

AAB MEDICAL TECHNOLOGIST (MT) – 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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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. Pancytopenia is most frequently seen in which type of anemia?**
 - A. Aplastic anemia
 - B. Hemolytic anemia
 - C. Iron deficiency anemia
 - D. Vitamin B12 deficiency anemia

- 2. What is the largest leukocyte seen on a normal peripheral blood smear?**
 - A. Lymphocyte
 - B. Neutrophil
 - C. Monocyte
 - D. Basophil

- 3. What is the normal plasma concentration of fibrinogen?**
 - A. 100-200 mg/dL
 - B. 200-300 mg/dL
 - C. 300-400 mg/dL
 - D. 400-500 mg/dL

- 4. Which condition would most likely present with a prolonged bleeding time and decreased platelet aggregation?**
 - A. Aspirin ingestion
 - B. Protein C deficiency
 - C. von Willebrand's disease
 - D. Factor X deficiency

- 5. Which coagulation factors are monitored in severe liver disease?**
 - A. Factors II and VII
 - B. Factors I and V
 - C. Factors VIII and IX
 - D. Factors X and XIII

6. Scatterplots are created using scatter, volume, and which additional parameter?
- A. Gravity
 - B. Density
 - C. Conductivity
 - D. Reflectivity
7. Where should one read the percentage of packed red blood cell column from a microhematocrit reading device?
- A. At the top of the plasma
 - B. At the midpoint of the buffy coat
 - C. Below the buffy coat
 - D. At the top of the red blood cell layer
8. Which coagulation factor collaborates with thrombin in the conversion of fibrinogen?
- A. Factor V
 - B. Factor VIII
 - C. Factor XIII
 - D. Factor XI
9. Which stain is positive in acute myeloid leukemia, associated with M2 type?
- A. Myeloperoxidase
 - B. Sudan Black B
 - C. Periodic acid-Schiff
 - D. Nuclear Fast Red
10. Which FAB classification of the acute lymphocytic leukemias has prominent cytoplasmic vacuolation?
- A. L1
 - B. L2
 - C. L3
 - D. L4

Answers

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

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Explanations

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1. Pancytopenia is most frequently seen in which type of anemia?

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

Pancytopenia refers to a reduction in all three blood cell types: red blood cells, white blood cells, and platelets. Aplastic anemia is characterized by the failure of the bone marrow to produce sufficient blood cells, leading to this triad of deficiencies. The underlying mechanism involves damage to hematopoietic stem cells, which can result from autoimmune disorders, exposure to certain drugs or toxins, or viral infections. As a result, patients with aplastic anemia typically present with symptoms related to the low levels of all three types of cells, thereby clearly qualifying them for a diagnosis of pancytopenia. In contrast, other types of anemia have different pathophysiological processes that do not usually result in the concurrent reduction of all three cell lines. For example, hemolytic anemia usually leads to increased destruction of red blood cells but does not inherently cause reductions in white blood cell or platelet counts. Similarly, iron deficiency anemia primarily affects red blood cell production due to a lack of iron, and vitamin B12 deficiency anemia mainly impacts red blood cell production as well, without specifically causing associated reductions in white blood cells and platelets. Therefore, aplastic anemia stands out as the condition most frequently associated with pancytopenia.

2. What is the largest leukocyte seen on a normal peripheral blood smear?

- A. Lymphocyte
- B. Neutrophil
- C. Monocyte**
- D. Basophil

The largest leukocyte observed on a normal peripheral blood smear is the monocyte. Monocytes are characterized by their large size, often exhibiting a kidney-shaped nucleus and abundant cytoplasm. They typically range from 12 to 20 micrometers in diameter, significantly larger than other types of leukocytes such as lymphocytes, neutrophils, and basophils. Monocytes play a crucial role in the immune system, functioning as precursors to macrophages and dendritic cells. Their larger size enables them to engulf pathogens and debris more effectively, facilitating the immune response. In addition to their size, the distinct morphology of monocytes on blood smears, including a pale blue cytoplasm and a variegated nuclear appearance, further assists in their identification. Other leukocytes, like lymphocytes and neutrophils, are smaller in size and have different roles in immune function. Lymphocytes, for example, are primarily involved in adaptive immunity, while neutrophils are frontline defenders against infection. Basophils, although also present in the blood, are the least abundant and their size does not rival that of monocytes. Thus, the identification of monocytes as the largest leukocyte is consistent with their physical characteristics and biological functions.

