4. What characterizes the blood smear of a patient with sickle cell disease?**
 - A. Spherical red blood cells**
 - B. Normal-shaped red blood cells**
 - C. Sickle-shaped red blood cells**
 - D. Elongated red blood cells**

- 5. What is the term for a low platelet count?**
 - A. Leukemia**
 - B. Thrombocytopenia**
 - C. Anemia**
 - D. Hemophilia**

- 6. Which condition is characterized by a decrease in bone marrow cellularity?**
- A. Anemia of chronic disease**
 - B. Aplastic anemia**
 - C. Iron-deficiency anemia**
 - D. Pernicious anemia**
- 7. Which cell type is primarily responsible for the immune response in peripheral blood?**
- A. Granulocytes**
 - B. Monocytes**
 - C. Lymphocytes**
 - D. Eosinophils**
- 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. What morphological appearance do leptocytes exhibit?**
- A. Irregular and convoluted**
 - B. Cup-shaped with hemoglobin dispersed**
 - C. Large and eccentric**
 - D. Filled with Russell bodies**
- 10. What happens if a sodium citrate sample is filled an inch below the fill line?**
- A. Unacceptable for coagulation studies**
 - B. Acceptable for coagulation studies**
 - C. Acceptable if additional blood can fill the tube**
 - D. Acceptable if only the PT test is performed**

Answers

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

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Explanations

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1. What does the hematocrit measure in a blood sample?

- A. Volume of plasma in the blood**
- B. Percentage of red blood cells in blood volume**
- C. Concentration of hemoglobin**
- D. Number of white blood cells**

The hematocrit is a key measurement in hematology, representing the percentage of the total blood volume that is occupied by red blood cells. This value is crucial for assessing the oxygen-carrying capacity of the blood, as red blood cells are primarily responsible for transporting oxygen throughout the body. A normal hematocrit value indicates a healthy balance of red blood cells, while deviations can suggest various medical conditions, such as anemia if the percentage is low, or polycythemia if it is high. The other choices, while related to components of blood, do not define what the hematocrit measures. The volume of plasma in the blood refers to the liquid portion excluding cells, the concentration of hemoglobin is a separate measurement that reflects the amount of hemoglobin protein present, and the number of white blood cells pertains to a completely different aspect of the blood's cellular composition. Therefore, the option that correctly describes what the hematocrit measures is the percentage of red blood cells in blood volume.

2. What is the primary defect in Factor V Leiden mutation?

- A. Increased platelets**
- B. Defective clot lysis**
- C. Increased pro-coagulation**
- D. Impaired hemostasis**

In the case of Factor V Leiden mutation, the primary defect lies in the mutation that causes a resistance to activated protein C (APC), a key protein in the regulation of coagulation. This leads to an increased tendency for clotting because activated protein C normally functions to inactivate Factor V and Factor VIII, both of which amplify the clotting process. When there is resistance to activated protein C due to the mutation, this regulatory pathway is disrupted, resulting in an increased pro-coagulation state. As a result, individuals with Factor V Leiden are at a higher risk for thrombosis as clots are not adequately regulated and can form excessively. Other options may address aspects of hemostasis but do not accurately describe the primary defect associated with Factor V Leiden. For example, while increased platelets can contribute to thrombotic conditions, they are not the direct issue stemming from the Factor V Leiden mutation itself. Defective clot lysis might be a secondary consequence of persistent clotting but does not encapsulate the initial defect. Impaired hemostasis is too general and can refer to various disorders, but the defining feature of Factor V Leiden is specifically its role in promoting pro-coagulation.

3. Which of the following leukemias can be excluded as a possible diagnosis if Auer rods are seen in blasts on the peripheral blood smear?

- A. Acute myelomonocytic leukemia**
- B. Acute lymphoblastic leukemia**
- C. Acute myeloid leukemia without maturation**
- D. Acute promyelocytic leukemia**

The presence of Auer rods in blasts on a peripheral blood smear is a significant morphological feature that helps in diagnosing specific types of acute leukemia. Auer rods are cytoplasmic inclusions that are found primarily in myeloid cells and are indicative of acute myeloid leukemia (AML) or myeloid differentiation. Acute lymphoblastic leukemia (ALL) is a type of leukemia that typically arises from lymphoid stem cells and is characterized by the proliferation of immature lymphoblasts. Unlike myeloid blasts, lymphoid blasts in ALL do not form Auer rods. Therefore, if Auer rods are observed in the blasts, it strongly suggests a diagnosis involving myeloid lineage, allowing for the exclusion of ALL as a potential diagnosis. When considering acute myelomonocytic leukemia, acute myeloid leukemia without maturation, and acute promyelocytic leukemia, Auer rods may be present as they are associated with myeloid lineage cells. This makes them viable considerations in the differential diagnosis when Auer rods are noted. Thus, identifying Auer rods on a peripheral smear provides clear evidence against acute lymphoblastic leukemia.

4. What characterizes the blood smear of a patient with sickle cell disease?

- A. Spherical red blood cells**
- B. Normal-shaped red blood cells**
- C. Sickle-shaped red blood cells**
- D. Elongated red blood cells**

The blood smear of a patient with sickle cell disease is characterized by the presence of sickle-shaped red blood cells. This crescent or "sickle" shape results from the abnormal hemoglobin (hemoglobin S) found in these patients, which causes red blood cells to deform under low oxygen conditions or stress. In sickle cell disease, these deformed cells have a reduced lifespan and can lead to various complications, including vaso-occlusive crises due to their tendency to clump together and obstruct blood flow. The presence of these sickle-shaped cells is a key diagnostic feature and is often confirmed through various laboratory tests, including the sickling test or hemoglobin electrophoresis. Understanding this characteristic allows hematologists and medical professionals to identify sickle cell disease and manage it appropriately, as the shape of the red blood cells directly impacts the patient's health and treatment needs.

