HEMATOLOGY BOC 7TH ED. PRACTICE EXAM (SAMPLE)

STUDY GUIDE

SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Table of Contents

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. **Chronic lymphocytic leukemia (CLL) is defined as the accumulation of which cells?**

   A. Thymic prolymphocytes

   B. Prolymphocytes

   C. Hairy cells in the spleen

   D. Monoclonal B cells

2. **Which statement about Heinz bodies in G6PD deficiency is true?**

   A. Visible with Wright-Giemsa stain

   B. Visible only with supravital stain

   C. Visible with Prussian blue stain

   D. Not visible on peripheral smear

3. **What is the MCHC if the Hct is 20%, the RBC is 2.4 x 10^6/µL, and the Hgb is 5 g/dL?**

   A. 25%

   B. 21%

   C. 30%

   D. 34%

4. **HbE trait electrophoresis at pH 8.6 shows mobility with which hemoglobin?**

   A. HbA

   B. HbA2

   C. HbS

   D. HbF

5. **The Prussian blue staining of peripheral blood identifies:**

   A. Retics

   B. Siderotic granules

   C. Howell-Jolly bodies

   D. Basophilic stippling

6. In a postoperative patient with wound oozing, the most likely cause of bleeding is dilutional thrombocytopenia.

A. Intravascular coagulation secondary to microaggregates

B. Dilutional thrombocytopenia

C. Hypofibrinogenemia

D. Dilution of coagulation factors due to massive transfusion

7. Abnormalities found in erythroleukemia include:

A. Rapid DNA synthesis

B. Marrow fibrosis

C. Megaloblastoid development

D. Increased erythrocyte survival

8. Which of the following is characteristic of the myelodysplastic syndromes?

A. Neutrophilia

B. Unilineage or multilineage dyspoiesis

C. Effective hematopoiesis

D. Propensity to develop lymphoma

9. Which RBC inclusion is typically seen on Wright-Giemsa stained peripheral smear in G6PD deficiency?

A. Cabot rings

B. Microcytosis

C. Bite cells

D. Heinz bodies

10. Which type of polycythemia would a severely burned patient most likely have?

A. Polycythemia vera

B. Polycythemia secondary to hypoxia

C. Relative polycythemia associated with dehydration

D. Polycythemia associated with renal disease

Answers

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

Explanations

1. Chronic lymphocytic leukemia (CLL) is defined as the accumulation of which cells?

A. Thymic prolymphocytes

B. Prolymphocytes

C. Hairy cells in the spleen

D. Monoclonal B cells

Chronic lymphocytic leukemia is characterized by a clonal expansion of mature B lymphocytes. These malignant cells are monoclonal B cells—meaning they all derive from a single B-cell clone—and they accumulate in blood, bone marrow, lymph nodes, and spleen. This B-cell–origin, clonality, and the resulting accumulation of small, mature-appearing lymphocytes define the disease. The other options point to different conditions: prolymphocytes can be involved in other leukemias and are not the defining cell type of CLL; hairy cells describe hairy cell leukemia with distinctive cytoplasmic projections and splenomegaly; thymic prolymphocytes refer to T-cell lineage in the thymus.

2. Which statement about Heinz bodies in G6PD deficiency is true?

A. Visible with Wright-Giemsa stain

B. Visible only with supravital stain

C. Visible with Prussian blue stain

D. Not visible on peripheral smear

Heinz bodies are precipitated denatured hemoglobin that forms in red cells after oxidative stress, which is especially evident in G6PD deficiency. They are not readily seen on routine Wright-Giemsa-stained smears because fixed cells don't reveal these denatured Hb inclusions well. Supravital stains, used on living cells, specifically highlight denatured hemoglobin, making Heinz bodies appear as small dark inclusions near the inner surface of the red cell membrane. Prussian blue would stain iron, not Heinz bodies, so it wouldn't reveal them. Therefore, the statement that Heinz bodies are visible only with supravital stain is correct.

3. What is the MCHC if the Hct is 20%, the RBC is 2.4 x 10^6/µL, and the Hgb is 5 g/dL?

A. 25%

B. 21%

C. 30%

D. 34%

MCHC shows how concentrated hemoglobin is inside red blood cells and is calculated from hemoglobin concentration and hematocrit. A common way to compute it is MCHC (%) = (Hgb in g/dL × 100) / Hct (%). Plugging in the values: (5 × 100) / 20 = 500 / 20 = 25%. So the MCHC is 25%, which is low and indicates hypochromia. This aligns with the very low hemoglobin and hematocrit, reflecting anemia with red cells that have less Hb concentration. The other data (RBC count or MCV) can complement the picture, but the key point is that the MCHC calculation gives 25%.

4. HbE trait electrophoresis at pH 8.6 shows mobility with which hemoglobin?

A. HbA

B. HbA2

C. HbS

D. HbF

At alkaline pH 8.6, hemoglobins separate mainly by net charge; more negative charge makes a molecule migrate faster toward the anode. HbA moves the fastest, forming the fastest band, while HbA2 runs as a distinct, slower band. HbE is a beta-chain variant with a Glu-to-Lys substitution, which reduces the overall negative charge of the molecule. Because of this charge change, HbE migrates to the same position as HbA2 on alkaline electrophoresis, so the HbE trait appears in the HbA2 region. This is how HbE heterozygotes are detected on pH 8.6 electrophoresis.

