

UNIVERSITY OF CENTRAL FLORIDA (UCF) PCB3703C HUMAN PHYSIOLOGY EXAM 4 PRACTICE (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. What type of peptides stimulate G cells to secrete gastrin?**
 - A. Single amino acids
 - B. Dipeptides and tripeptides
 - C. Polypeptides only
 - D. Amino acids only
- 2. Where is a hiatal hernia specifically located?**
 - A. Inferior vena cava
 - B. Aortic hiatus
 - C. Esophageal hiatus of the diaphragm
 - D. Cardiac sphincter
- 3. A deficiency in bile salt can lead to what physiological deficiency in patients?**
 - A. Protein absorption
 - B. Vitamin C absorption
 - C. Lipid and cholesterol absorption
 - D. Mineral absorption
- 4. What common property do cholecystikinin and gastrin share?**
 - A. They are both secreted by the pancreas
 - B. They have five identical C-terminal amino acids
 - C. They stimulate pancreatic amylase secretion
 - D. They inhibit gastric motility
- 5. Which of the following is NOT a symptom of Achalasia (Cardiospasm)?**
 - A. Retrosternal pain
 - B. Dysphagia
 - C. Increased appetite
 - D. Lower esophageal aperistalsis
- 6. Pepsin helps degrade proteins into which of the following components?**
 - A. Monosaccharides
 - B. Peptides and amino acids
 - C. Fatty acids
 - D. Nucleotides

7. Which electrolyte is NOT commonly found in saliva?

- A. Sodium
- B. Potassium
- C. Calcium
- D. Phosphate

8. Which fiber type carries sensory information, such as from chemoreceptors and mechanoreceptors, to the brainstem?

- A. Efferent fibers
- B. Afferent fibers
- C. Autonomic fibers
- D. Contractile fibers

9. Which structure absorbs water and electrolytes during digestion?

- A. Stomach
- B. Small intestine
- C. Large intestine
- D. Pancreas

10. Gastrin is produced in which three regions of the stomach?

- A. Pylorus, fundus, and duodenum
- B. Pylorus, body, and fundus
- C. Body, antrum, and esophagus
- D. Fundus, corpus, and cardia

Answers

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

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Explanations

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1. What type of peptides stimulate G cells to secrete gastrin?

- A. Single amino acids
- B. Dipeptides and tripeptides**
- C. Polypeptides only
- D. Amino acids only

Dipeptides and tripeptides are the types of peptides that stimulate G cells to secrete gastrin. G cells, located in the stomach's antrum, respond primarily to the presence of these short chains of amino acids, triggering the release of gastrin, a hormone that plays a crucial role in the digestive process. When food enters the stomach, proteins are broken down into various peptide fragments, often including dipeptides and tripeptides. These fragments bind to specific receptors on G cells, thereby promoting gastrin secretion. The released gastrin, in turn, stimulates the parietal cells to secrete gastric acid, which is essential for protein digestion and also helps in controlling the growth of bacteria in the stomach. Other forms of peptides, such as single amino acids or only longer polypeptides, may not effectively stimulate gastrin secretion in the same manner. The specificity of the interaction between G cells and dipeptides and tripeptides highlights the complexity and regulation of gastrointestinal hormones in response to varying forms of dietary proteins.

2. Where is a hiatal hernia specifically located?

- A. Inferior vena cava
- B. Aortic hiatus
- C. Esophageal hiatus of the diaphragm**
- D. Cardiac sphincter

A hiatal hernia is specifically located at the esophageal hiatus of the diaphragm, which is the opening in the diaphragm through which the esophagus passes before connecting to the stomach. When a portion of the stomach pushes through this opening into the chest cavity, it creates a hiatal hernia. This condition can lead to various symptoms, including heartburn and chest pain, due to the displacement of stomach contents and increased pressure on the esophagus. Understanding the anatomy involved is crucial. The esophageal hiatus is specifically designed to allow the esophagus to transit from the thoracic cavity to the abdominal cavity. The other locations mentioned, such as the inferior vena cava and aortic hiatus, are openings for different structures and do not involve the esophagus or the stomach directly. The cardiac sphincter, also known as the lower esophageal sphincter, regulates the passage of food from the esophagus into the stomach but is not an anatomical site where a hiatal hernia occurs. Therefore, the location of a hiatal hernia is accurately identified at the esophageal hiatus of the diaphragm.

