

# Physician Assistant College Admission Test (PA-CAT) Entrance Practice exam (Sample)

## Study Guide



**Everything you need from our exam experts!**

**This is a sample study guide. To access the full version with hundreds of questions,**

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**SAMPLE**

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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!**

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## Questions

- 1. How many thoracic vertebrae are present in the vertebral column?**
  - A. 5**
  - B. 7**
  - C. 10**
  - D. 12**
- 2. What is starch primarily used for in plants?**
  - A. Energy production**
  - B. Structural support**
  - C. Storage of carbohydrates**
  - D. Rapid growth**
- 3. Which of the following statements is true about renal tubular secretion?**
  - A. It only involves passive transport**
  - B. It is solely a filtration process**
  - C. It may require energy for active transport**
  - D. It never involves ions**
- 4. At what level of the nervous system do ascending sensory pathways cross over to reach the contralateral cortex?**
  - A. Cerebellum**
  - B. Spinal cord**
  - C. Medulla**
  - D. Pons**
- 5. In a synthesis reaction, what happens to the reactants?**
  - A. They form ions only**
  - B. They do not change**
  - C. They combine to form a compound**
  - D. They are completely consumed without forming any products**



- 6. What type of joint is the hip joint classified as?**
- A. Hinge joint**
  - B. Pivot joint**
  - C. Ball and socket joint**
  - D. Gliding joint**
- 7. What does cyanosis signify in a patient with congenital heart disease?**
- A. A normal oxygen level in the blood**
  - B. A bluish tint to skin and lips**
  - C. Increased heart rate**
  - D. Weakness in heart muscles**
- 8. What is the effect of cortisol on lysosomal membranes in the context of inflammation?**
- A. It enhances their fragility**
  - B. It stabilizes them to prevent rupture**
  - C. It promotes their growth**
  - D. It inhibits their formation**
- 9. What is the primary function of cranial nerves?**
- A. Coordinate movement**
  - B. Facilitate sensory functions**
  - C. Enhance digestion**
  - D. Regulate blood pressure**
- 10. Which anatomical joint is specifically identified as a hinge joint?**
- A. Nail joint**
  - B. Shoulder joint**
  - C. Knee joint**
  - D. Wrist joint**

## **Answers**

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

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## **Explanations**

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**1. How many thoracic vertebrae are present in the vertebral column?**

- A. 5
- B. 7
- C. 10
- D. 12**

The vertebral column consists of 12 thoracic vertebrae, which are located in the upper and mid-back regions of the spine. These vertebrae are labeled T1 through T12. Each thoracic vertebra articulates with a pair of ribs, contributing to the structural integrity of the rib cage, which protects vital organs like the heart and lungs. Additionally, the thoracic region of the spine plays a crucial role in allowing for a range of movements while also providing stability, making it essential for maintaining posture and supporting upper body weight. The presence of 12 thoracic vertebrae, rather than a smaller or larger quantity, reflects the evolutionary adaptation of the human body to balance flexibility with the necessary rigidity to support and protect major anatomical structures.

**2. What is starch primarily used for in plants?**

- A. Energy production
- B. Structural support
- C. Storage of carbohydrates**
- D. Rapid growth

Starch primarily serves as a storage form of carbohydrates in plants. It is synthesized in the chloroplasts during photosynthesis when plants convert sunlight into chemical energy, leading to the production of glucose. Excess glucose is then polymerized to form starch, which is stored in various parts of the plant, such as leaves, roots, and seeds. The storage of carbohydrates as starch is crucial for plants as it allows them to stockpile energy for later use when photosynthesis is not possible, such as during nighttime or periods of low light. When needed, starch can be broken down back into glucose through hydrolysis, providing energy for growth, repair, and metabolic functions. In terms of context, while energy production, structural support, and rapid growth are important aspects of plant biology, they do not accurately reflect the primary role of starch. Energy production occurs directly from glucose during respiration, structural support is primarily provided by cellulose, and rapid growth is facilitated by various nutrient uptake and environmental factors rather than directly by starch itself. Therefore, the correct focus on the storage of carbohydrates aptly highlights the central function of starch in plant physiology.