5. The Prussian blue staining of peripheral blood identifies:

A. Retics

B. Siderotic granules

C. Howell-Jolly bodies

D. Basophilic stippling

Prussian blue staining targets ferric iron (Fe3+) in cells, turning iron deposits blue. In a peripheral blood smear, this stain highlights siderotic granules—iron-containing granules within neutrophils (and sometimes other cells)—which reflect stored iron such as ferritin or hemosiderin. This is distinct from reticulocytes (which require supravital stains to reveal RNA), Howell-Jolly bodies (DNA remnants seen on Wright-Giemsa), or basophilic stippling (ribosomal RNA aggregates). Therefore, the blue-stained granules indicate siderotic granules.

6. In a postoperative patient with wound oozing, the most likely cause of bleeding is dilutional thrombocytopenia.

A. Intravascular coagulation secondary to microaggregates

B. Dilutional thrombocytopenia

C. Hypofibrinogenemia

D. Dilution of coagulation factors due to massive transfusion

Massive transfusion can dilute platelets in the circulating blood, lowering the platelet count and impairing primary hemostasis. Platelets are essential for forming the initial platelet plug that stops capillary bleeding from a wound. When their numbers are reduced—dilutional thrombocytopenia—the wound tends to ooze because the plug cannot form effectively, even if coagulation factors are still relatively normal. This scenario fits postoperative wound oozing best. Intravascular coagulation from microaggregates (DIC) would typically show both bleeding and thrombosis with abnormal coagulation tests and low fibrinogen; hypofibrinogenemia would primarily reflect low fibrinogen levels affecting fibrin formation rather than the initial platelet plug; dilution of coagulation factors from massive transfusion can cause a broader coagulopathy with prolonged PT/aPTT, but the prominent post-op wound ooze here points to a platelet-depletion mechanism.

7. Abnormalities found in erythroleukemia include:

A. Rapid DNA synthesis

B. Marrow fibrosis

C. Megaloblastoid development

D. Increased erythrocyte survival

Abnormal erythroid maturation with megaloblastoid development is characteristic of erythroleukemia. The malignant erythroid precursors show defective DNA synthesis, producing large, immature-looking erythroblasts with oversized nuclei and cytoplasmic maturation lag—a megaloblastic appearance. This megaloblastoid change reflects ineffective erythropoiesis driven by leukemic transformation rather than true nutrient-related megaloblastosis. Because of the defective DNA synthesis and ineffective erythropoiesis, erythrocyte production is impaired and anemia results, not increased erythrocyte survival. Rapid DNA synthesis is not a feature of this condition, and marrow fibrosis is not a defining hallmark of erythroleukemia.

8. Which of the following is characteristic of the myelodysplastic syndromes?

A. Neutrophilia

B. Unilineage or multilineage dyspoiesis

C. Effective hematopoiesis

D. Propensity to develop lymphoma

The key idea is that myelodysplastic syndromes are driven by dyspoiesis—abnormal maturation of blood cell precursors. In MDS, the bone marrow shows dysplastic changes in one lineage (unilineage) or in several lineages (multilineage) of myeloid cells. This faulty maturation leads to ineffective hematopoiesis, so even a cellular marrow produces insufficient, abnormal cells, resulting in peripheral cytopenias such as anemia, neutropenia, or thrombocytopenia. That unilineage or multilineage dyspoiesis with ineffective hematopoiesis is what makes this diagnosis characteristic. Neutrophilia would be unlikely because neutropenia is common; effective hematopoiesis is not the case here, since production is inefficient; and lymphoma is not a typical feature—MDS more often risks progression to acute myeloid leukemia rather than lymphoid cancers.

9. Which RBC inclusion is typically seen on Wright-Giemsa stained peripheral smear in G6PD deficiency?

A. Cabot rings

B. Microcytosis

C. Bite cells

D. Heinz bodies

In G6PD deficiency, oxidative stress damages hemoglobin and leads to the formation of Heinz bodies (denatured Hb). The spleen's macrophages remove these inclusions from the red cells, producing a "bite" where the inclusion was taken out. On a Wright-Giemsa–stained smear, this results in bite cells, which are the classic finding associated with G6PD deficiency. Heinz bodies themselves are best seen with special supravital stains, not routine Wright-Giemsa, which is why the bite cell appearance is the typical stain seen. Other options like Cabot rings and microcytosis reflect different processes, not the characteristic RBC inclusions of G6PD deficiency.

10. Which type of polycythemia would a severely burned patient most likely have?

A. Polycythemia vera

B. Polycythemia secondary to hypoxia

C. Relative polycythemia associated with dehydration

D. Polycythemia associated with renal disease

Severe burns cause substantial fluid loss and capillary leak, leading to a drop in circulating plasma volume. When plasma volume decreases, the concentration of red blood cells increases even if the total red cell mass hasn't risen, producing relative polycythemia. This is hemoconcentration rather than an actual increase in red cell production. Other forms involve true increases in red cell mass or erythropoietin-driven production: polycythemia vera is a clonal, primary rise in red cells; polycythemia secondary to hypoxia results from increased erythropoietin due to chronic low oxygen; polycythemia associated with renal disease is not the typical pattern seen with dehydration. Therefore, dehydration-related hemoconcentration best explains the finding in a severely burned patient.

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://hematologyboc7e.examzify.com

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