

# LAB ANSWERS BY CHAPTER

## Answers to questions

1. extracellular matrix
2. Nutrients and wastes would have a hard time diffusing through the solid matrix of bone. Canaliculi allow movement of nutrients and wastes through the tissue.
3. Concentric lamellae form concentric rings to make up each osteon.  
Interstitial lamellae fill in gaps between the osteons.  
Circumferential lamellae form the outer edge, or circumference, of the bone.
4. compact bone  
spongy bone  
dense irregular connective tissue (periosteum and endosteum)  
blood (in vessels and red marrow)  
adipose tissue (yellow marrow)  
hyaline cartilage (articular cartilage and epiphyseal lines)  
lymph  
simple squamous epithelium (in capillaries)  
smooth muscle (in larger blood vessels)
5. Yellow marrow in the bone is primarily for storage of energy. (I don't think it would do much in the way of cushioning or thermal insulation in a bone.)
6. All of the bones in the body contain compact bone and bone marrow.
7. Smooth surfaces will reduce friction for a moveable joint.
8. Rough surfaces provide greater surface area for attachment of muscles.

## Answers to questions

1. sagittal suture—left and right parietal bones  
coronal suture—frontal bone and both parietal bones  
lambdoidal suture—occipital bone and both parietal bones  
squamous suture—temporal bone and parietal bone
2. Holes are necessary so that blood vessels and nerves may enter and exit the skull.

3. a sinus headache
4. the zygomatic process of the temporal bone
5. bones—the maxillae and the palatine bones  
structures—the palatine processes of the maxillae, and the horizontal plates of the palatine bones
6. to transmit vibrations (sound) from the eardrum to the inner ear
7. The hyoid bone forms a base of attachment for the tongue. It also serves as an attachment site for muscles involved in swallowing.

## 12. Vertebrae, Ribs, and Sternum

### Answers to questions

1. The sides are formed by the pedicles and the top is formed by the laminae.
2. The articular processes stabilize the vertebral column and restrict movement of the vertebrae.
3. Atlas held up the Earth; the atlas of the spine supports the skull.
4. The sacroiliac joint does not move. The rough surfaces hold the bones together.
5. transverse costal facet
6. three; no
7. lungs; heart

## 13. The Pectoral Girdles and Superior Appendages

### Answers to questions

1. The glenoid cavity is a nearly flat surface, not a deep socket. Therefore, it is not difficult for the head of the humerus to slip out of the glenoid cavity.
2. The acromial end articulates with the acromion of the scapula. The sternal end articulates with the manubrium of the sternum.
3. the olecranon process
4. the humerus and the ulna
5. fourteen
6. 

humerus	(1)
radius	(1)
ulna	(1)
carpals	(8)
metacarpals	(5)
<u>phalanges</u>	<u>(14)</u>
total	(30)

## 14. The Pelvic Girdle and Inferior Appendages

### Answers to questions

1. two—left and right coxal bones
2. Four joints are involved in formation of the pelvis:  
two sacroiliac joints (coxal bone—sacrum)  
one pubic symphysis (left coxal bone—right coxal bone)  
one joint between the sacrum and coccyx (they might miss this one, and I'm not sure if there is a name for this joint; "sacrococcygeal" perhaps???)
3. medial malleolus; tibia
4. lateral malleolus; fibula
5. The tibial collateral ligament is most likely to tear if the knee is struck laterally. One often hears of football players with tears of the "medial collateral ligament."

By the way, the medial meniscus is often damaged along with it, and possibly the ACL.

6. There are fourteen phalanges in each foot, the same number as in each hand.

7.	femur	(1)
	patella	(1)
	tibia	(1)
	fibula	(1)
	tarsals	(7)
	metatarsals	(5)
	<u>phalanges</u>	<u>(14)</u>
	total	(30)

The total is conveniently the same in both superior and inferior appendages. Although there is one less tarsal than carpal, this is compensated for by the patella.