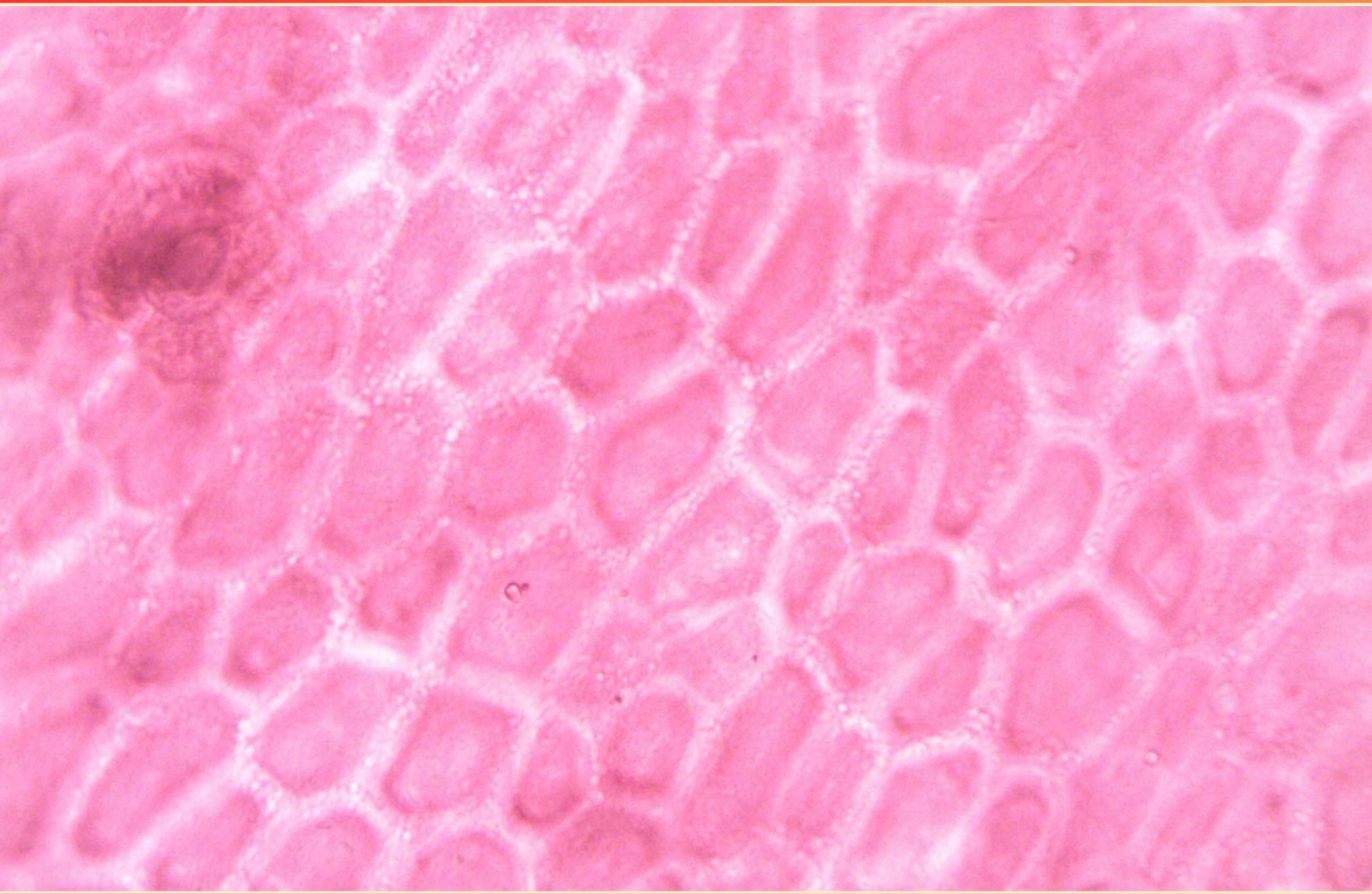


RODAK'S HEMATOLOGY PRACTICE EXAM (SAMPLE)

