

# Ivy Tech APHY 101 - Skeletal System Practice Test (Sample)

## Study Guide



**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. 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 structure is the central channel through an osteon that contains blood vessels and nerves?**
  - A. Central canal**
  - B. Perforating canal**
  - C. Canaliculi**
  - D. Lacunae**
  
- 2. Mature bone cells that reside in lacunae; monitor and maintain the bone matrix and function as stress sensors to coordinate remodeling.**
  - A. Osteogenic Cells**
  - B. Osteoblasts**
  - C. Osteocytes**
  - D. Osteoclasts**
  
- 3. Which bones are thin and flat, consisting of a layer of spongy bone between two layers of compact bone?**
  - A. Flat bone**
  - B. Long bone**
  - C. Irregular bone**
  - D. Sesamoid bone**
  
- 4. Which of the following best describes the appendicular skeleton?**
  - A. Bones of the limbs and limb girdles**
  - B. Bones of the skull**
  - C. Rib cage bones**
  - D. Vertebral column bones**
  
- 5. Hydroxyapatites (mineral salts) make up about 65% of bone mass and are responsible for hardness and resistance to compression. This describes which component of bone matrix?**
  - A. Inorganic components (of bone matrix)**
  - B. Organic components (of bone matrix)**
  - C. Osteocytes**
  - D. Periosteum**

- 6. Capillaries in the endosteum supply nutrients to bone; the endosteum lines the inner surfaces of the bone, including the medullary cavity. Which surfaces are lined by the endosteum?**
- A. Medullary cavity and trabeculae surfaces**
  - B. Outer bone surface only**
  - C. Joint cartilage surfaces**
  - D. Periosteum surfaces**
- 7. Near the end of adolescence, chondroblasts divide less often; the \_\_\_\_\_ thins then is replaced by bone.**
- A. Epiphyseal plate**
  - B. Medullary cavity**
  - C. Periosteum**
  - D. Endosteum**
- 8. After endochondral ossification is complete, hyaline cartilage remains only in which locations?**
- A. Epiphyseal plates and articular cartilages**
  - B. Diaphysis**
  - C. Endosteum**
  - D. Periosteum**
- 9. Which term describes a large rounded projection that may be roughened?**
- A. Tuberosity**
  - B. Crest**
  - C. Line**
  - D. Trochanter**
- 10. Which type of bone is cube-shaped and typically found in the wrists and ankles?**
- A. Short bone**
  - B. Long bone**
  - C. Flat bone**
  - D. Irregular bone**

## Answers

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

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## **Explanations**

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**1. Which structure is the central channel through an osteon that contains blood vessels and nerves?**

**A. Central canal**

**B. Perforating canal**

**C. Canaliculi**

**D. Lacunae**

The central canal is the main vertical channel through the osteon that houses blood vessels and nerves, providing the essential supply and innervation for the bone tissue. Around this canal, osteons have concentric lamellae with osteocytes nestled in lacunae and extending processes through canaliculi to share nutrients with the central canal. Perforating canals connect neighboring osteons and carry vessels between central canals, but they are not the single central channel of one osteon. Canaliculi are the tiny pathways linking lacunae and enabling nutrient exchange, not the main vessels themselves. Lacunae are the small chambers that house osteocytes.

**2. Mature bone cells that reside in lacunae; monitor and maintain the bone matrix and function as stress sensors to coordinate remodeling.**

**A. Osteogenic Cells**

**B. Osteoblasts**

**C. Osteocytes**

**D. Osteoclasts**

Osteocytes are the mature bone cells that reside in lacunae, monitor the surrounding bone matrix, and act as stress sensors to coordinate remodeling. They originate when osteoblasts become embedded in the bone matrix they secrete, ending up in small cavities called lacunae with long extensions that reach through canaliculi to communicate with other cells. Through these connections they detect mechanical strain and mineral needs, then send signals to osteoblasts and osteoclasts to adjust bone formation and resorption accordingly. This signaling helps maintain bone strength in response to use and load, with molecules like sclerostin and RANKL/OPG mediating the balance between building and breaking down bone. By contrast, osteogenic cells are stem-like precursors, osteoblasts actively form new bone on surfaces, and osteoclasts resorb bone, so they don't fit the description of mature cells in lacunae acting as stress sensors.

**3. Which bones are thin and flat, consisting of a layer of spongy bone between two layers of compact bone?**

- A. Flat bone**
- B. Long bone**
- C. Irregular bone**
- D. Sesamoid bone**

A flat bone is thin and flat and features a layer of spongy bone between two layers of compact bone. This sandwich-like arrangement, with the outer and inner compact layers protecting the inner tissue and the middle spongy bone (often called diploë in skull bones) providing some lightness and space for marrow, is the hallmark of flat bones. You'll find this design in structures like the bones of the skull, sternum, ribs, and scapula. In contrast, long bones have a prominent shaft of compact bone surrounding a medullary cavity, irregular bones have varied shapes, and sesamoid bones form within tendons. So the described bones fit the flat bone category.

