

LIVER ANATOMY, FUNCTION, AND ULTRASOUND PRINCIPLES FOR MEDICAL STUDENTS PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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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. Which other structure is a landmark of the left intersegmental fissure?**
 - A. Ascending left portal vein
 - B. Right portal vein
 - C. Common bile duct
 - D. Inferior vena cava
- 2. Which carbohydrate reserve is stored by the liver?**
 - A. Glycogen
 - B. Glucose
 - C. Fructose
 - D. Sucrose
- 3. Bilirubin is the predominant pigment in what?**
 - A. Bile
 - B. Blood plasma
 - C. Urine
 - D. Lymph
- 4. Where can LDH be found?**
 - A. Brain only
 - B. Kidneys, heart, skeletal muscle, brain, liver, and lungs
 - C. Liver and kidneys only
 - D. Lungs and heart only
- 5. Portal vein provides what percentage of the liver's oxygen needs?**
 - A. 10%
 - B. 30%
 - C. 60%
 - D. 90%
- 6. AST abbreviation stands for which enzyme name?**
 - A. Alanine aminotransferase
 - B. Lactic acid dehydrogenase
 - C. Aspartate aminotransferase
 - D. Alanyl transferase

- 7. Why is Morrison's pouch important in the supine patient?**
- A. It is the most gravity-dependent fluid space in the peritoneum
 - B. It is the largest peritoneal space
 - C. It contains the gallbladder
 - D. It is the site of the pancreas
- 8. What portal vessel passes centrally within the right-lobe segments?**
- A. Left portal vein
 - B. Right portal vein
 - C. Portal vein trunk
 - D. Superior mesenteric vein
- 9. Which regions does the liver occupy?**
- A. Right hypochondrium
 - B. Greater part of epigastrium
 - C. Left hypochondrium
 - D. All of the above
- 10. Which description is accurate for intrasegmental portal triad vessels?**
- A. Within the lobes toward the center of each segment
 - B. Along the liver surface
 - C. Toward the periphery of each segment
 - D. Enter via the gallbladder bed

Answers

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

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Explanations

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1. Which other structure is a landmark of the left intersegmental fissure?

A. Ascending left portal vein

B. Right portal vein

C. Common bile duct

D. Inferior vena cava

In liver anatomy, intersegmental fissures follow the paths of major vessels and help separate the left-sided segments. The left intersegmental fissure is marked by the ascending left portal vein as it travels up toward the left lobe. This vessel sits right along that fissure, so tracing its upward course provides a reliable landmark to delineate the left intersegmental plane on ultrasound or cross-sectional imaging. The right portal vein stays in the right lobe and doesn't define this fissure; the common bile duct runs in the porta hepatis rather than along the left fissure; and the inferior vena cava lies posterior to the liver, not within this fissural plane.

2. Which carbohydrate reserve is stored by the liver?

A. Glycogen

B. Glucose

C. Fructose

D. Sucrose

Glycogen is the carbohydrate reserve stored by the liver. The liver converts excess glucose into glycogen through glycogenesis, creating a branched polymer that can be rapidly mobilized when blood glucose drops. During fasting, glycogen undergoes glycogenolysis, and in hepatocytes glucose-6-phosphatase converts the product to free glucose that can enter the bloodstream to maintain systemic glucose levels. Free glucose isn't stored in large amounts in the liver, and simple sugars like fructose and sucrose are absorbed and metabolized rather than stored as a liver reserve. Skeletal muscle also stores glycogen, but it cannot supply glucose to the bloodstream, whereas liver glycogen acts as the body-wide glucose reservoir.

3. Bilirubin is the predominant pigment in what?

A. Bile

B. Blood plasma

C. Urine

D. Lymph

Bilirubin is the pigment produced from heme breakdown and becomes the main pigment that bile carries. After red blood cells are recycled, heme is converted first to biliverdin and then to bilirubin. In the blood, bilirubin binds to albumin and travels to the liver, where it is conjugated to glucuronic acid to become water-soluble. This conjugated bilirubin is then secreted into bile and travels with it into the intestine. Because bilirubin is the primary pigment in bile, it determines bile's yellow-brown color. Other options don't serve as the main bile pigment; for example, urine's color comes from urobilinogen/urobilin after intestinal processing, while blood plasma and lymph contain bilirubin but are not the pigment-dense medium that bile is.

4. Where can LDH be found?

- A. Brain only
- B. Kidneys, heart, skeletal muscle, brain, liver, and lungs**
- C. Liver and kidneys only
- D. Lungs and heart only

LDH is a ubiquitous cytosolic enzyme, present in many tissues throughout the body because it plays a key role in anaerobic glycolysis by converting pyruvate to lactate and back. This broad distribution means LDH activity is found in several organs, including the heart and skeletal muscle (where rapid energy production is critical), the brain and kidneys (high energy demands), the liver (metabolic processing), and the lungs (gas exchange tissues). Therefore, the most accurate description is that LDH is found in kidneys, heart, skeletal muscle, brain, liver, and lungs. Other options omit some of these tissues, reflecting an incomplete distribution.

