University of Central Florida (UCF) PCB3703C Human Physiology Exam 4 Practice (Sample)

Study Guide

BY EXAMZIFY

Everything you need from our exam experts!

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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. Don't worry about getting everything right, 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, and take breaks to retain information better.

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.

7. Use Other Tools

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. During carbohydrate digestion, what do starches convert into?

A. Monosaccharides

B. Alpha dextrin, maltose, maltotriose

C. Disaccharides

D. Glucose only

2. What event besides tickling the back of the throat can trigger the vomiting reflex?

A. Eating spicy food

B. Gastric distention

C. Feeling anxious

D. Buzzing in the ears

3. Which pancreatic enzyme is responsible for converting procarboxypeptidase A and B?

A. Trypsin

B. Chymotrypsin

C. Proelastase

D. Carboxypeptidase

4. What is indicated by a slow wave in the GI tract?

A. Strong contraction

B. Weak contraction

C. Rapid contraction

D. Relaxation of muscles

5. What is the main cause of emphysema?

A. Destruction of alveoli walls

B. Inflammation of bronchioles

C. Excessive mucus production

D. Obstructive bronchiolitis

6. Which substance is NOT normally found in a patient's fecal matter?

A. Fiber

B. Protein

C. Water

D. Electrolytes

7. What is the primary composition of saliva?

A. 90-95% water

B. 97-99.5% water

C. 80-85% water

D. 70-75% water

8. What is one of the types of liver cancer that affects the bile ducts?

A. Hepatocellular carcinoma

B. Cholangiocarcinoma

C. Focal nodular hyperplasia

D. Hepatic adenoma

9. What is tidal volume?

A. The volume of air inspired or expired with each normal breath

B. The total volume of air in the lungs after inhalation

C. The volume of air that can be forcibly exhaled

D. The volume of air remaining after maximum exhalation

10. Which plexus is part of the intrinsic nervous system in the GI tract?

A. Celiac plexus

B. Myenteric plexus

C. Vagus plexus

D. Thoracic plexus

Answers

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

Explanations

1. During carbohydrate digestion, what do starches convert into?

A. Monosaccharides

B. Alpha dextrin, maltose, maltotriose

C. Disaccharides

D. Glucose only

Starches are complex carbohydrates that undergo digestion primarily in the mouth and small intestine. During this process, enzymes such as amylase break down starches into smaller carbohydrate units. The digestion of starches does not yield monosaccharides directly; instead, it produces intermediate products like alpha-dextrins, maltose, and maltotriose. Alpha-dextrins are branched oligosaccharides that result from the action of amylase on starches. Maltose is a disaccharide composed of two glucose units, while maltotriose consists of three glucose molecules linked together. The presence of these intermediate products is crucial as they continue to be broken down by specific enzymes, ultimately leading to the formation of monosaccharides, such as glucose. Thus, recognizing that starches are broken down into these intermediate products before reaching the final monosaccharide stage provides a clear understanding of the carbohydrate digestion process. This intricate breakdown highlights the complexity of carbohydrate metabolism and the various enzymes involved in facilitating digestion.

2. What event besides tickling the back of the throat can trigger the vomiting reflex?

A. Eating spicy food

B. Gastric distention

C. Feeling anxious

D. Buzzing in the ears

Gastric distention is recognized as a significant trigger for the vomiting reflex due to its physiological impact on the gastrointestinal system. When the stomach becomes overly stretched or distended, the vagus nerve is activated, sending signals to the brain that can initiate the vomiting reflex. This response is an innate protective mechanism that helps expel potentially harmful contents from the stomach, as excessive food intake or gas buildup can lead to discomfort or danger. In contrast, while experiencing anxiety or consuming spicy food can lead to sensations of nausea, they are not direct triggers in the same way that gastric distention is. Anxiety might heighten the perception of nausea or discomfort but does not directly engage the physiological mechanisms that cause vomiting. Spicy foods can irritate the stomach lining but primarily evoke a sense of discomfort rather than triggering the reflex immediately. Buzzing in the ears, although potentially disorienting, does not have a direct connection to the vomiting mechanism. Thus, gastric distention stands out as a primary and recognized cause for activating the vomiting reflex.

