Harr Hematology Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

Sample study guide. For the full version with hundreds of questions, visit: https://harrhematology.examzify.com

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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 term describes the change in the shape of erythrocytes on a Wright's-stained peripheral blood smear?

A. Poikilocytosis

B. Anisocytosis

C. Hypochromia

D. Polychromasia

2. In acute megakaryoblastic leukemia, what percentage of the blasts are of megakaryocytic lineage?

A. Greater than or equal to 20%

B. Greater than or equal to 30%

C. Greater than or equal to 50%

D. Greater than or equal to 70%

3. What is a major criterion for the 2008 WHO diagnostic criteria for essential thrombocythemia?

A. Platelet count >450 × 10^9/L

B. Megakaryocyte proliferation with large and mature morphology

C. Demonstration of JAK2(V617F) or another clonal marker

D. Sustained platelet count >600 × 10^9/L

4. When thrombin time is prolonged, which condition may be suspected?

A. Factor VII deficiency

B. Factor VIII deficiency

C. Factor X deficiency

D. Hypofibrinogenemia

5. What is indicated by an elevated LAP score in a patient?

A. Chronic myelogenous leukemia

B. Leukemoid reaction

C. Polycythemia vera

D. Acute leukemia

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6. What effect does refrigeration have on PT samples longer than 24 hours?

A. It enhances the PT results

B. It has no effect on the results

C. It shortens the PT results

D. It prolongs the PT results

7. What is the primary test used to monitor low molecular weight heparin (LMWH) therapy?

A. Platelet count

B. Atypical APTT

C. Anti-Xa heparin assay

D. Thrombin time

8. Which disorder is consistent with normal platelet count, normal PT, and prolonged APTT?

A. Hemophilia A

B. Bernard-Soulier syndrome

C. von Willebrand's disease

D. Glanzmann's thrombasthenia

9. What is the nature of paroxysmal nocturnal hemoglobinuria (PNH)?

A. It is a rare acquired stem cell disorder

B. It is inherited as a sex-linked trait

C. It is inherited as an autosomal dominant trait

D. It is inherited as an autosomal recessive trait

10. Which reactions are characteristically positive in ALL but negative in AML?

A. Terminal deoxynucleotidyl transferase and PAS

B. Chloroacetate esterase and nonspecific esterase

C. Sudan Black B and peroxidase

D. New methylene blue and acid phosphatase

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Answers

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

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Explanations

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1. What term describes the change in the shape of erythrocytes on a Wright's-stained peripheral blood smear?

A. Poikilocytosis

B. Anisocytosis

C. Hypochromia

D. Polychromasia

The term that refers to the variability in the shape of erythrocytes, as observed on a Wright's-stained peripheral blood smear, is poikilocytosis. This phenomenon indicates that the erythrocytes are not uniform in form, which can be indicative of various underlying health conditions or abnormalities affecting red blood cell morphology. Recognizing poikilocytosis is important in hematology because it can provide insights into diseases such as anemia, thalassemia, or other hematologic disorders where the shape of red blood cells may be altered due to different etiologies. In contrast, anisocytosis describes a variation in the size of red blood cells, hypochromia pertains to a decreased hemoglobin content which results in paler cells, and polychromasia refers to the presence of red blood cells that exhibit varying colors due to different developmental stages. Each of these terms pertains to distinct features of erythrocytes, making it essential to use the correct terminology to accurately describe the findings in a blood smear.

2. In acute megakaryoblastic leukemia, what percentage of the blasts are of megakaryocytic lineage?

A. Greater than or equal to 20%

B. Greater than or equal to 30%

C. Greater than or equal to 50%

D. Greater than or equal to 70%

In acute megakaryoblastic leukemia (AMKL), the defining characteristic is the presence of a significant proportion of hematopoietic blasts that exhibit megakaryocytic lineage. When diagnosing this particular type of leukemia, it is essential to understand that the disease is characterized by a specific threshold of megakaryoblastic blasts in the bone marrow. For AMKL, the threshold is set at greater than or equal to 50% of the blasts being megakaryocytic. This high percentage indicates that the leukemic process is predominantly composed of cells that are committed to the megakaryocytic lineage, which is critical for confirming the diagnosis. Recognizing this percentage is vital for hematologists, as it distinguishes AMKL from other forms of acute leukemia that may have different lineages and cellular characteristics. Thus, a diagnosis of acute megakaryoblastic leukemia not only hinges on the clinical presentation and laboratory findings but also significantly relies on the identification and quantification of these megakaryoblastic blasts within the total blast population in the bone marrow.