3. A deficiency in bile salt can lead to what physiological deficiency in patients?

- A. Protein absorption
- B. Vitamin C absorption
- C. Lipid and cholesterol absorption**
- D. Mineral absorption

A deficiency in bile salts can lead to impaired lipid and cholesterol absorption due to their crucial role in the digestion and emulsification of dietary fats. Bile salts, which are derived from cholesterol, are essential for breaking down large fat globules into smaller micelles, which increases the surface area for lipases to act upon. Without sufficient bile salts, the ability of the intestines to effectively absorb lipids and fat-soluble vitamins (such as A, D, E, and K) decreases significantly, leading to potential deficiencies in these nutrients and overall lipid metabolism. In contrast, protein absorption primarily relies on enzymes like pepsin and pancreatic proteases, while vitamin C, a water-soluble vitamin, does not depend on bile salts for its absorption. Similarly, mineral absorption typically occurs through active transport and diffusion mechanisms and is not directly affected by bile salt levels. Thus, the primary consequence of a deficiency in bile salts is a compromise in lipid and cholesterol absorption.

4. What common property do cholecystikinin and gastrin share?

- A. They are both secreted by the pancreas
- B. They have five identical C-terminal amino acids**
- C. They stimulate pancreatic amylase secretion
- D. They inhibit gastric motility

Cholecystikinin (CCK) and gastrin share a common property of having structural similarities in their amino acid sequence, particularly at their C-terminal ends. Both hormones indeed exhibit five identical C-terminal amino acids, which reflects a structural homology that can play a role in their function and receptor interactions. This similarity indicates a degree of evolutionary conservation and may affect how these hormones are recognized by their respective receptors in the digestive system, influencing digestive processes. The other options describe properties that are not applicable to both hormones. For instance, while gastrin is secreted by G cells in the stomach and plays a role in stimulating gastric acid secretion, CCK is primarily produced in the small intestine and is more involved in the digestion of fats and proteins, as well as stimulating gallbladder contraction and pancreatic enzyme secretion. Although both hormones have roles in the digestive system, only gastrin directly stimulates gastric acid secretion, whereas CCK promotes the release of digestive enzymes rather than amylase specifically. Additionally, regarding pancreatic amylase secretion and the role in gastric motility, these aspects are not a shared characteristic of both hormones. Hence, the best choice aligns with their structural similarity in the C-terminal sequence.

5. Which of the following is NOT a symptom of Achalasia (Cardiospasm)?

- A. Retrosternal pain
- B. Dysphagia
- C. Increased appetite**
- D. Lower esophageal aperistalsis

Achalasia, also referred to as cardiospasm, is a condition that affects the esophagus and is characterized by the inability of the lower esophageal sphincter to relax properly, coupled with a loss of peristalsis in the esophageal body. The symptoms of this condition typically include retrosternal pain, dysphagia (difficulty swallowing), and decreased peristaltic activity in the lower esophagus. The symptom of increased appetite is not associated with achalasia. In fact, individuals with this condition often experience significant discomfort and difficulty when consuming food, which can lead to a decrease in appetite over time. Instead of an increased appetite, patients may avoid eating due to the discomfort caused by swallowing, which makes this symptom inconsistent with the condition. In summary, the presence of retrosternal pain, dysphagia, and lower esophageal aperistalsis are characteristic symptoms of achalasia, while increased appetite does not align with the typical clinical presentation of the condition.

6. Pepsin helps degrade proteins into which of the following components?

- A. Monosaccharides
- B. Peptides and amino acids**
- C. Fatty acids
- D. Nucleotides

Pepsin is a digestive enzyme that plays a critical role in the breakdown of proteins in the stomach. It operates optimally in the acidic environment provided by gastric acid, which is essential for its activity. Pepsin specifically cleaves peptide bonds within proteins, resulting in smaller chains known as peptides and, ultimately, individual amino acids. Proteins are polymers made up of long chains of amino acids, and the primary purpose of enzymes like pepsin is to facilitate the digestion of these polymers into their building blocks. As digesting proteins is important for nutrient absorption and overall health, pepsin's action leads to the production of peptides and amino acids, which can then be further broken down by other enzymes in the intestine, enabling the body to absorb and utilize them effectively. The other choices do not relate to the function of pepsin; for instance, monosaccharides are the simplest form of carbohydrates, and fatty acids are the building blocks of lipids. Nucleotides are the components of nucleic acids, such as DNA and RNA. Thus, they are not relevant to the action of pepsin, further affirming that the correct answer centers on the degradation of proteins into peptides and amino acids.