3. What is the normal plasma concentration of fibrinogen?

- A. 100-200 mg/dL
- B. 200-300 mg/dL
- C. 300-400 mg/dL**
- D. 400-500 mg/dL

The normal plasma concentration of fibrinogen typically ranges from 200 to 400 mg/dL, with many sources indicating that the average is about 300 mg/dL. Fibrinogen is a critical protein in the blood coagulation process, as it is converted into fibrin during clot formation. This makes its concentration vital for proper clotting function and overall hemostasis. Values above or below this normal range can indicate various health conditions. For instance, low fibrinogen levels might be seen in conditions such as liver disease or disseminated intravascular coagulation, while high levels may indicate inflammation or acute phase reactions. Thus, the understanding of normal fibrinogen levels is crucial for diagnosing and managing hematological disorders.

4. Which condition would most likely present with a prolonged bleeding time and decreased platelet aggregation?

- A. Aspirin ingestion
- B. Protein C deficiency
- C. von Willebrand's disease**
- D. Factor X deficiency

Prolonged bleeding time points to a defect in primary hemostasis, where platelets fail to form a proper plug at the vessel wall. Von Willebrand disease involves a deficiency or dysfunction of von Willebrand factor, the protein that allows platelets to adhere to exposed collagen and to each other via the platelet receptor GPIb. Without sufficient functional vWF, platelets don't stick well, so bleeding lasts longer and the aggregation response—especially in tests that depend on vWF, like ristocetin-induced aggregation—is reduced. This combination of prolonged bleeding time and impaired platelet aggregation is characteristic of von Willebrand disease. The other options don't fit as well: Factor X deficiency affects the coagulation cascade and typically alters clotting times (PT/aPTT) rather than primarily prolonging bleeding time or impairing platelet aggregation. Protein C deficiency is a prothrombotic disorder rather than a bleeding one. Aspirin ingestion can prolong bleeding time by impairing platelet function, but it is an acquired condition and does not specifically reproduce the ristocetin-dependent defect seen with vWD.

5. Which coagulation factors are monitored in severe liver disease?

- A. Factors II and VII
- B. Factors I and V**
- C. Factors VIII and IX
- D. Factors X and XIII

In cases of severe liver disease, the production of coagulation factors is significantly affected because the liver is crucial for synthesizing many of these proteins. Factors I (fibrinogen) and V are particularly important as they play a central role in the coagulation cascade. Fibrinogen, or factor I, is necessary for the formation of a stable blood clot, as it converts to fibrin during the coagulation process. Factor V, on the other hand, acts as a cofactor for the activation of prothrombin to thrombin, thus facilitating clot formation. In severe liver disease, the synthetic function of the liver declines, leading to decreased levels of these coagulation factors, which can result in bleeding complications. Monitoring these factors is critical, as it provides insights into the coagulation status of the patient and guides appropriate management strategies, such as the need for transfusions or other interventions. The focus on factors I and V reflects their roles in the common pathway of coagulation, highlighting the liver's impairment in producing essential components necessary for hemostasis during severe liver conditions.

6. Scatterplots are created using scatter, volume, and which additional parameter?

- A. Gravity
- B. Density
- C. Conductivity**
- D. Reflectivity

In the context of scatterplots used in hematology, these plots are typically utilized to show the relationship between two or more variables. When considering the parameters mentioned, scatterplots are often created using scatter, volume, and conductivity. Conductivity is a vital measurement in hematology because it provides crucial information about the properties of cells in suspension. For example, in flow cytometry, conductivity is used to determine the internal complexity of cells and differentiate between various cell types based on their internal structures. This, combined with scatter and volume data, allows for a comprehensive analysis of cell populations. Understanding this relationship helps laboratory professionals in diagnostic processes, research, and various applications within hematology. Hence, conductivity is the correct additional parameter that complements scatter and volume in creating scatterplots for analyzing hematologic data.