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3. What is a major criterion for the 2008 WHO diagnostic criteria for essential thrombocythemia?

A. Platelet count >450 × 10^9/L

B. Megakaryocyte proliferation with large and mature morphology

C. Demonstration of JAK2(V617F) or another clonal marker

D. Sustained platelet count >600 × 10^9/L

The major criterion for the 2008 WHO diagnostic criteria for essential thrombocythemia is that the platelet count must be greater than 450 × 10^9/L. This threshold is established to define the condition, as essential thrombocythemia is characterized by an overproduction of platelets due to the abnormal proliferation of megakaryocytes in the bone marrow. A platelet count exceeding this value acts as a significant indicator of the disease, highlighting its role in diagnostic assessment. In the context of essential thrombocythemia, the elevated platelet count can lead to various complications, including thrombosis and hemorrhage, thereby justifying its inclusion as a critical diagnostic measure. While other criteria, such as megakaryocyte morphology and the presence of specific genetic mutations (like JAK2(V617F)), contribute to the diagnosis and classification of the disease, the platelet count remains a fundamental component that is essential for establishing the presence of essential thrombocythemia according to the WHO criteria.

4. When thrombin time is prolonged, which condition may be suspected?

A. Factor VII deficiency

B. Factor VIII deficiency

C. Factor X deficiency

D. Hypofibrinogenemia

Thrombin time measures the time it takes for a fibrin clot to form in a plasma sample after the addition of thrombin, which catalyzes the conversion of fibrinogen to fibrin. When thrombin time is prolonged, this indicates a problem with fibrinogen levels or function, as thrombin relies on adequate fibrinogen to produce a clot. In the case of hypofibrinogenemia, there is a deficiency of fibrinogen in the blood. This directly impacts the thrombin time because if there is insufficient fibrinogen, even with normal thrombin levels, the formation of the fibrin clot will be delayed, resulting in a prolonged thrombin time. This condition can occur due to various reasons, such as liver disease, disseminated intravascular coagulation (DIC), or congenital deficiencies. The other conditions mentioned do not primarily affect thrombin time. For example, deficiencies in Factors VII, VIII, or X typically result in prolonged prothrombin time (PT) or activated partial thromboplastin time (aPTT), but not specifically thrombin time, as they do not directly influence fibrinogen levels or function. Therefore, the prolonged thrombin time pointing towards hypofibrinogen

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5. What is indicated by an elevated LAP score in a patient?

A. Chronic myelogenous leukemia

B. Leukemoid reaction

C. Polycythemia vera

D. Acute leukemia

An elevated leukocyte alkaline phosphatase (LAP) score is indicative of a reactive process, particularly in cases of a leukemoid reaction. This reaction is characterized by a significant increase in white blood cell count, typically in response to an infection, inflammation, or other stressors in the body. In this context, the LAP score rises because alkaline phosphatase is an enzyme associated with mature neutrophils, which are elevated during such reactions. Leukemoid reactions can present similarly to leukemias but generally reflect a physiological response rather than a malignancy. Patients commonly have a high count of mature neutrophils, and the elevated LAP score serves as a marker of the functional activity of these neutrophils, confirming that the increase is a response to stress rather than a neoplastic process. In contrast, conditions such as chronic myelogenous leukemia typically lead to a low LAP score due to the presence of immature cells like myeloblasts that lack high alkaline phosphatase activity. Other conditions, like polycythemia vera and acute leukemia, also do not correlate with an elevated LAP score. Hence, the elevated LAP score specifically aligns with leukemoid reactions, distinguishing it from other hematological disorders.

6. What effect does refrigeration have on PT samples longer than 24 hours?

A. It enhances the PT results

B. It has no effect on the results

C. It shortens the PT results

D. It prolongs the PT results

Refrigeration of prothrombin time (PT) samples for longer than 24 hours can lead to alterations in the coagulation factors, specifically factor VII, which is sensitive to storage conditions. When PT samples are refrigerated for an extended period, these factors can become partially degraded or change in their activity, often resulting in a prolongation of the PT results. This effect occurs because cold temperatures can affect the stability and activity of certain proteins involved in the coagulation cascade. Since factor VII has a relatively short half-life (approximately 6 hours), its degradation in refrigerated samples is particularly impactful. This leads to a less effective pathway for thrombin formation and, as a result, a prolonged PT. In summary, refrigeration of PT samples for longer than 24 hours is known to prolong the PT results due to the impact on the stability and activity of key coagulation factors.

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7. What is the primary test used to monitor low molecular weight heparin (LMWH) therapy?

