Success! In Clinical Laboratory Science – Hemostasis Practice Test (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

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. **A platelet aggregation agent that characteristically yields a biphasic curve in optimal concentration is?**

   A. Arachidonic acid

   B. Collagen

   C. Epinephrine

   D. Ristocetin

2. **The size threshold range used by electrical impedance methods to count particles as platelets is**

   A. 0-10 fL

   B. 2-20 fL

   C. 15-40 fL

   D. 35-90 fL

3. **In monitoring a patient on oral anticoagulant therapy, an INR of 1.3 was obtained. How would you interpret this result?**

   A. The patient is adequately anticoagulated and should be tested again in 1 month.

   B. The patient is underanticoagulated and should be evaluated for a change in dietary habits.

   C. The patient is overanticoagulated and should receive a vitamin K injection.

   D. Data to determine the patient's status are insufficient.

4. **If PT is prolonged with a normal aPTT, which factor deficiency is most likely?**

   A. FVII

   B. FII

   C. FIX

   D. FXIII

5. **A prolonged aPTT result is obtained on a patient diagnosed with acute disseminated intravascular coagulation (DIC). The most likely cause of the prolonged aPTT is**

   A. **In addition to DIC, the patient is deficient in a factor required for the extrinsic pathway.**

   B. **DIC is characterized by synthesis of less stable coagulation factors, which deteriorate rapidly in the circulation.**

   C. **Systemic activation of the coagulation system depletes some factors more rapidly than the liver can synthesize them.**

   D. **The patient has been misdiagnosed; a prolonged aPTT indicates that the problem is deficient, not excessive, coagulation.**

6. **A mixing study was performed and there was no correction of either the prolonged PT or the aPTT. What would be the likely coagulation abnormality to consider?**

   A. **Lupus inhibitor**

   B. **Factor XIII deficiency**

   C. **Hemophilia A**

   D. **Factor V Leiden**

7. **A 46-year-old man has a prolonged aPTT with a normal PT and platelets, and mixing studies return to the control value. Which condition best explains this pattern?**

   A. **Heparin contamination**

   B. **Factor VIII deficiency**

   C. **Factor XII deficiency**

   D. **Factor XIII deficiency**

8. **A microtainer EDTA sample obtained during a fingerstick puncture yields a platelet count of 178 x 10^9/L. In the erythrocyte monolayer of the stained peripheral blood smear, an average of nine platelets per field is seen at 1000x magnification. Based on these data, you should**

   A. Report the results because the platelet count and platelet estimate correlate

   B. Recollect a specimen for a repeat platelet count because the platelet count and estimate do not correlate

   C. Examine the periphery of the blood smear for clumping because the platelet count and estimate do not correlate

   D. Rerun the platelet count on the available specimen to confirm the results

9. **A 60-year-old male has markedly prolonged PT and aPTT when tests are performed on plasma collected in citrate, while a CBC performed on EDTA shows normal platelet counts. The best explanation is which statement?**

   A. Coagulation reactions require platelet factor 3; availability is reduced when platelets are low

   B. The ratio of anticoagulant to blood is critical; the volume of anticoagulant must be decreased when the hematocrit exceeds 55%

   C. PT and aPTT are unaffected by specimen collection

   D. EDTA contamination causes prolonged coagulation times

10. **A newborn male with a suspected clot retraction defect has normal PFA-100, normal ristocetin aggregation, normal ADP/collagen/epinephrine aggregation, but a prolonged aPTT. These results are characteristic of which condition?**

    A. von Willebrand disease

    B. Glanzmann thrombasthenia

    C. Storage pool disease

    D. Hemophilia A or B

Answers

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

Explanations

1. **A platelet aggregation agent that characteristically yields a biphasic curve in optimal concentration is?**

   A. Arachidonic acid

   B. Collagen

   C. Epinephrine

   D. Ristocetin

The biphasic pattern seen with this agent comes from two sequential ways it activates platelets. At an optimal concentration, epinephrine first stimulates platelets directly through adrenergic receptors, causing an initial wave of aggregation. As platelets activate, they release dense-granule contents like ADP and other mediators, which then drive a second, second-wave aggregation. The result is two distinct peaks in the aggregation curve. Other agents tend to produce a single, monotonic aggregation response. Arachidonic acid acts through the thromboxane A2 pathway to give a more uniform rise, collagen generally yields a strong single-phase curve, and ristocetin causes vWF-dependent agglutination with a different pattern altogether. That dual, two-phase response is the hallmark of epinephrine in platelet aggregation testing.