STUDY GUIDE



Prepare with structure. Pass with confidence



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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. Iron is released from macrophages, hepatocytes, and enterocytes into circulation by which membrane protein?**
 - A. Transferrin
 - B. Ferroportin
 - C. DMT1
 - D. Ferrochelatase
- 2. 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.
- 3. What is one body's response to severe anemia when bone marrow cannot produce enough red blood cells?**
 - A. Extramedullary hematopoiesis in the liver and spleen
 - B. Decreased production of erythropoietin by the kidney
 - C. Increased apoptosis of erythrocyte progenitor cells
 - D. Increase the proportion of yellow marrow in the long bones
- 4. Which protein primarily delivers iron throughout the bloodstream?**
 - A. Hemosiderin
 - B. Ferritin
 - C. Transferrin
 - D. Ferrous iron
- 5. In the case of an anemic adult with an MCV of 125 fL and an RDW of 20%, which of the following could be part of the differential diagnosis?**
 - A. Aplastic anemia
 - B. Sickle cell anemia
 - C. Iron deficiency
 - D. Vitamin B12 deficiency

- 6. Which of the following tubes is used for hematologic testing?**
- A. Green stopper tube
 - B. Blue stopper tube
 - C. Lavender stopper tube
 - D. Red stopper tube
- 7. What is the primary function of dendritic cells in the immune response?**
- A. Antigen presentation
 - B. Phagocytosis
 - C. Histamine release
 - D. Activation of T cells
- 8. How would you assess Mary's safety practice when she handled the EDTA tube?**
- A. Mary was careful and followed all appropriate procedures
 - B. Mary should have used a shield when opening the tube
 - C. Mary was too rushed and ignored safety protocols
 - D. Mary should have had a second person assist her
- 9. What polypeptide chains are found in normal adult hemoglobin A?**
- A. a and g
 - B. a and b
 - C. a and d
 - D. a and e
- 10. How might a stained blood film appear if it has been inadequately rinsed?**
- A. Overly pale and washed out
 - B. Bright red with visible granules
 - C. Bluer than normal with excess stain
 - D. Clear with no cellular details

Answers

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

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Explanations

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1. Iron is released from macrophages, hepatocytes, and enterocytes into circulation by which membrane protein?

- A. Transferrin
- B. Ferroportin**
- C. DMT1
- D. Ferrochelatase

The correct answer to this question is ferroportin. This protein plays a critical role in the export of iron from cells into the bloodstream. Ferroportin is found in the membranes of macrophages, hepatocytes (liver cells), and enterocytes (intestinal cells), where it facilitates the release of iron that has been stored or absorbed by these cells. Once iron is transported out of these cells through ferroportin, it can bind to transferrin in the plasma, which transports it to various tissues throughout the body. Transferrin, while important for iron transport in the circulation, does not mediate the release of iron from cells; instead, it functions after iron is already in the bloodstream. DMT1 (Divalent Metal Transporter 1) is responsible for the uptake of iron into cells rather than for its release. Ferrochelatase, on the other hand, is involved in the final step of heme synthesis, catalyzing the incorporation of iron into porphyrins, and is not related to the export of iron to circulation. Understanding the specific functions of these proteins clarifies their role in iron metabolism, supporting why ferroportin is the correct choice for the release mechanism of iron into circulation.

2. 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.

3. What is one body's response to severe anemia when bone marrow cannot produce enough red blood cells?

- A. Extramedullary hematopoiesis in the liver and spleen**
- B. Decreased production of erythropoietin by the kidney
- C. Increased apoptosis of erythrocyte progenitor cells
- D. Increase the proportion of yellow marrow in the long bones