3. Which pancreatic enzyme is responsible for converting procarboxypeptidase A and B?

A. Trypsin

B. Chymotrypsin

C. Proelastase

D. Carboxypeptidase

The pancreatic enzyme responsible for converting procarboxypeptidase A and B into their active forms is trypsin. Trypsin is a serine protease that is activated in the small intestine and plays a crucial role in the protein digestion process. When trypsin is activated from its precursor, trypsinogen, it not only acts on proteins to break them down into smaller peptides but also has the important function of activating other pancreatic zymogens, including procarboxypeptidase A and B. These are proenzymes that require activation to perform their digestive functions. Specifically, trypsin cleaves the inactive procarboxypeptidases, converting them into their active forms (carboxypeptidase A and B), which are then able to hydrolyze the carboxyl-terminal amino acids from peptides. This activation cascade is essential for the efficient digestion of dietary proteins in the intestine, demonstrating the critical role of trypsin in the digestive process.

4. What is indicated by a slow wave in the GI tract?

A. Strong contraction

B. Weak contraction

C. Rapid contraction

D. Relaxation of muscles

A slow wave in the gastrointestinal (GI) tract refers to a rhythmic fluctuation in membrane potential that occurs in the smooth muscle layers of the gut. These slow waves are essential for regulating the smooth muscle's contractions and are primarily influenced by the interstitial cells of Cajal, which serve as pacemaker cells. The correct answer indicates that slow waves are associated with weak contractions. This is because slow waves themselves do not directly cause strong contractions; rather, they set the pace for contractions. When the slow waves reach a certain threshold, they can elicit action potentials that lead to muscle contractions. However, if the slow waves are not sufficiently depolarized, the contractions remain weak. In this context, understanding the role of slow waves helps to clarify that while they are crucial for the rhythm of contraction in the GI tract, they do not themselves generate strong contractions without sufficient stimulation. Therefore, the indication of a slow wave aligns with promoting weak contractions, which are necessary for the coordinated movement of food through the digestive system.

5. What is the main cause of emphysema?

A. Destruction of alveoli walls

B. Inflammation of bronchioles

C. Excessive mucus production

D. Obstructive bronchiolitis

The main cause of emphysema is the destruction of alveoli walls. This condition is characterized by the progressive deterioration of the alveolar walls, which leads to an enlarged airspace within the lungs. As these walls break down, the surface area available for gas exchange decreases significantly, making it difficult for oxygen to enter the bloodstream and for carbon dioxide to be expelled. Emphysema is often a result of long-term exposure to irritants, particularly cigarette smoke, which triggers an inflammatory response. Over time, this chronic inflammation damages the alveoli and leads to the loss of elasticity in lung tissue. The compromised structure of the alveoli not only reduces gas exchange efficiency but also contributes to airflow obstruction due to the collapse of small airways during exhalation. The other options refer to different respiratory conditions or aspects of lung pathology. Inflammation of bronchioles and excessive mucus production are more characteristic of chronic bronchitis, while obstructive bronchiolitis refers to a different type of airway obstruction primarily affecting the bronchioles. None of these conditions define the pathology of emphysema as accurately as the destruction of alveolar walls does.

6. Which substance is NOT normally found in a patient's fecal matter?

A. Fiber

B. Protein

C. Water

D. Electrolytes

In healthy individuals, protein is generally not a component of fecal matter in significant amounts. Feces primarily consists of indigestible material, including fiber, as well as water and various electrolytes that help maintain the balance of bodily fluids. The digestive process breaks down proteins, and they are usually fully absorbed in the small intestine. Therefore, under normal circumstances, very little unabsorbed protein should remain to be excreted in feces. Fiber, which is a type of carbohydrate, adds bulk to the stool and aids in intestinal health, while water helps keep the feces soft, making them easier to pass. Electrolytes, such as sodium and potassium, are also found in fecal matter as they are part of the body's fluid and electrolyte balance, contributing to the physiological processes that occur in the intestines. Protein, however, is not intended to be present in feces in any substantial quantity when digestion is normal.