2. **The size threshold range used by electrical impedance methods to count particles as platelets is**

   A. 0-10 fL

   B. 2-20 fL

   C. 15-40 fL

   D. 35-90 fL

Electrical impedance counting uses a size window to separate particles: as each particle passes through the aperture, it changes the electrical current by an amount proportional to its volume, so the instrument gates events by size to count platelets separately from red cells and debris. Platelets are small, with volumes roughly in the single-digit to a few dozen femtoliters, so a counting window around 2-20 fL best captures the platelet population while excluding much of the debris (smaller than platelets) and red blood cells (much larger, around 80-100 fL). Choosing a range of 0-10 fL would miss the larger platelets that fall above 10 fL. A range of 15-40 fL would miss many normal platelets that fall below 15 fL and could start capturing larger particles that aren't platelets. A range of 35-90 fL would include large platelets and would begin to count red cell-sized particles, leading to inaccurate platelet counts. Hence 2-20 fL is the typical window that best isolates platelets.

3. **In monitoring a patient on oral anticoagulant therapy, an INR of 1.3 was obtained. How would you interpret this result?**

   A. The patient is adequately anticoagulated and should be tested again in 1 month.

   B. The patient is underanticoagulated and should be evaluated for a change in dietary habits.

   C. The patient is overanticoagulated and should receive a vitamin K injection.

   D. Data to determine the patient's status are insufficient.

INR values guide how effectively a patient on warfarin is anticoagulated. For most conditions, the therapeutic target is about 2.0-3.0; an INR of 1.3 is below that range, meaning the patient is underanticoagulated and at risk for thrombosis. The next steps focus on bringing the INR into the target range and maintaining stability. Tooling this up typically involves adjusting the warfarin dose and reviewing factors that can alter INR. Diet is one such factor: intake of vitamin K-rich foods (like leafy greens) can lower the INR, while very low or inconsistent intake can cause fluctuations upward or downward. Therefore, when an INR is subtherapeutic, it's important to evaluate dietary vitamin K intake and adherence, identify any interactions or changes that could be reducing warfarin effect, and then adjust the dose to achieve and maintain the desired range.

4. **If PT is prolonged with a normal aPTT, which factor deficiency is most likely?**

   A. FVII

   B. FII

   C. FIX

   D. FXIII

Prothrombin time looks at the extrinsic pathway, which hinges on Factor VII, and the common pathway. A prolonged PT with a normal aPTT means the intrinsic pathway is intact, so the likely defect lies in the extrinsic pathway. A deficiency of Factor VII specifically disrupts the extrinsic pathway, causing PT to lengthen while aPTT remains normal because the intrinsic pathway factors (VIII, IX, XI, XII) are unaffected.   Others don't fit this pattern: a deficiency of prothrombin (Factor II) would prolong both PT and aPTT since it's part of the common pathway; a deficiency of Factor IX (intrinsic pathway) would prolong aPTT; and a deficiency of Factor XIII doesn't alter PT or aPTT because it acts after clot formation rather than during the generation of the fibrin clot.

5. **A prolonged aPTT result is obtained on a patient diagnosed with acute disseminated intravascular coagulation (DIC). The most likely cause of the prolonged aPTT is**

   A. **In addition to DIC, the patient is deficient in a factor required for the extrinsic pathway.**

   B. **DIC is characterized by synthesis of less stable coagulation factors, which deteriorate rapidly in the circulation.**

   C. <u>**Systemic activation of the coagulation system depletes some factors more rapidly than the liver can synthesize them.**</u>

   D. **The patient has been misdiagnosed; a prolonged aPTT indicates that the problem is deficient, not excessive, coagulation.**

In DIC, clotting is turned on all over the body, so clotting factors and platelets are consumed faster than they can be made or replaced. The liver tries to compensate by making more factors, but the ongoing systemic activation uses them up more quickly, leaving low levels in the circulation. Because the aPTT tests the intrinsic and common pathways, depletion of those factors causes a longer time to form a clot, producing a prolonged aPTT. This consumption of multiple factors across pathways is the hallmark of DIC's effect on coagulation tests. The idea that only extrinsic factors are affected would more likely show a longer PT, not the broad consumption described here, and misdiagnosis isn't the mechanism behind the prolongation.

6. **A mixing study was performed and there was no correction of either the prolonged PT or the aPTT. What would be the likely coagulation abnormality to consider?**

   A. <u>**Lupus inhibitor**</u>

   B. **Factor XIII deficiency**

   C. **Hemophilia A**

   D. **Factor V Leiden**

In a mixing study, failure of the prolonged times to correct after mixing patient plasma with normal plasma points to an inhibitor rather than a true factor deficiency. Lupus anticoagulant is a classic antiphospholipid antibody that interferes with phospholipid-dependent coagulation steps, so it prolongs tests like the aPTT (and sometimes the PT) and does not correct when normal plasma is added. That's why lupus anticoagulant is the most likely abnormality to consider when there's no correction of either prolonged PT or aPTT. Factor deficiencies, such as factor VIII deficiency causing hemophilia A, would usually correct with mixing because the normal plasma supplies the missing factor. Factor XIII deficiency affects clot stabilization more than the initial PT/aPTT times and is not typically detected by these standard tests. Factor V Leiden is a genetic resistance to activated protein C and isn't diagnosed by a mixing study, so it doesn't fit the pattern described.