7. Where should one read the percentage of packed red blood cell column from a microhematocrit reading device?

- A. At the top of the plasma
- B. At the midpoint of the buffy coat
- C. Below the buffy coat**
- D. At the top of the red blood cell layer

In a microhematocrit reading, the percentage of packed red blood cells (RBCs) is determined by measuring the height of the red blood cell layer in relation to the total height of the blood column after centrifugation. The correct approach is to read the percentage at the top of the red blood cell layer, as this accurately reflects the packed cell volume. When using a microhematocrit tube, after centrifugation, the components separate into three distinct layers: plasma at the top, a thin layer of white blood cells and platelets (the buffy coat) in the middle, and then the red blood cells at the bottom. The height of the packed red blood cells is crucial for determining the hematocrit value. This is typically indicated just above the boundary line where the red blood cells meet the buffy coat, providing a clear separation to ensure accurate measurement. Reading from the correct point not only yields a precise hematocrit value but also helps when comparing results across different samples or testing conditions. Thus, measuring at the top of the red blood cell layer is essential for obtaining accurate and reliable hematocrit values in clinical settings.

8. Which coagulation factor collaborates with thrombin in the conversion of fibrinogen?

- A. Factor V**
- B. Factor VIII
- C. Factor XIII
- D. Factor XI

The correct factor that collaborates with thrombin in the conversion of fibrinogen to fibrin is Factor V. Thrombin plays a crucial role in the coagulation cascade, particularly in converting fibrinogen, a soluble plasma protein, into fibrin, which forms the meshwork of a blood clot. Factor V amplifies the action of thrombin, allowing for a more efficient conversion process. In the coagulation cascade, Factor V acts as a cofactor for prothrombinase, enhancing thrombin generation. While Factors VIII, XIII, and XI are also important in the coagulation process, they serve different functions. Factor VIII acts as a cofactor for Factor IX, enhancing its ability to activate Factor X. Factor XIII is involved in cross-linking fibrin, stabilizing the clot after formation, and Factor XI activates Factors IX and X, playing an earlier role in the cascade. Therefore, Factor V's specific role in directly supporting thrombin's activity in the conversion of fibrinogen makes it the correct choice.

9. Which stain is positive in acute myeloid leukemia, associated with M2 type?

- A. Myeloperoxidase**
- B. Sudan Black B
- C. Periodic acid-Schiff
- D. Nuclear Fast Red

In acute myeloid leukemia (AML), specifically the M2 subtype, myeloperoxidase (MPO) staining is a crucial diagnostic tool. Myeloperoxidase is an enzyme found in myeloid cells, and its presence indicates the differentiation of these cells towards the granulocytic lineage. In cases of M2 AML, where there is a predominance of myeloid blasts that often retain some ability to differentiate into neutrophils, a positive myeloperoxidase stain reflects this characteristic. The positive reaction indicates that the leukemic cells have retained their myeloid characteristics, and thus, the identification of this specific enzyme helps confirm the diagnosis of AML M2. The successful staining suggests that the blast cells are capable of synthesizing this enzyme, reinforcing the understanding that M2 allows for a degree of maturation, distinguishing it from other subtypes that may not show this enzyme. This staining technique is significant in the diagnostic process, helping to differentiate AML from other leukemias such as acute lymphoblastic leukemia, where myeloperoxidase would typically be negative.

10. Which FAB classification of the acute lymphocytic leukemias has prominent cytoplasmic vacuolation?

- A. L1
- B. L2
- C. L3**
- D. L4

The classification of acute lymphocytic leukemia (ALL) by the French-American-British (FAB) system includes three main types, with L1, L2, and L3 designating specific characteristics of the leukemic cells. L3, also known as Burkitt leukemia, is distinguished by its prominent cytoplasmic vacuolation. In L3, the leukemic cells typically exhibit a high degree of cellular activity, which is characterized by the presence of numerous cytoplasmic vacuoles. This vacuolation arises due to the intense metabolic activity within the cells, reflecting both the proliferation of the lymphoid lineage and the accumulation of certain cellular components. The presence of these vacuoles can also be indicative of the distinct biology of this neoplasm, such as the presence of virus-related factors, particularly in some cases of Burkitt leukemia. In contrast, the other classifications (L1 and L2) do not exhibit the same degree of cytoplasmic vacuolation. L1 features small, homogeneous lymphoblasts with scant cytoplasm, while L2 contains larger, more heterogeneous lymphoblasts that are less typically associated with vacuolation compared to L3. Therefore, the defining characteristic of prominent cytoplasmic vac

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://aabmthematology.examzify.com>

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

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