7. What is the primary composition of saliva?

A. 90-95% water

B. 97-99.5% water

C. 80-85% water

D. 70-75% water

Saliva is primarily composed of water, and the correct option indicates that it consists of 97-99.5% water. This high water content is essential for its various functions, including facilitating the process of digestion, helping to dissolve food particles for taste perception, and providing a moist environment to aid in swallowing. Additionally, the water in saliva helps to maintain oral hygiene by flushing away food debris and aiding in the antimicrobial action of saliva, which contains various enzymes and proteins. The remaining constituents of saliva, including enzymes, electrolytes, and mucus, make up a very small percentage compared to the water content. This composition is critical for maintaining oral health and aiding digestive processes.

8. What is one of the types of liver cancer that affects the bile ducts?

A. Hepatocellular carcinoma

B. Cholangiocarcinoma

C. Focal nodular hyperplasia

D. Hepatic adenoma

Cholangiocarcinoma is a type of liver cancer that specifically arises from the bile ducts. This cancer can develop at any point along the biliary tract, which includes the intrahepatic bile ducts (within the liver) and the extrahepatic bile ducts (outside the liver). Cholangiocarcinoma is recognized for its association with various risk factors such as chronic inflammation, bile duct conditions, and certain liver diseases. Hepatocellular carcinoma, on the other hand, originates from hepatocytes, the main liver cells, and is not related to the bile ducts. Focal nodular hyperplasia and hepatic adenoma are benign liver conditions, and neither involves malignant transformation of bile duct epithelial cells, distinguishing them from cholangiocarcinoma. Understanding the origin of different liver cancers is crucial for diagnosis and treatment strategies, making cholangiocarcinoma a significant focus in hepatobiliary oncology.

9. What is tidal volume?

A. The volume of air inspired or expired with each normal breath

B. The total volume of air in the lungs after inhalation

C. The volume of air that can be forcibly exhaled

D. The volume of air remaining after maximum exhalation

Tidal volume refers specifically to the amount of air that is inhaled or exhaled during a normal breath when an individual is at rest. This measurement is important in respiratory physiology as it reflects the efficiency of breathing and provides insight into lung function. Tidal volume typically ranges from about 500 mL in healthy adults, but this can vary based on factors like physical fitness and body size. The other choices represent different aspects of lung volume. The second choice describes vital capacity (the total volume of air in the lungs after a deep inhalation). The third option relates to expiratory reserve volume, which is the amount of air that can be forcibly exhaled after a normal exhalation. The last option pertains to residual volume, describing the amount of air that remains in the lungs after maximum exhalation. Each of these terms has a specific definition and is part of the overall understanding of lung mechanics and capacities, but tidal volume is distinct in its focus on the normal breathing cycle.

10. Which plexus is part of the intrinsic nervous system in the GI tract?

A. Celiac plexus

B. Myenteric plexus

C. Vagus plexus

D. Thoracic plexus

The myenteric plexus is an integral component of the intrinsic nervous system in the gastrointestinal (GI) tract. This plexus is primarily responsible for controlling the motility of the gastrointestinal organs by regulating the contractions of the smooth muscle layers. The myenteric plexus is located between the circular and longitudinal muscle layers of the gut and plays a crucial role in coordinating peristalsis, which is essential for the movement of food through the digestive system. This plexus operates independently of the central nervous system and is involved in the local control of gut function, including the timing and frequency of muscle contractions. It ensures that the digestive process is efficient and synchronized, contributing to the overall functionality of the GI tract. Understanding the significance of the myenteric plexus helps clarify its essential role in maintaining digestive health and effective gastrointestinal motility.

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://ucf-pcb3703c-exam4.examzify.com

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