

ASCP SPECIALIST IN HEMATOLOGY (SH) 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 of the following can cause an increased white blood cell count?**
 - A. Dehydration
 - B. Hypotension
 - C. Infection, inflammation, stress, or leukemias
 - D. Platelet aggregation

- 2. What happens to the MCV and RDW as the severity of alpha thalassemia increases?**
 - A. Both increase
 - B. MCV increases, RDW decreases
 - C. MCV decreases, RDW increases
 - D. Both remain normal

- 3. Which vitamin deficiency is associated with macrocytic anemia?**
 - A. Vitamin C
 - B. Vitamin B12
 - C. Folic Acid
 - D. Both B12 and Folic Acid

- 4. Which condition is characterized by a hypercellular bone marrow with increased numbers of myeloid and erythroid lineage?**
 - A. Leukemia
 - B. Myelodysplastic syndromes
 - C. Myeloproliferative neoplasms
 - D. Aplastic anemia

- 5. What is the most common inherited bleeding disorder?**
 - A. Von Willebrand disease
 - B. Hemophilia A
 - C. Factor V Leiden
 - D. Hemophilia B

- 6. What is the first step in the hemostatic process following vascular injury?**
- A. Coagulation cascade activation
 - B. Vasodilation of blood vessels
 - C. Vasoconstriction of the blood vessel
 - D. Formation of a platelet plug
- 7. What inherited condition is characterized by excessive clot formation?**
- A. Factor V Leiden mutation
 - B. Hemophilia A
 - C. von Willebrand disease
 - D. Protein C deficiency
- 8. Which anticoagulant is most commonly used for rapid blood collection and tests?**
- A. Sodium citrate
 - B. Heparin
 - C. EDTA (Ethylenediaminetetraacetic acid)
 - D. Warfarin
- 9. What is the term for a low platelet count?**
- A. Leukemia
 - B. Thrombocytopenia
 - C. Anemia
 - D. Hemophilia
- 10. Increased levels of which cell type are commonly associated with chronic myelogenous leukemia?**
- A. Thrombocytes
 - B. Basophils
 - C. Eosinophils
 - D. Neutrophils

Answers

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

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Explanations

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1. Which of the following can cause an increased white blood cell count?

- A. Dehydration
- B. Hypotension
- C. Infection, inflammation, stress, or leukemias**
- D. Platelet aggregation

An increased white blood cell count, known as leukocytosis, can be attributed to several physiological and pathological conditions. The correct answer highlights common scenarios where the body responds with an elevated leukocyte level. Infections and inflammation trigger the immune system to produce more white blood cells to fight off pathogens or respond to injury, thus resulting in an increased WBC count. Stress, whether physical or emotional, can also elevate white blood cells as part of the body's fight-or-flight response, leading to an increase in circulating leukocytes. Additionally, hematological malignancies such as leukemias are characterized by uncontrolled proliferation of white blood cells, which creates significantly elevated counts. Overall, these factors indicate that the body is reacting to a challenge, and the increase in white blood cells is a direct response to enhance the immune response and manage injury or disease effectively. This direct correlation between the physiological state and white cell proliferation in cases of infection, inflammation, and leukemias makes this answer appropriate for the question regarding increased white blood cell counts.

2. What happens to the MCV and RDW as the severity of alpha thalassemia increases?

- A. Both increase
- B. MCV increases, RDW decreases
- C. MCV decreases, RDW increases**
- D. Both remain normal

In the context of alpha thalassemia, as the severity of the condition increases, there is a characteristic change in the mean corpuscular volume (MCV) and the red cell distribution width (RDW). As alpha thalassemia progresses, particularly in its more severe forms, the bodies of affected individuals produce fewer alpha globin chains which leads to the formation of smaller erythrocytes or microcytic anemia. This reduction in the size of the red blood cells results in a decrease in the MCV, which is a measurement of the average volume of a red blood cell. Additionally, the RDW tends to increase in alpha thalassemia due to the presence of a more heterogeneous population of red blood cell sizes. In early stages or with mild forms, the RDW may not vary significantly; however, as the disease severity increases and the body's compensation mechanisms come into play, the variability in cell size increases, leading to an elevated RDW. Therefore, the increase in RDW reflects the body's attempt to respond to the anemia by producing more red blood cells of varying sizes. Thus, the combination of a decreasing MCV and an increasing RDW with the severity of alpha thalassemia is a key diagnostic feature