In cases of severe anemia where the bone marrow is unable to produce a sufficient number of red blood cells, the body can initiate extramedullary hematopoiesis, primarily occurring in the liver and spleen. This process involves the generation of blood cells outside the bone marrow, allowing for an alternative site to produce red blood cells when the primary site is ineffective. Extramedullary hematopoiesis serves as a compensatory mechanism. The liver and spleen are well-suited for this function as they have both hematopoietic capabilities and a rich vasculature. This adaptation is crucial for maintaining adequate red blood cell levels in response to anemia, helping to alleviate the symptoms and effects of reduced oxygen-carrying capacity in the blood. Other responses, such as decreases in erythropoietin production or increased apoptosis of erythrocyte progenitor cells, would not support the body's efforts to counteract anemia effectively. Additionally, an increase in the proportion of yellow marrow would not address the immediate need for red blood cells, since yellow marrow primarily consists of fat cells and does not contribute to hematopoiesis. Thus, the engagement of extramedullary hematopoiesis represents the most effective response under these circumstances.

4. Which protein primarily delivers iron throughout the bloodstream?

- A. Hemosiderin
- B. Ferritin
- C. Transferrin**
- D. Ferrous iron

Transferrin is the primary protein responsible for delivering iron throughout the bloodstream. It binds to iron ions and transports them to various tissues, including the bone marrow, liver, and muscles, where iron is utilized for various physiological processes, such as hemoglobin synthesis for red blood cells. Transferrin plays a crucial role in iron homeostasis, ensuring that iron is delivered in a safe and controlled manner, thereby preventing free iron, which can catalyze harmful reactions through the Fenton reaction. Hemosiderin is an intracellular storage form of iron, primarily found in macrophages and hepatocytes, and is not involved in iron transport in the bloodstream. Ferritin is another protein that stores iron but does not transport it through the bloodstream; instead, it sequesters iron, making it available for use while preventing excess free iron accumulation. Ferrous iron refers to the reduced form of iron (Fe^{2+}) rather than a transport protein, and it does not participate directly in the transport process in the bloodstream. Hence, the accurate selection is transferrin due to its specific role in circulating and delivering iron effectively throughout the body.

5. In the case of an anemic adult with an MCV of 125 fL and an RDW of 20%, which of the following could be part of the differential diagnosis?

- A. Aplastic anemia
- B. Sick cell anemia
- C. Iron deficiency
- D. Vitamin B12 deficiency**

The scenario describes an anemic adult with a mean corpuscular volume (MCV) of 125 fL and a red cell distribution width (RDW) of 20%. An MCV of 125 fL indicates macrocytic anemia, and the elevated RDW suggests a variation in red blood cell size, which is often seen in conditions where there's a significant lack of vitamin B12 or folate. Vitamin B12 deficiency is associated with macrocytic anemia characterized by an increase in MCV, as well as a higher RDW due to the presence of both normal and large red blood cells as the bone marrow attempts to compensate for the deficiency. This makes vitamin B12 deficiency a strong candidate in the differential diagnosis given the presented MCV and RDW values. In contrast, aplastic anemia typically presents with normocytic red blood cells and does not usually show a high RDW. Sick cell anemia is primarily a normocytic anemia and is characterized by sickling of red cells rather than the macrocytic picture indicated here. Iron deficiency anemia typically presents as microcytic, with a low MCV, which does not align with the findings of increased MCV here. Therefore, among the choices provided, vitamin B12 deficiency

6. Which of the following tubes is used for hematologic testing?

- A. Green stopper tube
- B. Blue stopper tube
- C. Lavender stopper tube**
- D. Red stopper tube

The lavender stopper tube is designed specifically for hematologic testing, making it the correct choice for this question. This tube typically contains EDTA (ethylenediaminetetraacetic acid), an anticoagulant that prevents blood from clotting. By using EDTA, accurate results can be obtained for complete blood counts (CBC) and other hematological assessments, as the blood remains in a liquid state, allowing for the examination of cellular components such as red blood cells, white blood cells, and platelets. Hematologic testing requires the preservation of blood cells in their natural state, and the use of the lavender stopper tube with EDTA ensures that cell morphology can be accurately evaluated, which is essential for diagnosing various hematologic disorders.