5. Portal vein provides what percentage of the liver's oxygen needs?

- A. 10%
- B. 30%
- C. 60%**
- D. 90%

The liver gets its oxygen from two sources with different oxygen content: the portal venous blood provides most of the flow, but it is relatively deoxygenated, while the hepatic arterial blood is oxygen-rich but supplies a smaller share of flow. When you combine these factors, about 60% of the liver's oxygen needs come from portal venous delivery and roughly 40% from hepatic arterial delivery. This dual-blood supply means the liver relies on a larger volume of lower-oxygen blood for most of its oxygen, with the arterial blood supplying a substantial but smaller portion of the oxygen despite its higher oxygen content.

6. AST abbreviation stands for which enzyme name?

- A. Alanine aminotransferase
- B. Lactic acid dehydrogenase
- C. Aspartate aminotransferase**
- D. Alanyl transferase

AST stands for aspartate aminotransferase, an enzyme that transfers an amino group from aspartate to α -ketoglutarate to form oxaloacetate and glutamate. This transaminase is part of amino acid metabolism and is found in liver, heart, and skeletal muscle, which is why it's measured as part of liver panels and in other tissue injuries. The other names listed correspond to different enzymes: alanine aminotransferase is ALT, which acts on alanine; lactic acid dehydrogenase is LDH, involved in lactate to pyruvate conversion; and alanyl transferase isn't a standard enzyme name. Thus, the abbreviation AST correctly refers to aspartate aminotransferase.

7. Why is Morrison's pouch important in the supine patient?

- A. It is the most gravity-dependent fluid space in the peritoneum
- B. It is the largest peritoneal space
- C. It contains the gallbladder**
- D. It is the site of the pancreas

In a patient lying on their back, Morrison's pouch (the hepatorenal recess) is the gravity-dependent space between the liver and the right kidney. Any intraperitoneal fluid—such as blood from trauma or ascites—tends to collect there first, making it the most important area to evaluate on ultrasound in a supine patient. The gallbladder, though located on the inferior surface of the liver, sits in its own fossa and is not contained within Morrison's pouch. The other statements aren't correct because Morrison's pouch is not the largest peritoneal space, nor is it the site of the pancreas.

8. What portal vessel passes centrally within the right-lobe segments?

- A. Left portal vein
- B. Right portal vein**
- C. Portal vein trunk
- D. Superior mesenteric vein

Portal venous anatomy in the liver involves the main portal vein splitting into right and left branches that run within their respective lobes. The right portal vein travels through the right lobe, giving branches to the right-lobe segments, so it passes centrally within the right-lobe segments. The left portal vein serves the left lobe, not the right. The portal vein trunk is the original vessel before division at the porta hepatis, not a coursing vessel inside a specific lobe. The superior mesenteric vein is a major contributor to the portal system outside the liver and does not course through the liver as a right-lobe conduit.

9. Which regions does the liver occupy?

- A. Right hypochondrium
- B. Greater part of epigastrium
- C. Left hypochondrium
- D. All of the above**

The liver spans multiple regions because it is a large organ that lies under the right to midline under the diaphragmatic dome and extends across the upper abdomen. The right lobe sits predominantly beneath the right costal margin, placing much of the liver in the right hypochondrium. Its superior surface lies high in the epigastric region, covering a substantial portion there. The left lobe extends across the midline into the left hypochondrium, so part of the liver is felt or seen there as well. Taken together, the liver occupies the right hypochondrium, much of the epigastric region, and a portion of the left hypochondrium, making the option "All of the above" the best choice.

10. Which description is accurate for intrasegmental portal triad vessels?

A. Within the lobes toward the center of each segment

B. Along the liver surface

C. Toward the periphery of each segment

D. Enter via the gallbladder bed

Intrasegmental portal triad vessels are embedded inside the liver parenchyma, traveling within portal tracts from the porta hepatis toward the center of each hepatic segment. In practice, the portal vein, hepatic artery, and bile duct march through the liver tissue, so within a given segment you find these vessels heading inward toward the segment's central area rather than lying on the surface or at the outer edges. They don't enter the liver from the gallbladder bed, which sits on the visceral surface and isn't a portal pedicle entry point. This interior, centripetal course within each segment supports efficient vascular and biliary supply to the surrounding hepatocytes.

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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://liveranatomyfunctionultrasound.examzify.com>

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

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