

RODAK'S HEMATOLOGY PRACTICE EXAM (SAMPLE)

STUDY GUIDE



**SAMPLE STUDY GUIDE
WITH LIMITED QUESTIONS**

**VISIT US ONLINE FOR
THE FULL VERSION STUDY GUIDE**

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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. What does platelet adhesion refer to?**
 - A. Sticking to other platelets
 - B. Releasing platelet granule constituents
 - C. Providing the surface for assembly of coagulation factors
 - D. Sticking to surfaces such as subendothelial collagen
- 2. Which condition is indicated by increased soluble transferrin receptor and decreased ferritin with normal hemoglobin content of reticulocytes?**
 - A. Normal iron status
 - B. Latent iron deficiency
 - C. Functional iron deficiency
 - D. Iron deficiency
- 3. What should be done when a blood sample is hemolyzed?**
 - A. Continue with the testing
 - B. Reject the specimen
 - C. Store it for further testing
 - D. Recollect the specimen without a tourniquet
- 4. Regular review of blood specimen collection quality is an example of:**
 - A. Postanalytical quality assurance
 - B. Preanalytical quality assurance
 - C. Analytical quality control
 - D. External quality assurance
- 5. Which molecule binds to iron for cellular uptake once it is released from the enterocyte?**
 - A. Hemosiderin
 - B. Transferrin
 - C. Ferritin
 - D. Heme

6. If undiluted spinal fluid shows a total of 105 RBCs counted, what is the concentration of RBCs per mL in a total volume counted?
- A. 131
 - B. 263
 - C. 1050
 - D. 5830
7. What mechanism primarily protects RBCs from oxidative damage?
- A. Cellular respiration
 - B. Hexose monophosphate shunt
 - C. Fatty acid metabolism
 - D. Serum proteins
8. What is the likely reason for variation in platelet counting among different instruments?
- A. Different instruments have different levels of sensitivity.
 - B. All instruments use the same principle for counting platelets.
 - C. Some instruments are susceptible to false-positive platelet flagging under certain conditions.
 - D. Different instruments use different thresholds to capture and count platelets.
9. Which cytokine is required very early in the differentiation of a hematopoietic stem cell?
- A. IL-2
 - B. IL-8
 - C. EPO
 - D. FLT3 ligand
10. Which megakaryocyte progenitor undergoes endomitosis?
- A. MK-I
 - B. BFU-Meg
 - C. CFU-Meg
 - D. LD-CFU-Meg

Answers

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

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Explanations

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1. What does platelet adhesion refer to?

- A. Sticking to other platelets
- B. Releasing platelet granule constituents
- C. Providing the surface for assembly of coagulation factors
- D. Sticking to surfaces such as subendothelial collagen**

Platelet adhesion is a critical process in hemostasis, wherein platelets attach themselves to the endothelial surface of blood vessels, particularly to subendothelial structures like collagen. When there is damage to the vascular endothelium, collagen fibers become exposed, which serve as a site for platelets to bind. This adhesion is facilitated by specific receptors on the platelet surface, notably glycoprotein Ib (GPIb), which interacts with von Willebrand factor that bridges the platelets to the collagen. This initial attachment is essential for the subsequent steps of hemostasis, including platelet activation and aggregation, which ultimately lead to the formation of a platelet plug that helps prevent excessive bleeding. Understanding platelet adhesion is fundamental in the context of coagulation and vascular injury response, as it highlights the importance of the interaction between platelets and the extracellular matrix in maintaining hemostatic balance.

2. Which condition is indicated by increased soluble transferrin receptor and decreased ferritin with normal hemoglobin content of reticulocytes?

- A. Normal iron status**
- B. Latent iron deficiency
- C. Functional iron deficiency
- D. Iron deficiency

The situation described—characterized by increased soluble transferrin receptor levels and decreased ferritin levels, while maintaining normal hemoglobin content of reticulocytes—suggests a specific underlying iron-related condition. Increased soluble transferrin receptors are indicative of iron deficiency at the cellular level, as they reflect the body's attempt to mobilize iron to support erythropoiesis (the production of red blood cells). On the other hand, decreased ferritin levels indicate that the body's iron stores are depleted. Normal hemoglobin content in reticulocytes suggests that the recent production of red blood cells is adequate, meaning that despite the iron deficiency, the bone marrow is still functioning well. This combination of lab findings points towards iron deficiency rather than normal iron status, as normal iron status would show appropriate levels of ferritin and transferrin receptor. Latent iron deficiency is also ruled out here due to the low ferritin levels indicating depletion of iron stores, and functional iron deficiency typically presents with more severe reticulocyte responses or other abnormalities. Ultimately, the correct conclusion is that these findings are relevant to diagnosing iron deficiency, without the presence of full anemia or significant disturbances in reticulocyte function.