7. **A 46-year-old man has a prolonged aPTT with a normal PT and platelets, and mixing studies return to the control value. Which condition best explains this pattern?**

   A. Heparin contamination

   B. Factor VIII deficiency

   C. Factor XII deficiency

   D. Factor XIII deficiency

   The key idea is how mixing studies distinguish a factor deficiency from an inhibitor in the intrinsic pathway. A prolonged aPTT with a normal PT and normal platelets points to a problem in the intrinsic pathway rather than platelets or the extrinsic pathway. If mixing the patient's plasma with normal plasma corrects the aPTT back to normal, this indicates a deficiency of a coagulation factor (the normal plasma supplies the missing factor). Factor XII deficiency is a classic cause of isolated prolongation of the aPTT that corrects with mixing and is not associated with bleeding in vivo. Heparin contamination would prevent correction, and Factor VIII deficiency would typically present with bleeding (and may also correct with mixing, but the bleeding tendency helps distinguish it). Factor XIII deficiency mainly affects clot stability and isn't the typical cause of a prolonged aPTT. Therefore, the pattern most consistent with this scenario is Factor XII deficiency.

8. **A microtainer EDTA sample obtained during a fingerstick puncture yields a platelet count of 178 x 10^9/L. In the erythrocyte monolayer of the stained peripheral blood smear, an average of nine platelets per field is seen at 1000x magnification. Based on these data, you should**

   A. Report the results because the platelet count and platelet estimate correlate

   B. Recollect a specimen for a repeat platelet count because the platelet count and estimate do not correlate

   C. Examine the periphery of the blood smear for clumping because the platelet count and estimate do not correlate

   D. Rerun the platelet count on the available specimen to confirm the results

   Platelet estimates on a stained smear are used to validate automated platelet counts. By examining an erythrocyte monolayer and averaging the platelets seen per high-power field, labs apply a conversion (commonly multiplying the average per field by about 20) to approximate platelets per microliter. An average of nine platelets per field translates to roughly 180 x 10^9/L. This lines up closely with the automated count of 178 x 10^9/L, showing concordance between the two methods. Because the smear estimate agrees with the automated result, there's no indication of clumping or a smear-quality issue, and you should report the results. If there were a mismatch, you'd investigate further (e.g., look for clumping, repeat the count, ensure a good peripheral smear), but that isn't warranted here.

9. **A 60-year-old male has markedly prolonged PT and aPTT when tests are performed on plasma collected in citrate, while a CBC performed on EDTA shows normal platelet counts. The best explanation is which statement?**

   A. Coagulation reactions require platelet factor 3; availability is reduced when platelets are low

   B. The ratio of anticoagulant to blood is critical; the volume of anticoagulant must be decreased when the hematocrit exceeds 55%

   C. PT and aPTT are unaffected by specimen collection

   D. EDTA contamination causes prolonged coagulation times

   The important idea is that PT and aPTT in citrate plasma rely on a precise anticoagulant-to-blood ratio. Citrate chelates calcium to prevent clotting, and labs use a standard amount of citrate for a given blood volume to achieve proper dilution. When the hematocrit is high (over 55%), there's less plasma in the same volume of blood. With a fixed amount of citrate, the citrate-to-plasma ratio becomes too high, leading to excessive calcium chelation and falsely prolonged coagulation times. Therefore, the volume of anticoagulant should be decreased to restore the correct ratio in samples with high hematocrit. The normal CBC on EDTA argues against a true platelet deficiency affecting factor III, and this pattern is about pre-analytical citrate handling rather than a true hematologic abnormality.

10. **A newborn male with a suspected clot retraction defect has normal PFA-100, normal ristocetin aggregation, normal ADP/collagen/epinephrine aggregation, but a prolonged aPTT. These results are characteristic of which condition?**

    A. von Willebrand disease

    B. Glanzmann thrombasthenia

    C. Storage pool disease

    D. Hemophilia A or B

    When platelet function tests are normal but the aPTT is prolonged, the issue is in the intrinsic coagulation pathway rather than in primary hemostasis. Normal PFA-100 and normal ristocetin aggregation indicate platelet adhesion/aggregation is functioning and not affected by von Willebrand disease or platelet receptor defects. Normal aggregation with ADP, collagen, and epinephrine further supports intact platelet function. The key abnormality is the prolonged aPTT, which points to a deficiency or inhibition within the intrinsic pathway factors (such as factor VIII or IX). In a newborn male, the classic intrinsic pathway defects are hemophilia A (factor VIII deficiency) and hemophilia B (factor IX deficiency). Thus this pattern is most consistent with Hemophilia A or B.

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://sucessinclinicallabhemostasis.examzify.com

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