3. Which vitamin deficiency is associated with macrocytic anemia?

- A. Vitamin C
- B. Vitamin B12
- C. Folic Acid
- D. Both B12 and Folic Acid**

Macrocytic anemia is primarily characterized by the presence of larger than normal red blood cells and can be associated with deficiencies in certain vitamins that are crucial for DNA synthesis, particularly vitamin B12 and folic acid. Both of these vitamins are involved in the synthesis of nucleic acids and are essential for the proper formation and division of red blood cells. Vitamin B12, also known as cobalamin, is necessary for the conversion of homocysteine to methionine, as well as aiding in the conversion of methylmalonyl-CoA to succinyl-CoA. A deficiency in vitamin B12 leads to impaired DNA synthesis, which results in the production of larger, immature red blood cells, characteristic of macrocytic anemia. Folic acid, or folate, is also critical in DNA synthesis, particularly in the formation of thymidine, which is essential for DNA replication and cell division. A deficiency in folic acid similarly leads to the same macrocytic changes in red blood cells. Since both vitamin B12 and folic acid deficiencies can lead to macrocytic anemia, it is accurate to state that the correct answer encompasses both vitamins, thus identifying option D as the best choice. This reflects the understanding that macrocytic anemia

4. Which condition is characterized by a hypercellular bone marrow with increased numbers of myeloid and erythroid lineage?

- A. Leukemia
- B. Myelodysplastic syndromes
- C. Myeloproliferative neoplasms**
- D. Aplastic anemia

The condition characterized by a hypercellular bone marrow with increased numbers of both myeloid and erythroid lineages is indeed myeloproliferative neoplasms. These disorders involve the overproduction of blood cells due to mutations in hematopoietic stem cells, leading to increased cellularity in the bone marrow. In myeloproliferative neoplasms, there is typically an increase in various lineages of blood cells, including red blood cells, white blood cells, and platelets. The hypercellularity is evident when examining bone marrow aspirates or biopsy samples, where the increased proliferation of myeloid (granulocytes and monocytes) and erythroid (red blood cell precursors) components can be observed. Understanding the nature of this condition is essential, as it can present clinically with symptoms related to excessive blood cell production, including symptoms of hyperviscosity and increased risk of thromboembolic events. Establishing a diagnosis during evaluations often requires both clinical correlation and analysis of peripheral blood and bone marrow findings. In contrast, conditions such as leukemia involve uncontrolled proliferation of immature cells and may not necessarily show a balanced increase in both myeloid and erythroid lineages. Myelodysplastic syndromes are associated

5. What is the most common inherited bleeding disorder?

A. Von Willebrand disease

B. Hemophilia A

C. Factor V Leiden

D. Hemophilia B

The most common inherited bleeding disorder is von Willebrand disease, which is characterized by a deficiency or dysfunction of von Willebrand factor, crucial for platelet adhesion. This condition affects both males and females equally and can vary in severity, making it the most prevalent bleeding disorder. Hemophilia A, while a well-known inherited bleeding disorder, primarily affects males due to its X-linked recessive inheritance pattern and is specifically a deficiency of factor VIII. Hemophilia B, on the other hand, is a deficiency of factor IX and is also X-linked. While both hemophilia types are significant bleeding disorders, their prevalence is lower compared to von Willebrand disease. Factor V Leiden is a genetic mutation that increases the risk of thrombosis rather than causing bleeding disorders, pinpointing its distinction from other options. Thus, the prominence of von Willebrand disease as the most common inherited bleeding disorder is supported by its broad occurrence and its genetic basis affecting both sexes.