3. What should be done when a blood sample is hemolyzed?

- A. Continue with the testing
- B. Reject the specimen**
- C. Store it for further testing
- D. Recollect the specimen without a tourniquet

When a blood sample is hemolyzed, it indicates that the red blood cells have ruptured, releasing their contents into the plasma. This can significantly affect the accuracy of various laboratory tests, particularly those measuring analytes like potassium, which can be falsely elevated due to the leakage of intracellular components into the serum. Because hemolysis can compromise the integrity of the sample and lead to misleading results, it is appropriate to reject the specimen. This ensures that only reliable and accurate samples are tested, which is crucial for proper diagnosis and treatment. Recollecting the specimen using proper techniques, such as avoiding excessive tourniquet time or using appropriate venipuncture techniques, helps prevent hemolysis in the future.

4. Regular review of blood specimen collection quality is an example of:

- A. Postanalytical quality assurance
- B. Preanalytical quality assurance**
- C. Analytical quality control
- D. External quality assurance

The correct answer, preanalytical quality assurance, refers to the processes and considerations that take place before the analysis of blood specimens. This includes the proper collection techniques, handling, and preparation of samples. Regularly reviewing blood specimen collection quality ensures that the samples are not compromised due to issues such as improper collection, transport, or storage, which can lead to inaccurate test results. Preanalytical quality assurance encompasses various factors, including the training of personnel in specimen collection, appropriate use of collection tubes, and adherence to protocols that minimize the risk of contamination or degradation of the samples. By maintaining high standards in this phase, laboratories can ensure that the samples sent for analysis yield reliable and accurate results. This contrasts with the other concepts listed. Postanalytical quality assurance focuses on processes that take place after the analysis has been completed, such as result reporting. Analytical quality control involves the procedures and controls that are performed during the testing of the specimen itself to ensure accuracy and consistency in results. External quality assurance typically refers to outside assessments or proficiency testing that evaluate the overall quality and reliability of a laboratory's testing processes rather than the specific processes of collection quality.

5. Which molecule binds to iron for cellular uptake once it is released from the enterocyte?

- A. Hemosiderin
- B. Transferrin**
- C. Ferritin
- D. Heme

Transferrin is a glycoprotein responsible for the transport of iron in the bloodstream. Once iron is released from enterocytes (intestinal cells that absorb nutrients), it does not circulate freely due to its potential for generating free radicals. Instead, it binds to transferrin, which has specific high-affinity binding sites for iron ions. This complex ensures safe and efficient transport of iron to various tissues and organs where it is needed, such as the liver, spleen, and bone marrow. Hemosiderin, while an iron-storage complex, is not involved in the transport of iron immediately following absorption. Ferritin serves as a storage form of iron within cells, allowing for iron to be stored in a non-toxic form; however, it does not facilitate iron transport in the bloodstream. Heme is a form of iron that is incorporated into hemoglobin but is not the molecule responsible for iron transport following absorption in the intestine. Therefore, transferrin is the correct answer as it directly handles the transport of iron once it has been absorbed into the body.

6. If undiluted spinal fluid shows a total of 105 RBCs counted, what is the concentration of RBCs per mL in a total volume counted?

A. 131

B. 263

C. 1050

D. 5830

To find the concentration of red blood cells (RBCs) per mL in the spinal fluid, it's essential to understand that the total count of RBCs, which is 105 in this instance, is based on a specific volume of fluid analyzed. When analyzing spinal fluid for the concentration of RBCs, it is common to assess a standardized volume, typically 1 mL or similar. If the total count is 105 RBCs and this count is derived from a 1 mL sample, the concentration would indeed be 105 RBCs/mL. However, if a different volume was used for counting, such as a diluted sample or a volume other than 1 mL, the calculation would change. The correct answer of 131 RBCs/mL suggests that there was likely a volumetric adjustment made or a specific dilution factor applied if the counting was based on a volume greater than 1 mL or was not perfectly measured. If the analysis indeed involved a volume where the 105 total RBCs counted correlates to a larger estimated calculation—for instance, accounting for a particular dilution or misinterpretation of measurement—it could lead to an adjustment resulting in the concentration stated. In scenarios like this, accurate volume measurement is crucial.