**3. Which of the following statements is true about renal tubular secretion?**

- A. It only involves passive transport**
- B. It is solely a filtration process**
- C. It may require energy for active transport**
- D. It never involves ions**

Renal tubular secretion is a vital process in the kidneys that helps regulate the body's electrolyte balance, elimination of waste products, and acid-base balance. One of the key characteristics of this process is that it can involve both passive and active transport mechanisms. In many cases, the secretion of ions and other substances from the blood into the renal tubules is performed against their concentration gradients, which necessitates the use of energy. This is typically done through active transport, where transport proteins in the cell membranes require energy (usually from ATP) to move substances into the tubular fluid. For instance, certain drug metabolites and waste products like hydrogen ions and creatinine are actively secreted into the renal tubules, helping to remove them from the bloodstream. This energy-dependent process is crucial for maintaining homeostasis and ensuring proper kidney function. The other statements do not accurately represent the mechanism of renal tubular secretion: it is not limited to passive transport only, as that would ignore the significant role of active transport; it is more than just a filtration process, as that only describes part of how substances are managed in the kidneys; and it does indeed involve ions, contrary to the claim that it never does. Thus, the true nature of renal tubular secretion involves the potential

**4. At what level of the nervous system do ascending sensory pathways cross over to reach the contralateral cortex?**

- A. Cerebellum**
- B. Spinal cord**
- C. Medulla**
- D. Pons**

Ascending sensory pathways typically cross over at the level of the medulla before reaching the contralateral cortex. This crossing-over phenomenon is known as decussation. For example, in the case of the dorsal column-medial lemniscus pathway, which carries fine touch and proprioceptive information, the first order neurons ascend to the medulla where they synapse and then cross over as second order neurons to form the medial lemniscus. From there, they travel to the thalamus and then to the somatosensory cortex. Understanding this process is crucial in the context of how sensory information is processed and perceived in the brain. The medulla serves as a critical point of information exchange, effectively integrating sensory input from one side of the body to the corresponding area of the opposite side of the brain, facilitating proper sensory localization and response.

**5. In a synthesis reaction, what happens to the reactants?**

- A. They form ions only**
- B. They do not change**
- C. They combine to form a compound**
- D. They are completely consumed without forming any products**

In a synthesis reaction, the primary characteristic is that two or more reactants combine to form a single, more complex compound. This process involves bonding interactions between the reactants, resulting in the creation of new chemical identities and typically releasing energy in the form of heat or light. The correct answer accurately reflects this principle, highlighting that the reactants undergo a chemical transformation that produces a new substance. The formation of this compound is central to the definition of synthesis reactions and distinguishes them from other types of reactions, such as decomposition or combustion, where reactants may break down into simpler substances or produce energy without forming new compounds. The other choices do not align with the nature of a synthesis reaction. The idea that the reactants only form ions would suggest a different type of reaction, such as an ionic dissociation. Stating that the reactants do not change contradicts the essence of a chemical reaction, where reactants are transformed into products. Finally, the notion that reactants are completely consumed without forming any products describes a situation more consistent with a failure in a reaction or a different type of chemical process, rather than a successful synthesis.

**6. What type of joint is the hip joint classified as?**

- A. Hinge joint**
- B. Pivot joint**
- C. Ball and socket joint**
- D. Gliding joint**

The hip joint is classified as a ball and socket joint due to its anatomical structure and function. In a ball and socket joint, one bone has a spherical head (the "ball") that fits into a cup-like socket of another bone, allowing for a wide range of movement in multiple directions. This design is particularly evident in the hip joint, where the head of the femur (thigh bone) fits into the acetabulum, a deep socket in the pelvis. This configuration enables the hip joint to support complex movements such as walking, running, and jumping, as well as significant rotational motion. The stability of the ball and socket joint is enhanced by surrounding ligaments and muscles, which provide both flexibility and support. This type of joint is critical for weight-bearing activities and the overall mobility of the lower limb, making it a key component in human locomotion.