5. What is the term for a low platelet count?

- A. Leukemia
- B. Thrombocytopenia**
- C. Anemia
- D. Hemophilia

Thrombocytopenia refers specifically to a condition in which there is a low platelet count in the blood. Platelets, or thrombocytes, are essential for proper blood clotting and wound healing. When levels of platelets are below the normal range, it can lead to an increased risk of bleeding and bruising, as the body's ability to form clots is compromised. This condition can have various underlying causes, including bone marrow disorders, increased destruction of platelets, or low production of platelets due to other medical issues. Understanding thrombocytopenia is crucial for diagnosing and managing conditions that disrupt normal hemostasis. The other terms mentioned refer to different hematological conditions. For instance, leukemia involves a malignancy of blood cells that can affect platelet counts but is not synonymous with low platelet levels. Anemia pertains to a deficiency of red blood cells or hemoglobin, affecting oxygen transport but not directly related to platelets. Hemophilia is a genetic disorder that affects blood clotting factors and also does not specifically refer to platelet count. Thus, thrombocytopenia is the correct term for a low platelet count.

6. Which condition is characterized by a decrease in bone marrow cellularity?

- A. Anemia of chronic disease
- B. Aplastic anemia**
- C. Iron-deficiency anemia
- D. Pernicious anemia

Aplastic anemia is characterized by a decrease in bone marrow cellularity, which means there is reduced production of blood cells due to bone marrow failure. In this condition, the bone marrow is hypoplastic or even completely devoid of hematopoietic cells, leading to a significant reduction in the production of red blood cells, white blood cells, and platelets. This lack of cellularity is often due to damage or destruction of the bone marrow stem cells, which can be caused by autoimmune disorders, exposure to certain chemicals or medications, or viral infections. In contrast, conditions like anemia of chronic disease, iron-deficiency anemia, and pernicious anemia involve mechanisms that maintain or even increase cellularity in the bone marrow as the body tries to compensate for the deficiency of red blood cells. For example, in anemia of chronic disease, the body may have adequate or increased bone marrow cellularity, but the production of red blood cells is impaired due to inflammatory cytokines. In iron-deficiency anemia, the bone marrow may be actively producing red blood cells but is limited by a lack of iron. Pernicious anemia, caused by vitamin B12 deficiency, often presents with hypercellular bone marrow as there is an attempt to compensate for the ineffective erythropoiesis.

7. Which cell type is primarily responsible for the immune response in peripheral blood?

- A. Granulocytes**
- B. Monocytes**
- C. Lymphocytes**
- D. Eosinophils**

Lymphocytes are the primary cell type responsible for the immune response in peripheral blood. These cells are crucial components of the adaptive immune system, which tailors the body's immune response to specific pathogens. Lymphocytes include T cells, which are involved in cell-mediated immunity, and B cells, which are responsible for producing antibodies. The adaptive immune response is characterized by its ability to remember previous infections, enabling a more rapid and effective response upon subsequent exposures to the same pathogen. This attribute is vital for long-term immunity. Granulocytes, while important in the immune response, mainly play roles in innate immunity and are involved in the immediate defense against pathogens, particularly during acute inflammatory responses. Monocytes also contribute to immune responses but primarily transition into macrophages and dendritic cells that provide a bridge between the innate and adaptive immune response. Eosinophils are specialized types of granulocytes that typically respond to parasitic infections and allergies but are not the primary drivers of the overall immune response in peripheral blood. Hence, the central role of lymphocytes makes them the key players in orchestrating the immune response.

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. What morphological appearance do leptocytes exhibit?

- A. Irregular and convoluted**
- B. Cup-shaped with hemoglobin dispersed**
- C. Large and eccentric**
- D. Filled with Russell bodies**

Leptocytes, also known as target cells, exhibit a distinctive morphological appearance characterized by a cup-shaped form with hemoglobin dispersed around the periphery. This shape arises due to an increased surface area-to-volume ratio, typically resulting from conditions that affect red blood cell membrane composition or density, such as liver disease or certain hemoglobinopathies. The cup shape is crucial in identifying leptocytes, as it provides insight into underlying pathophysiological processes affecting red blood cells. The central area appears pale, giving the target-like appearance that defines these cells. This morphology not only aids in the identification of leptocytes in microscopic examinations but also helps in diagnosing associated disorders.

10. What happens if a sodium citrate sample is filled an inch below the fill line?

- A. Unacceptable for coagulation studies**
- B. Acceptable for coagulation studies**
- C. Acceptable if additional blood can fill the tube**
- D. Acceptable if only the PT test is performed**

When a sodium citrate sample is not filled to the appropriate fill line, it can lead to an unacceptable blood to anticoagulant ratio. Sodium citrate acts as an anticoagulant, and the correct volume of blood is crucial for accurate coagulation results. An inch below the fill line significantly reduces the volume of blood relative to the amount of anticoagulant in the tube, which can artificially prolong coagulation times and lead to misleading test results. In coagulation studies, maintaining the correct blood to citrate ratio is essential to ensure that the clotting factors are adequately preserved for accurate testing. If the volume is insufficient, the anticoagulant will not function as intended, thus rendering the sample unsuitable for reliable testing. Consequently, the sample is deemed unacceptable for coagulation studies when it is not filled to the specified line.

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!