7. What mechanism primarily protects RBCs from oxidative damage?

A. Cellular respiration

B. Hexose monophosphate shunt

C. Fatty acid metabolism

D. Serum proteins

The hexose monophosphate shunt is crucial for protecting red blood cells (RBCs) from oxidative damage due to its role in regenerating reduced glutathione. Glutathione is a powerful antioxidant that helps neutralize reactive oxygen species (ROS) and other oxidative stressors. The hexose monophosphate pathway, also known as the pentose phosphate pathway, runs parallel to glycolysis and provides NADPH, which is essential for maintaining the reduced state of glutathione. In the case of RBCs, which are constantly exposed to oxidative stress from the oxygen they transport, maintaining an adequate supply of reduced glutathione is vital for their survival and function. This pathway allows RBCs to efficiently respond to oxidative challenges, thereby protecting them from damage that could compromise their integrity and function. On the other hand, the other options listed do not provide the same level of protection against oxidative stress. Cellular respiration primarily focuses on energy production rather than specifically addressing oxidative damage. Fatty acid metabolism is involved in energy storage and utilization and doesn't play a direct role in repairing oxidative damage to RBCs. Serum proteins, while they may have various functions, do not directly contribute to the RBCs' defense against oxidative stress in the way that the

8. What is the likely reason for variation in platelet counting among different instruments?

- A. Different instruments have different levels of sensitivity.
- B. All instruments use the same principle for counting platelets.
- C. Some instruments are susceptible to false-positive platelet flagging under certain conditions.

D. Different instruments use different thresholds to capture and count platelets.

The variation in platelet counting among different instruments can largely be attributed to the different thresholds used by these devices to capture and count platelets. Each instrument may have varying settings for what constitutes a platelet, which can inherently lead to differences in counts. These thresholds determine how small or large a particle must be to be recognized as a platelet, and since platelets vary in size and shape, this can significantly impact the final count. Additionally, instruments may employ different methodologies or technologies that affect the way they define and measure platelet counts. For example, some may prioritize capturing smaller or irregularly shaped platelets while others may focus on uniform and larger sized formations, contributing further to discrepancies in platelet count results. This understanding is crucial, especially in clinical settings where accurate platelet counts are essential for diagnosis and treatment decisions, making it vital to be aware of the specific operational characteristics of each instrument in use.

9. Which cytokine is required very early in the differentiation of a hematopoietic stem cell?

- A. IL-2
- B. IL-8
- C. EPO

D. FLT3 ligand

The correct choice is FLT3 ligand, which plays a crucial role very early in the differentiation of hematopoietic stem cells. FLT3 ligand is a cytokine that binds to the FLT3 receptor, which is expressed on hematopoietic progenitor cells. This interaction is essential for the proliferation and differentiation of these cells into various lineages of blood cells, including both myeloid and lymphoid lineages. FLT3 ligand is particularly important during the initial stages of hematopoiesis, as it stimulates the growth and differentiation of early progenitor cells, promoting stem cell expansion and the generation of committed progenitors. This is a critical step in ensuring a robust supply of blood cells to meet physiological demands. In contrast, other cytokines listed have different roles in the hematopoietic process. For instance, IL-2 is primarily involved in the proliferation and differentiation of T lymphocytes and is not essential for the very early stages of hematopoiesis. IL-8 functions mainly as a chemotactic factor, guiding the migration of neutrophils and other immune cells rather than influencing stem cell differentiation directly. Erythropoietin (EPO) specifically stimulates erythroid lineage differentiation and is essential for red

10. Which megakaryocyte progenitor undergoes endomitosis?

- A. MK-I
- B. BFU-Meg
- C. CFU-Meg
- D. LD-CFU-Meg**

Endomitosis is a process where a cell undergoes mitotic division without completing cytokinesis, resulting in an increased chromosome number and nuclear size without cell division. This is particularly important in the development of megakaryocytes, which are responsible for producing platelets in the blood. Among the progenitors listed, the LD-CFU-Meg, or Long-term Culture-Derived Colony Forming Unit-Megakaryocyte, is the progenitor that is notably characterized by its ability to undergo endomitosis. This feature enhances the size of megakaryocytes and facilitates the production of a larger number of platelets, as these cells need to accumulate a significant amount of cytoplasm and organelles to carry out their function effectively. The other progenitors mentioned, such as MK-I, BFU-Meg, and CFU-Meg, are part of the earlier stages of megakaryocyte development but do not typically display the endomitotic capability to the same extent or at the same stage in their maturation. Therefore, LD-CFU-Meg stands out as the correct answer due to its distinct role in megakaryocyte development through endomitosis, amplifying the cell's capability to produce platelets effectively.

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://rodakshematology.examzify.com>

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

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