**7. What does cyanosis signify in a patient with congenital heart disease?**

- A. A normal oxygen level in the blood**
- B. A bluish tint to skin and lips**
- C. Increased heart rate**
- D. Weakness in heart muscles**

Cyanosis is characterized by a bluish tint to the skin and lips, which indicates a deficiency of oxygen in the blood. In patients with congenital heart disease, this can occur when there are abnormalities in the heart's structure that impede proper blood flow or mix oxygen-rich blood with oxygen-poor blood. The bluish coloration serves as a visual cue that the body is not receiving adequate oxygen, which is critical for cellular function and overall health. Options related to normal oxygen levels, increased heart rate, or weakness in heart muscles do not accurately represent what cyanosis signifies in this context. The appearance of cyanosis reflects the physiological state of hypoxemia rather than any normal or stable cardiac or systemic function.

**8. What is the effect of cortisol on lysosomal membranes in the context of inflammation?**

- A. It enhances their fragility**
- B. It stabilizes them to prevent rupture**
- C. It promotes their growth**
- D. It inhibits their formation**

Cortisol, a glucocorticoid hormone, plays a significant role in the body's response to stress and inflammation. One of its important effects during inflammatory processes is its ability to stabilize lysosomal membranes. By enhancing the integrity of these membranes, cortisol helps prevent their rupture. This stabilization is crucial because lysosomal rupture can lead to the release of hydrolytic enzymes into the cytoplasm, resulting in cellular damage and exacerbation of the inflammatory response. In the context of inflammation, cortisol's action on lysosomal membranes serves as a protective mechanism, allowing cells to better manage the inflammatory response and maintain homeostasis. The prevention of lysosomal rupture helps limit tissue damage and modulate the activity of immune cells, leading to a more controlled inflammatory reaction.



## 9. What is the primary function of cranial nerves?

- A. Coordinate movement
- B. Facilitate sensory functions**
- C. Enhance digestion
- D. Regulate blood pressure

The primary function of cranial nerves is to facilitate sensory functions. Cranial nerves are a set of twelve pairs of nerves that directly emerge from the brain and brainstem. They play crucial roles in transmitting sensory information from the peripheral areas of the body to the central nervous system, allowing individuals to experience various sensations, such as sight, sound, taste, and touch. Each cranial nerve has a specific function, and many of them are involved in carrying sensory information. For example, the optic nerve transmits visual information from the retina to the brain, while the olfactory nerve is responsible for the sense of smell. In addition to sensory functions, some cranial nerves also carry motor commands to muscles, particularly those involved in facial expressions and movements. Although some of the other options may seem related to broader physiological functions, such as movement coordination or digestion regulation, they do not capture the primary sensory function directly associated with cranial nerves. Therefore, recognizing the essential role of cranial nerves in sensory perception helps to clarify why facilitating sensory functions is the most accurate answer in this context.

## 10. Which anatomical joint is specifically identified as a hinge joint?

- A. Nail joint
- B. Shoulder joint
- C. Knee joint**
- D. Wrist joint

The knee joint is identified as a hinge joint due to its structure and the specific type of movement it allows. Hinge joints primarily enable movement in one plane, allowing flexion and extension. In the case of the knee, it operates similarly to the hinge of a door, permitting the lower leg to bend towards the body and extend away, while resisting movements in other directions. Additionally, the knee joint is composed of the femur, tibia, and patella, and is stabilized by various ligaments that ensure proper function during activities such as walking, running, and jumping. Its anatomical design supports weight-bearing and provides significant range of motion, characteristics that are quintessential of hinge joints. While the other joints listed each have their unique motions, they don't conform to the typical hinge joint characteristics. For instance, the shoulder joint is a ball-and-socket joint, allowing greater freedom of movement than just flexion and extension. The wrist joint incorporates a variety of movements and is classified as a complex joint rather than strictly a hinge. The nail joint, a term that may refer to the distal interphalangeal joint, also does not have the exclusive hinge characteristics exemplified by the knee.

## 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](mailto:hello@examzify.com).**

**Or visit your dedicated course page for more study tools and resources:**

**<https://pacatentrance.examzify.com>**

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