7. What is the primary function of dendritic cells in the immune response?

A. Antigen presentation

B. Phagocytosis

C. Histamine release

D. Activation of T cells

Dendritic cells play a crucial role in the immune system primarily through their function in antigen presentation. These cells act as a bridge between the innate and adaptive immune responses. They are able to capture, process, and present antigens from pathogens to T cells, which is essential for the activation of the adaptive immune response. When dendritic cells encounter a pathogen, they ingest and process the antigens derived from that pathogen. They then migrate to the lymph nodes, where they present the processed antigens on their surface using major histocompatibility complex (MHC) molecules. This presentation is critical, as it is the primary way T cells are activated. By showing these antigens to T cells, dendritic cells facilitate the recognition of pathogens, leading to a tailored immune response involving the proliferation and differentiation of T cells. While dendritic cells can be involved in phagocytosis, their overarching and defining role is in antigen presentation, which triggers T cell activation. Histamine release is typically associated with mast cells and basophils rather than dendritic cells. Though dendritic cells do play a role in activating T cells, their primary function remains focused on presenting antigens to these immune cells. Therefore, the ability of dendritic cells to present ant

8. How would you assess Mary's safety practice when she handled the EDTA tube?

A. Mary was careful and followed all appropriate procedures

B. Mary should have used a shield when opening the tube

C. Mary was too rushed and ignored safety protocols

D. Mary should have had a second person assist her

Assessing Mary's safety practice when handling the EDTA tube involves understanding the potential hazards associated with the use of anticoagulants, particularly in a clinical or laboratory setting. Using a shield when opening the tube is an important safety procedure to minimize the risk of exposure to aerosols or spills that could occur when the tube is opened. EDTA tubes contain a substance that can potentially release small droplets when opened, especially if there is a sudden change in pressure or if the tube is not handled properly. A shield can help protect Mary from any accidental splashes or exposure to the contents, ensuring her safety while conducting necessary procedures. The other options consider different aspects of safety practice, but the emphasis on using a physical barrier like a shield focuses directly on the immediate risk associated with opening the tube, making it a crucial safety measure that should not be overlooked.

9. What polypeptide chains are found in normal adult hemoglobin A?

- A. a and g
- B. a and b**
- C. a and d
- D. a and e

Normal adult hemoglobin A (HbA) is composed of two alpha (α) and two beta (β) polypeptide chains, which are essential for its function in oxygen transport. The structure of HbA allows it to efficiently bind oxygen in the lungs and release it in the tissues. The alpha chains are produced by genes located on chromosome 16, while the beta chains are produced by genes on chromosome 11. This specific combination, with two of each chain type, is critical as it is the standard configuration for adult hemoglobin, providing the required stability and functionality. The presence of both alpha and beta chains enables hemoglobin A to maintain its quaternary structure necessary for proper oxygenation and release during the circulatory process. Other combinations that involve different chain types, such as gamma (γ) or delta (δ), are typically found in fetal hemoglobin (HbF) or in certain forms of abnormal hemoglobin rather than in normal adult hemoglobin. Therefore, the identification of appropriately composed polypeptide chains is crucial for defining the characteristics of hemoglobin in adults.

10. How might a stained blood film appear if it has been inadequately rinsed?

- A. Overly pale and washed out
- B. Bright red with visible granules
- C. Bluer than normal with excess stain**
- D. Clear with no cellular details

A stained blood film that has been inadequately rinsed is likely to exhibit a bluer than normal appearance with excess stain. This occurs because the unwashed excess dye remains on the slide, leading to an intensified or abnormal coloration of the cells. Often, the red blood cells may appear hyperchromatic, and leukocytes may show an exaggerated color due to the surplus stain, which can obscure finer details and compromise the evaluation of cellular morphology. Inadequate rinsing affects the balance of staining, which is crucial for differentiating types of cells and assessing their characteristics. Excessive stain can hinder the visibility of important cellular details, making analysis difficult, as it masks the natural hues that would otherwise help identify abnormalities in the blood film. A well-rinsed blood film allows for clearer details by removing excess dye, ensuring that the cells maintain their appropriate coloration for accurate diagnosis and evaluation.

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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