Ch 5 Skeletal System

ANSWERS TO END OF CHAPTER REVIEW QUESTIONS

Multiple Choice
1. A,B, D
2. D
3. B
4. D
5. A,B,C,D,E
6. D
7. B,C,E
8. B

Short Answer Essay
1. Forms the body’s internal structural framework, that is, provides support. Anchors skeletal muscles and allows them to exert force to produce movement. Protects by enclosing (skull, thorax, and pelvis). Provides a storage depot for calcium and fats. Site of blood formation.
2. Shaft of a long bone: Diaphysis
   Ends of a long bone: Epiphyses
   Yellow marrow: Fat
   Spongy bone looks holey or lacy, whereas compact bone appears to be solid.
3. Bone is highly vascularized and thus heals rapidly. Cartilage has poor vascularization and depends on diffusion for its nutrient supply; thus, it heals slowly or poorly.
4. PTH promotes calcium homeostasis of the blood and is the most important factor determining if calcium is to be removed from or deposited in the bony skeleton. For example, when blood calcium levels begin to drop, PTH activates the osteoclasts of bone. As bone matrix is broken down, ionic calcium is released to blood. Mechanical forces acting on bones determine where calcium can safely be removed or where more calcium should be deposited to maintain bone strength.
5. Fracture: A break in a bone. Compression and comminuted fractures are particularly common in the elderly. Greenstick fractures (incomplete fractures) are common when the bone matrix contains relatively more collagen, as do children’s bones.
6. Skull, thorax, vertebral column
7. Two each: temporal and parietal bones
   One each: occipital, frontal, sphenoid, and ethmoid bones
8. Coronal suture: frontal and parietal bones
   Sagittal suture: parietal bones
9. Joint between the mandible and temporal bone (temporomandibular joint-TMJ)
10. Chin: mandible
    Cheekbone: zygomatic
    Upper jaw: maxilla
    Eyebrow ridges: frontal
11. The fetal skull has (a) much larger cranium-to-skull size ratio, (b) foreshortened facial bones, and (c) fontanelle or unfused (membraneous) areas.
12. Cervical thoracic, lumbar, sacral, coccygeal
13. See Figure 5.15 (p. 132) and Figure 5.17 (p. 133)
14. To cushion shocks to the head and to allow movement of the spinal column (e.g. laterally)
15. Sternum, ribs (attached to the vertebral column posteriorly).
16. True rib: Attached directly to the sternum by its own costal cartilage
    False rib: Attached to the sternum indirectly (or not at all). A floating rib is a false rib. Floating ribs are easily broken because they have no anterior (sternal) attachment (direct or indirect) and thus have no anterior reinforcement.
17. Clavicle and scapula
18. Humerus, radius, and carpals
19. Bearing weight
20. Ilium, ischium, pubis. The ilium is the largest. The ischium has the “sit-down” tuberosities. The pubis is most anterior.

21. The female pelvis is lighter, broader, and shallower, and has a broader pubic arch and larger inlet and outlet, shorter and straighter sacrum, and more circular inlet.

22. Femur, fibula/tibia, tarsals, metatarsals, phalanges

23. To connect bones and to allow movement (to a greater or lesser degree)

24. Synarthrotic: Essentially immovable, generally fibrous
   Amphiarthrotic: Slightly movable, generally cartilaginous
   Diarthrotic: Freely movable, synovial

25. The articulating ends of bones in a synovial joint are covered with articular cartilage and are separated by a cavity that contains synovial fluid. Synovial joints are enclosed by a fibrous connective tissue capsule lined with a smooth synovial membrane. Reinforcing ligaments may reinforce the fibrous capsule, and bursae may cushion tendons where they contact bone.

26. Arthritis: Inflammation of the joints. Degenerative arthritis (osteoarthritis) is the type most common in the elderly (owing to the wear and tear on joints that accompanies increasing age and use). Rheumatoid arthritis is believed to be an autoimmune disease.

27. Factors that keep bones healthy: physical stress/use (most important), proper diet (e.g. calcium).
   Factors that cause bones to become soft or atrophy: Disuse, hormone imbalances, loss of stimulation.