6. What is the first step in the hemostatic process following vascular injury?

A. Coagulation cascade activation

B. Vasodilation of blood vessels

C. Vasoconstriction of the blood vessel

D. Formation of a platelet plug

The first step in the hemostatic process following vascular injury is vasoconstriction of the blood vessel. This response occurs almost immediately after an injury to a blood vessel to minimize blood loss. When a vessel is damaged, the smooth muscle layer in the vessel wall contracts, which leads to narrowing of the blood vessel (vasoconstriction). This reaction helps to reduce blood flow to the area, thereby limiting the volume of blood that can escape from the damaged site. This process is crucial as it sets the stage for subsequent hemostatic events, including the formation of a platelet plug and the activation of the coagulation cascade. In the context of hemostasis, vasoconstriction serves as a critical initial response to quickly mitigate bleeding before more complex mechanisms, such as coagulation and platelet aggregation, can take place.

7. What inherited condition is characterized by excessive clot formation?

A. Factor V Leiden mutation

B. Hemophilia A

C. von Willebrand disease

D. Protein C deficiency

The condition characterized by excessive clot formation is indeed the Factor V Leiden mutation. This mutation involves a single nucleotide change in the Factor V gene, leading to a version of the protein that is resistant to inactivation by activated Protein C. As a result, there is an increased tendency for thrombosis, meaning that individuals with this mutation are at higher risk for developing abnormal blood clots in veins. This condition is a significant genetic risk factor for venous thromboembolism and can lead to serious complications if not managed appropriately. In contrast, conditions like Hemophilia A and von Willebrand disease are associated with problems in clot formation, leading to excessive bleeding rather than clotting. Hemophilia A is due to a deficiency of factor VIII, which is vital for proper blood coagulation. Von Willebrand disease involves a defect in the von Willebrand factor, which plays a key role in platelet adhesion and stabilization of factor VIII. Protein C deficiency, while it does lead to an increased risk of thrombosis, is not specifically classified as a mutation but rather as a deficiency in a protein that normally helps to regulate clotting by promoting the breakdown of clotting factors. Hence, the Factor V Leiden mutation distinctly stands out as the inherited condition linked to excessive clot

8. Which anticoagulant is most commonly used for rapid blood collection and tests?

A. Sodium citrate

B. Heparin

C. EDTA (Ethylenediaminetetraacetic acid)

D. Warfarin

The most commonly used anticoagulant for rapid blood collection and tests is EDTA (Ethylenediaminetetraacetic acid). EDTA is favored in laboratory settings, especially for hematology assays, because it effectively binds calcium ions, which are essential for the coagulation process. By chelating calcium, EDTA stops the clotting cascade, allowing for the preservation of cellular components in the sample for accurate analysis. EDTA is particularly well-suited for complete blood counts (CBC) and other hematological studies because it preserves the morphology of blood cells, making it ideal for microscopic evaluation. Additionally, samples collected with EDTA can be processed relatively quickly, facilitating the rapid turnaround needed for many laboratory tests. Other anticoagulants like sodium citrate and heparin have specific uses but may not be as versatile for routine blood sampling in hematology. Sodium citrate is often used for coagulation tests and requires a specific ratio to blood volume, which can complicate rapid testing. Heparin is typically used for tests that might require plasma samples, such as certain biochemical assays. Warfarin, on the other hand, is an oral anticoagulant used primarily for long-term anticoagulation in patients and is not suitable for laboratory testing due

9. 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.

10. Increased levels of which cell type are commonly associated with chronic myelogenous leukemia?

- A. Thrombocytes
- B. Basophils**
- C. Eosinophils
- D. Neutrophils

Chronic myelogenous leukemia (CML) is characterized by the overproduction of myeloid cells, particularly granulocytes, which includes neutrophils, basophils, and eosinophils. In the context of this question, basophils are particularly notable because their elevated levels are a distinctive feature of CML. Basophils are a type of white blood cell that plays a role in allergic reactions and fighting parasitic infections. In CML, the percentage of basophils can rise significantly. This increase is a hallmark of the disease and can aid in its diagnosis. In the chronic phase of CML, basophilia is often one of the laboratory findings used to differentiate it from other myeloproliferative neoplasms. While neutrophils are generally increased in CML, they are not as specific as basophils for this condition when it comes to identifying the disease process. Eosinophils may also be increased in certain circumstances but are not as closely associated with CML as basophils. Thrombocytes (platelets) can be high in CML but are not the primary cell type used to signify the disease in the context of the answer choices. In summary, elevated bas

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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