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

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR THE FULL VERSION STUDY GUIDE

https://liveranatomyfunctionultrasound.examzify.com

Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright 1

Table of Contents 2

Introduction 3

How to Use This Guide 4

Questions 5

Answers 8

Explanations 10

Next Steps 15

SAMPLE

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.

SAMPLE

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!

SAMPLE

Questions

SAMPLE

1. What borders the caudate lobe posteriorly?

A. Hepatic artery

B. IVC

C. Ligamentum venosum

D. Portal vein

2. Which structure can be viewed through the liver?

A. Stomach

B. Pancreas

C. Spleen

D. All of the above

3. If the left portal vein is affected by a tumor, which functional lobe is primarily affected?

A. Left lobe

B. Right lobe

C. Caudate lobe

D. Quadrate lobe

4. Which two veins form the main portal vein?

A. Inferior mesenteric vein and splenic vein

B. Splenic vein and superior mesenteric vein

C. Left gastric vein and superior mesenteric vein

D. Hepatic veins and SMV

5. What is the purpose of functional division of the liver?

A. To separate liver tissue by color

B. To divide the liver according to blood supply and biliary drainage

C. To segment by metabolic rate

D. To identify lobes for cosmetic labeling

6. What can gray-scale changes in liver parenchyma help detect?

A. Fatty infiltration and tumors

B. Gallstones

C. Portal hypertension

D. Vascular occlusion

SAMPLE

7. What does the ductus venosus become after birth?

A. It dissolves completely

B. It becomes a vein

C. It becomes an artery

D. It becomes the ligamentum venosum

8. Which statement is true regarding the main portal vein?

A. It is formed by the union of the splenic vein and inferior mesenteric vein

B. It enters the porta hepatis through the hepatoduodenal ligament

C. It ascends on the posterior aspect of the hepatic artery

D. It drains into the IVC

9. An example of hepatocellular disease is which condition?

A. Viral hepatitis

B. Cholelithiasis

C. Pancreatitis

D. Acute kidney injury

10. Where does bilirubin conjugation occur?

A. Kidney

B. Spleen

C. Liver

D. Intestine

SAMPLE

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What borders the caudate lobe posteriorly?

A. Hepatic artery

B. IVC

C. Ligamentum venosum

D. Portal vein

The caudate lobe is tucked on the posterior surface of the liver and lies directly in front of the inferior vena cava. A groove along the liver's posterior aspect houses the IVC, so the IVC forms the posterior boundary of the caudate lobe. This close relationship explains why the caudate lobe is often described as being between the IVC and the ligamentum venosum (which marks its left border). The hepatic artery and portal vein are components of the portal triad at the porta hepatis, which lies more anteriorly, not forming the posterior border of the caudate lobe.

2. Which structure can be viewed through the liver?

A. Stomach

B. Pancreas

C. Spleen

D. All of the above

The liver serves as an excellent acoustic window in ultrasound, so structures that lie behind or beside it can be imaged by scanning through the hepatic tissue. The stomach, pancreas, and spleen all sit in the left upper quadrant in relation to the liver, so with the transducer placed appropriately, you can visualize these organs by using the liver as the window. The stomach can be assessed through the hepatic window, the pancreas can be traced from the stomach area toward the pancreas, and the spleen can be imaged via left intercostal views that pass through the liver. In short, all three structures can be viewed through the liver, though gas or body habitus may affect visibility.

3. If the left portal vein is affected by a tumor, which functional lobe is primarily affected?

A. Left lobe

B. Right lobe

C. Caudate lobe

D. Quadrate lobe

The left portal vein supplies the left functional liver lobe. When a tumor obstructs or invades this vein, the left lobe receives reduced blood flow and is the part of the liver most directly affected. The caudate lobe (segment I) gets blood from both left and right portal veins and drains directly into the IVC, so it is not primarily driven by the left portal vein. The right lobe is fed by the right portal vein, so it would be affected by pathology on that side. Therefore, the left lobe is the primary region impacted when the left portal vein is involved.

SAMPLE

4. Which two veins form the main portal vein?

A. Inferior mesenteric vein and splenic vein

B. Splenic vein and superior mesenteric vein

C. Left gastric vein and superior mesenteric vein

D. Hepatic veins and SMV

The main portal vein is formed by the convergence of the splenic vein and the superior mesenteric vein, typically behind the neck of the pancreas. Blood from the spleen and much of the gastrointestinal tract drains into these two veins, which join to create the portal vein that delivers nutrient-rich blood to the liver. The inferior mesenteric vein usually drains into the splenic vein or the superior mesenteric vein rather than forming the portal trunk. The left gastric vein is a portal tributary, not a forming vessel, and the hepatic veins carry blood from the liver to the IVC, not into the portal system.