A. Platelet count

B. Atypical APTT

C. Anti-Xa heparin assay

D. Thrombin time

The primary test used to monitor low molecular weight heparin (LMWH) therapy is the anti-Xa heparin assay. This test specifically measures the activity of LMWH by evaluating its inhibition of factor Xa, a key component of the coagulation cascade. Monitoring LMWH therapy is essential for ensuring therapeutic efficacy and minimizing the risk of bleeding or thrombosis, especially in patients with renal impairment or when adjusting dosages. The anti-Xa assay is particularly relevant because unlike unfractionated heparin, LMWH has a more predictable pharmacokinetic profile, and routine monitoring is not typically required in most situations. However, in certain clinical settings, the anti-Xa level can help guide dosing adjustments. Other types of tests, such as aPTT (activated Partial Thromboplastin Time), platelet count, and thrombin time, are not specifically suited for monitoring LMWH therapy. They are more often used for monitoring unfractionated heparin or assessing other coagulation disorders, making them less useful in the context of LMWH. Thus, the anti-Xa heparin assay is the most appropriate choice for effectively monitoring LMWH therapy.

8. Which disorder is consistent with normal platelet count, normal PT, and prolonged APTT?

A. Hemophilia A

B. Bernard-Soulier syndrome

C. von Willebrand's disease

D. Glanzmann's thrombasthenia

Hemophilia A is consistent with a normal platelet count, normal PT (Prothrombin Time), and prolonged APTT (Activated Partial Thromboplastin Time). This is due to the specific deficiency of factor VIII in Hemophilia A, which affects the intrinsic pathway of the coagulation cascade. Since the platelet count remains normal, it's clear that the disorder is related to a clotting factor deficiency rather than a problem with platelet production or functionality. In this condition, although the APTT is prolonged indicating an issue with intrinsic pathway factors, the PT remains normal because the extrinsic pathway, which is assessed by PT, is functioning adequately. This lack of impact on platelet count reinforces that the primary issue is the defective coagulation factor rather than a qualitative or quantitative platelet problem.

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9. What is the nature of paroxysmal nocturnal hemoglobinuria (PNH)?

A. It is a rare acquired stem cell disorder

B. It is inherited as a sex-linked trait

C. It is inherited as an autosomal dominant trait

D. It is inherited as an autosomal recessive trait

Paroxysmal nocturnal hemoglobinuria (PNH) is characterized as a rare acquired stem cell disorder. This condition arises due to a mutation in the PIGA gene within hematopoietic stem cells, which leads to the inability of blood cells to express certain proteins that protect them from being destroyed by the immune system. Because it is an acquired disorder, it is not passed from parent to offspring through genetic inheritance like some other hematological conditions. The fact that PNH occurs due to a mutation acquired later in life, instead of being inherited through genetic lines, underscores its classification as an acquired disorder. This mutation causes a unique set of symptoms, including intermittent hemolysis (destruction of red blood cells), and can lead to complications such as thrombosis and bone marrow failure. The nuances seen in patients with PNH, such as the episodic nature of hemolysis often emphasized during the night, are further indicative of its acquired status rather than an inherited one. The other classifications involving sex-linked, autosomal dominant, or autosomal recessive inheritance patterns imply a genetic transmission from parents to offspring, which does not apply to PNH. Instead, its development is linked to somatic mutations that occur during an individual's lifetime.

10. Which reactions are characteristically positive in ALL but negative in AML?

A. Terminal deoxynucleotidyl transferase and PAS

B. Chloroacetate esterase and nonspecific esterase

C. Sudan Black B and peroxidase

D. New methylene blue and acid phosphatase

The correct reaction that is characteristically positive in all but negative in acute myeloid leukemia (AML) is the presence of terminal deoxynucleotidyl transferase (TdT) and PAS (Periodic Acid-Schiff) staining. In hematological contexts, TdT is an enzyme that is typically associated with lymphoid progenitor cells; it is a marker used to identify acute lymphoblastic leukemia (ALL). Consequently, TdT positivity is omnipresent in cases of ALL due to the nature of such lymphoblasts, while in AML, TdT is generally absent, making it an important distinguishing feature. Additionally, PAS staining plays a role in identifying certain leukemias as well. It is characteristically positive in ALL because the leukemic cells often display a high activity of PAS due to their metabolic processes, whereas in AML, the staining tends to be negative or much less pronounced. Thus, the combination of both TdT and PAS positivity serves as a critical marker for differentiating between ALL and AML, reinforcing the diagnosis of ALL when observed together. The other options are associated with different types of myeloid and lymphoid leukemias and their respective staining characteristics. For instance, some myeloid leukemias may show

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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://harrhematology.examzify.com

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

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