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## Skeletal System: The Appendicular Skeleton

### Answers and Explanations

#### I. Pectoral Girdle and Upper Extremity

##### A. Multiple Choice Questions

1. (c) – The pectoral girdle is a part of the appendicular skeleton.
2. (c) – Only the clavicle has a conoid tubercle.
3. (d) – There is a coronoid process on the mandible and on the ulna, but not on the scapula.
4. (b) – The glenoid cavity is located on the lateral end of the scapula, where it forms a freely movable joint with the head of the humerus.
5. (b) – The ulnar notch is located on the proximomedial end of the radius and articulates with the head of the ulna.
6. (a) – Neither the humerus nor the scapula has a styloid process.
7. (e) – The capitate and trapezium are located in the distal row of carpal bones and do not contact either the radius or ulna.
8. (d) – The trapezium is the most medial of the distal row of carpal bones.

##### B. True–False Questions

1. True – The various borders, fossae, processes, and spine are all sites of muscle attachment.
2. False – The femur is the longest bone in the body.
3. False – The brachium is the proximal region of the upper extremity; the antebrachium is the technical term for the forearm.
4. False – The ulna does not have a coracoid process. It does, however, have a coronoid process.
5. True – In anatomical position, the radius is the lateral bone of the antebrachium.
6. True – The bases of the metacarpal bones are proximal to the heads.
7. False – Each digit of the hand, except for the thumb, has three bones. The thumb has only a proximal and a distal phalanx.
8. True – A number of sesamoid bones also may be formed in the tendons crossing the joints of the hand.

#### II. Pelvic Girdle and Lower Extremity

##### A. Multiple Choice Questions

1. (a) – Each os coxae firmly articulates posteriorly with the sacrum at the sacroiliac joint. Anteriorly, the ossa coxae loosely articulate at the symphysis pubis.
2. (c) – The symphysis pubis is the location of anterior articulation of the pelvic girdle, where one os coxae articulates with the other.
3. (c) – The true pelvis of the female is wider than that of the male, which facilitates parturition (childbirth).
4. (b) – The acetabulum is a deep, cuplike depression on the lateral surface of the os coxae for articulation with the head of the femur.
5. (a) – Both the tibia and fibula have a malleolus. The medial malleolus is a process of the tibia, and the lateral malleolus is a process of the fibula.
6. (d) – The calcaneus is the largest of the tarsal bones and is commonly known as the heel of the foot.
7. (a) – The navicular is located immediately proximal to the distal row of tarsal bones.
8. (c) – The sciatic notch is a structural feature of the ilium.

##### B. True–False Questions

1. False – Pelvimetry measures the dimensions of the true pelvis to determine if a cesarean delivery may be necessary.
2. True – The ilium is the largest of the os coxae.
3. False – The sciatic nerve and femoral vessels pass, respectively, through the greater and lesser sciatic notches of the ilium. Various pelvic muscles attach to a ligament spanning the obturator foramen.

4. True – Located in the thigh, the femur has a major weight-bearing role.
5. False – The patella does not articulate with the fibula.
6. True – The base articulates with a tarsal bone and the head articulates with a proximal phalanx.
7. False – The ball of the foot is formed by the heads of the first two metatarsal bones.
8. True – The arches of the foot function as shock absorbers during locomotion.

### III. Developmental Exposition of the Appendicular Skeleton

#### A. Multiple Choice Questions

1. (c) – Although derived from mesoderm, bones and muscles are stimulated to develop by the activity of the apical ectodermal ridge.
2. (c) – Fused at first, the digital rays separate to form individual digits.
3. (c) – At the end of the sixth week, prenatal development is still taking place in the embryonic period.
4. (c) – Thalidomide was a drug prescribed to ease morning sickness.

#### B. True–False Questions

1. False – Hyaline cartilage is gradually replaced by bone in endochondral ossification.
2. True – Once established, the limb buds rapidly develop into appendages during the early embryonic period.

### IV. Clinical Considerations

#### A. Multiple Choice Questions

1. (c) – The prefix *syn-*, meaning “together,” and the suffix *-dactyly*, meaning “digits,” convey the meaning of this term.
2. (c) – A traumatic fracture is not disease related, but rather is due to injury.
3. (c) – A Pott’s fracture is named in honor of the physician who first described this type of break in the fibula.
4. (c) – During remodeling, there is some resorption of extra bone tissue.

#### B. True–False Questions

1. True – Because of the hazardous activities we routinely engage in, traumatic fractures of bones are a common occurrence.
2. True – Avulsion may occur at a joint or through the bone itself.
3. True – Poor nutrition on the part of a pregnant woman may be a factor in the development of talipes within her unborn baby.

### V. Chapter Review

#### A. Completion Questions

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|-----------------|-----------------|
| 1. clavicle     | 6. humerus      |
| 2. humerus      | 7. ilium        |
| 3. nutrient     | 8. longitudinal |
| 4. hand/foot    | 9. sesamoid     |
| 5. appendicular |                 |

#### B. Matching Questions

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|--------|---------|
| 1. (g) | 6. (j)  |
| 2. (d) | 7. (e)  |
| 3. (i) | 8. (h)  |
| 4. (f) | 9. (b)  |
| 5. (c) | 10. (a) |