5. What is the purpose of functional division of the liver?

A. To separate liver tissue by color

B. To divide the liver according to blood supply and biliary drainage

C. To segment by metabolic rate

D. To identify lobes for cosmetic labeling

Functional division of the liver maps the organ into segments that share a common blood inflow and bile drainage. Each segment has its own branch of the portal vein and hepatic artery, its own bile duct, and its own hepatic venous drainage, so tissue can be removed or preserved with minimal impact on the rest. This segmentation is essential for surgical planning, allowing precise segmental resections and safer transplant decisions. It is not based on color, metabolic rate, or cosmetic labeling.

6. What can gray-scale changes in liver parenchyma help detect?

A. Fatty infiltration and tumors

B. Gallstones

C. Portal hypertension

D. Vascular occlusion

Gray-scale ultrasound assesses how liver tissue reflects sound and what its texture looks like. When fat accumulates in the liver (fatty infiltration), the parenchyma becomes more echogenic, so the liver appears brighter than normal. Focal lesions, such as tumors, also alter the parenchymal texture on gray-scale, making nodules or masses stand out as areas with different echogenicity. Thus gray-scale changes are most helpful for detecting fatty infiltration and liver tumors. Gallstones show up as bright echoes with shadowing in the gallbladder, not as changes in the liver parenchyma. Portal hypertension and vascular occlusion are better evaluated with Doppler flow patterns and other signs rather than gray-scale texture alone.

SAMPLE

7. What does the ductus venosus become after birth?

A. It dissolves completely

B. It becomes a vein

C. It becomes an artery

D. It becomes the ligamentum venosum

The essential idea is what happens to fetal shunts after birth. In the fetus, the ductus venosus carries oxygen-rich blood from the umbilical vein directly into the inferior vena cava, bypassing the liver. After birth, when the umbilical cord is clamped and placental circulation ends, this vessel closes and leaves behind a fibrous remnant known as the ligamentum venosum. This structure sits in the liver in the fissure for the ligamentum venosum and marks the transition to normal postnatal hepatic blood flow through the liver parenchyma. The other options aren't correct because the ductus venosus does not dissolve completely or become a vein or an artery; it becomes the ligamentum venosum.

8. Which statement is true regarding the main portal vein?

A. It is formed by the union of the splenic vein and inferior mesenteric vein

B. It enters the porta hepatis through the hepatoduodenal ligament

C. It ascends on the posterior aspect of the hepatic artery

D. It drains into the IVC

The key idea is that the main portal vein carries nutrient-rich blood from the gut to the liver and reaches the liver through the porta hepatis, traveling in the hepatoduodenal ligament. It is formed behind the neck of the pancreas by the union of the splenic vein and the superior mesenteric vein (the inferior mesenteric vein drains into the splenic vein, not directly into the portal vein). As it ascends toward the liver, it lies within the hepatoduodenal ligament and enters the porta hepatis to ramify in the liver parenchyma. This makes the true statement that it enters the porta hepatis through the hepatoduodenal ligament correct. The other statements are not accurate: the portal vein is not formed by the splenic and inferior mesenteric veins; in the hepatoduodenal ligament the portal vein lies posterior to the hepatic artery (not described as ascending on its posterior aspect), and the portal vein does not drain into the IVC (blood leaves the liver via the hepatic veins to the IVC).

9. An example of hepatocellular disease is which condition?

A. Viral hepatitis

B. Cholelithiasis

C. Pancreatitis

D. Acute kidney injury

Hepatocellular disease means injury to liver cells (hepatocytes) and their function. Viral hepatitis directly damages hepatocytes and triggers immune-mediated inflammation, causing hepatocellular injury and necrosis; this is the classic example of liver parenchymal disease, and it often shows elevated ALT more than other enzymes. Cholelithiasis involves stones in the gallbladder or bile ducts, which mainly affect the biliary system and can cause cholestasis rather than direct hepatocyte injury. Pancreatitis targets the pancreas, not the liver. Acute kidney injury affects the kidneys, not the liver. Therefore, viral hepatitis best fits hepatocellular disease.

SAMPLE

10. Where does bilirubin conjugation occur?

A. Kidney

B. Spleen

C. Liver

D. Intestine

Bilirubin conjugation takes place in the liver, specifically within hepatocytes where the enzyme UDP-glucuronyltransferase adds glucuronic acid to unconjugated bilirubin. This reaction converts bilirubin into a water-soluble form (bilirubin diglucuronide) that can be excreted into bile and eventually reach the intestine. The spleen and kidney are involved in bilirubin production and excretion pathways, but the actual conjugation step does not occur there. In the gut, bacteria modify conjugated bilirubin, producing urobilinogen and stercobilin, with some recycled back to the liver or eliminated in urine.

SAMPLE

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!

SAMPLE