**4. Which of the following best describes the appendicular skeleton?**

- A. Bones of the limbs and limb girdles**
- B. Bones of the skull**
- C. Rib cage bones**
- D. Vertebral column bones**

The appendicular skeleton includes the bones of the limbs and the girdles that attach them to the trunk. This means the bones of the arms and legs, plus the shoulder girdle (clavicle and scapula) and the pelvic girdle (hip bones) that anchor those limbs. In contrast, the axial skeleton comprises the skull, vertebral column, and rib cage. So the best description is that the appendicular skeleton consists of the limbs and their girdles, with examples such as the humerus, radius, ulna, bones of the hands; femur, tibia, fibula, bones of the feet; and the shoulder and hip girdles that connect them to the body. These bones support movement and interaction with the environment.

**5. Hydroxyapatites (mineral salts) make up about 65% of bone mass and are responsible for hardness and resistance to compression. This describes which component of bone matrix?**

- A. Inorganic components (of bone matrix)**
- B. Organic components (of bone matrix)**
- C. Osteocytes**
- D. Periosteum**

Hardness and resistance to compression come from the mineral salts in bone, specifically hydroxyapatite. This makes up the inorganic portion of the bone matrix, the part that provides rigidity by filling spaces within the organic scaffold. The organic portion, mainly collagen, offers flexibility and tensile strength, but the mineral component is what makes bone hard enough to support body weight. Osteocytes are the bone cells embedded in the matrix, and the periosteum is the outer covering; neither is the mineral part responsible for hardness. So this description points to the inorganic components of the bone matrix.

**6. Capillaries in the endosteum supply nutrients to bone; the endosteum lines the inner surfaces of the bone, including the medullary cavity. Which surfaces are lined by the endosteum?**

**A. Medullary cavity and trabeculae surfaces**

**B. Outer bone surface only**

**C. Joint cartilage surfaces**

**D. Periosteum surfaces**

Endosteum is a thin membrane that lines the inner surfaces of bone and contains osteogenic cells and small blood vessels to support remodeling from the inside. Because of this internal lining role, it covers the medullary cavity along the inner shaft and the surfaces of the trabeculae in the spongy (cancellous) bone. It does not cover the outer surface, which is the job of the periosteum, nor does it cover joint cartilage surfaces, which are covered by articular cartilage. So the surfaces lined by the endosteum are the medullary cavity and the trabecular surfaces.

**7. Near the end of adolescence, chondroblasts divide less often; the \_\_\_\_\_ thins then is replaced by bone.**

**A. Epiphyseal plate**

**B. Medullary cavity**

**C. Periosteum**

**D. Endosteum**

Long bones grow in length at the epiphyseal plate, a region of cartilage between the ends (epiphyses) and the shaft (diaphysis). Chondroblasts in this plate continually divide to push the ends apart and create new cartilage, which is then replaced by bone through endochondral ossification. Near the end of adolescence, chondroblasts divide less often, causing the cartilage to thin and be progressively ossified. This replaces the growth plate with bone, and afterward a bony epiphyseal line remains where the plate once was. The other options—medullary cavity, periosteum, and endosteum—are not growing zones governed by chondroblast activity and do not thicken or thin in this process.

**8. After endochondral ossification is complete, hyaline cartilage remains only in which locations?**

**A. Epiphyseal plates and articular cartilages**

**B. Diaphysis**

**C. Endosteum**

**D. Periosteum**

During endochondral ossification, most of the cartilage model is replaced by bone as the skeleton grows, but hyaline cartilage is left in two specific places. One is the articular cartilage that covers the ends of long bones within joints, providing a smooth, low-friction surface. The other is the epiphyseal growth plates located between the diaphysis and each epiphysis; these plates stay cartilage to allow bone elongation during development. As growth finishes, the growth plates ossify and become a bony epiphyseal line, so hyaline cartilage remains only at the articular surfaces in adulthood. The other structures listed—diaphysis, endosteum, and periosteum—are bone-related tissues or spaces around bone and do not retain hyaline cartilage.

**9. Which term describes a large rounded projection that may be roughened?**

**A. Tuberosity**

**B. Crest**

**C. Line**

**D. Trochanter**

A tuberosity is a large rounded bump on a bone that is often roughened to provide a strong attachment surface for muscles or ligaments. The rough texture increases grip and surface area, helping tendons or ligaments anchor under tension. You see this in places like the tibial tuberosity beneath the knee, the ischial tuberosity you sit on, or the deltoid tuberosity on the humerus. This description—large and rounded with a roughened surface—best matches tuberosity, whereas crests are narrow ridges, lines are even thinner ridges, and trochanters are large projections (often on the femur) but not necessarily described as the rounded, roughened bump implied here.

**10. Which type of bone is cube-shaped and typically found in the wrists and ankles?**

**A. Short bone**

**B. Long bone**

**C. Flat bone**

**D. Irregular bone**

Short bones are cube-shaped and roughly as wide as they are tall, making them ideal for stable support with limited movement. In the wrists and ankles, the carpals and tarsals exemplify this form, using their compact, cubed shape to absorb and distribute forces from many directions. They feature a thin outer layer of compact bone surrounding a spongy interior, which provides strength without adding bulk. This contrasts with long bones, which are much longer than wide, flat bones that are thin and curved, and irregular bones with more complex shapes.

## 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:**

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

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