7. Which electrolyte is NOT commonly found in saliva?

- A. Sodium
- B. Potassium
- C. Calcium**
- D. Phosphate

Calcium is not commonly found in saliva, which is primarily due to the fact that saliva's primary functions concern the oral cavity and digestion, not the regulation of calcium levels in the body. The main electrolytes found in saliva include sodium, potassium, and phosphate. Sodium and potassium play roles in maintaining osmotic balance and electrical neutrality, while phosphate is involved in buffering the pH of saliva and aiding in the remineralization of teeth. In contrast, calcium, while it is important for various physiological functions, such as muscle contraction and neuronal function, is present in saliva at very low concentrations compared to the other electrolytes listed. Its presence is more associated with saliva's capacity to promote enamel remineralization rather than being a predominant component. Thus, calcium is not commonly present in significant amounts in saliva like the other electrolytes mentioned.

8. Which fiber type carries sensory information, such as from chemoreceptors and mechanoreceptors, to the brainstem?

- A. Efferent fibers
- B. Afferent fibers**
- C. Autonomic fibers
- D. Contractile fibers

Afferent fibers are responsible for transmitting sensory information from peripheral receptors, such as chemoreceptors, which detect changes in chemical concentrations, and mechanoreceptors, which respond to mechanical pressure or distortion, to the central nervous system. The sensory data gathered by these receptors is crucial for the brain to interpret and respond to the surrounding environment. In contrast, efferent fibers carry signals away from the central nervous system to effectors, such as muscles and glands, thereby controlling movements and functions. Autonomic fibers are a subset of efferent fibers specifically involved in involuntary bodily functions. Contractile fibers, on the other hand, refer to muscle fibers responsible for muscle contraction and movement, rather than the transmission of sensory information. Overall, it is the afferent fibers that play the essential role in relaying sensory information to the brainstem, making this the correct answer.

9. Which structure absorbs water and electrolytes during digestion?

- A. Stomach
- B. Small intestine
- C. Large intestine**
- D. Pancreas

The large intestine, or colon, plays a critical role in the absorption of water and electrolytes during digestion. After the small intestine has completed the bulk of nutrient absorption, the chyme that enters the large intestine primarily consists of indigestible food matter, water, and various electrolytes. As this material moves through the large intestine, the walls of this structure actively absorb water and electrolytes, helping to concentrate the waste product into feces. This process is essential for maintaining the body's fluid balance and electrolyte levels. By reclaiming water and electrolytes, the large intestine prevents dehydration and ensures that the body retains necessary minerals such as sodium and potassium. The absorptive capacity of the large intestine is crucial for overall homeostasis, particularly in cases where the body needs to conserve water. In contrast, the stomach primarily focuses on the breakdown of food through mechanical and chemical means, while the small intestine is the main site of nutrient absorption. The pancreas produces enzymes and hormones that assist digestion but does not directly absorb water or electrolytes.

10. Gastrin is produced in which three regions of the stomach?

A. Pylorus, fundus, and duodenum

B. Pylorus, body, and fundus

C. Body, antrum, and esophagus

D. Fundus, corpus, and cardia

Gastrin is a hormone produced primarily in the stomach that plays a crucial role in digestive processes, specifically in the regulation of gastric acid secretion. The correct answer identifies the specific regions of the stomach where gastrin is synthesized, namely the pylorus, body, and fundus. In the pyloric region or antrum of the stomach, G cells are primarily located and are responsible for the secretion of gastrin in response to food intake. The body and fundus of the stomach also contain G cells, albeit in lesser amounts compared to the antrum. Gastrin secretion is stimulated by the presence of peptides and amino acids in the stomach, promoting further digestion through increased acid production by the parietal cells. This comprehensive understanding of the production sites underscores the significant role these regions of the stomach play in orchestrating the digestive response upon food entry. Knowing where gastrin is synthesized helps to link anatomical regions to their functional roles in physiology, particularly in the regulation of gastric functions and the digestive process as a whole.

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:

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

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