Human Anatomy & Physiology I
with Dr. Hubley

Practice Exam #2
For questions 1 through 3, select your answers from the following responses:
   a. stratified squamous epithelium  
   b. reticular connective tissue  
   c. areolar connective tissue  
   d. adipose tissue  
   e. dense irregular connective tissue

1. What type of tissue makes up the epidermis?

2. What type of tissue makes up the papillary layer of the dermis?

3. What type of tissue makes up the reticular layer of the dermis?

For questions 4 through 6, select your answers from the following responses:
   a. stratum basale  
   b. stratum corneum  
   c. stratum granulosum  
   d. stratum lucidum  
   e. stratum spinosum

4. Which layer is NOT found in the skin on your face?

5. Which layer contains the bodies of melanocytes?

6. Which layer is the apical layer of the epidermis?

7. The hypodermis is best at providing which of the following functions?
   a. protecting the body from ultraviolet radiation  
   b. preventing loss of water from the skin  
   c. producing antibacterial chemicals  
   d. providing insulation from heat loss  
   e. production of vitamin D
8. Which one of the following statements is **NOT** true?
   a. Most of the cells in the epidermis are keratinocytes.
   b. Most of the skin’s melanin is found in keratinocytes.
   c. Keratinocytes produce keratin.
   d. Keratin helps to make skin waterproof.
   e. Cells in the stratum corneum produce the most keratin.

9. Which one of the following statements is true?
   a. The reticular layer of the dermis contains reticular tissue.
   b. The reticular layer of the dermis is the deepest layer of the cutaneous membrane.
   c. The reticular layer of the dermis is in contact with the basement membrane of the epidermis.
   d. The reticular layer of the dermis contains large amounts of keratin.
   e. The reticular layer of the dermis is superficial to the papillary layer.

10. Which one of the following layers contains the greatest concentration of blood vessels?
    a. papillary layer
    b. reticular layer
    c. stratum basale
    d. stratum granulosum

11. Which substance is produced by ceruminous glands?
    a. sweat
    b. sebum
    c. ear wax
    d. breast milk
    e. Responses “a” and “b” are both correct.

12. Which one of the following structures is found in the skin over the greatest amount of your body?
    a. sebaceous gland
    b. merocrine sweat gland
    c. hair follicle
    d. ceruminous gland
    e. apocrine sweat gland
13. Which type of gland is typically functional in a 5-year-old child?
   a. ceruminous gland
   b. apocrine sweat gland
   c. merocrine sweat gland
   d. mammary gland
   e. More than one of the responses above is correct.

14. Which one of the following lists is in the proper order?
   a. UV radiation → vitamin D → calcitriol → absorption of calcium
   b. absorption of calcium → vitamin D → calcitriol → UV radiation
   c. vitamin D → UV radiation → calcitriol → absorption of calcium
   d. calcitriol → vitamin D → UV radiation → absorption of calcium
   e. UV radiation → vitamin D → absorption of calcium → calcitriol

15. When you are cold
   a. merocrine sweat glands produce more secretions.
   b. apocrine sweat glands produce more secretions.
   c. your skin excretes more waste products.
   d. the amount of blood flow to the skin decreases.
   e. None of the responses above is correct.

16. Salé was born in Central Africa; her family has lived there for hundreds of generations. When Salé was two years old her family moved to Alaska. Which one of the following statements is most likely true?
   a. Salé needs to use lots of sunscreen, or she will be at a high risk of skin cancer.
   b. Given a normal diet, Salé’s blood calcium levels will be abnormally high.
   c. It is important for Salé to get plenty of vitamin D in her diet.
   d. Salé’s liver probably does not work properly.
   e. Salé has an unusually low risk of developing osteoporosis when she gets older.

17. The pectoral and pelvic girdles are part of the
   a. axial skeleton.
   b. appendicular skeleton.
   c. axial skeleton and the appendicular skeleton.
18. Most of the bones in the appendages (i.e., arms, hands, legs, and feet) are _______ bones.
   a. long
   b. short
   c. flat
   d. irregular
   e. round

19. Lipids are stored in _______ ; in adults this is found ____________________.
   a. red marrow; only in long bones
   b. red marrow; in most bones
   c. yellow marrow; only in long bones
   d. yellow marrow; in most bones
   e. red and yellow marrow; only in flat bones

20. Which of the following lists shows structures in order from simplest to the most complex?
   a. humerus–spongy bone–osteoblast–collagen
   b. spongy bone–hydroxyapatite–osteocyte–rib
   c. calcium–compact bone–osteoclast–rib
   d. collagen–osteoblast–compact bone–femur
   e. None of the lists above shows structures in order from simplest to most complex.

21. Which one of the following structures includes all of the others?
   a. concentric lamella
   b. lacuna
   c. osteocyte
   d. central canal
   e. osteon

22. The periosteum is attached tightly to the bone by
   a. tendons.
   b. ligaments.
   c. perforating fibers.
   d. endosteum.
   e. nutrient foramina.
For questions 23 through 25 select your responses from the letters above.

23. Which letter indicates trabeculae?

24. Which letter indicates a perforating canal?

25. Which letter indicates concentric lamellae?

26. Which one of the following statements is true?
   a. Diplöe is found only in long bones.
   b. Trabeculae are found in flat bones, but not long bones.
   c. Spongy bone weighs less than compact bone.
   d. All of the statements above are true.
   e. None of the statements above is true.

27. In a child, which type of tissue makes up part of a long bone, such as the humerus?
   a. compact bone
   b. blood
   c. hyaline cartilage
   d. All of the responses above are correct.
   e. None of the responses above is correct.
28. Collagen is the main ingredient of _______, and calcium phosphate is the main ingredient of _______.
   a. spongy bone, compact bone
   b. inorganic matrix, organic matrix
   c. concentric lamellae, interstitial lamellae
   d. inorganic matrix, hydroxyapatite
   e. osteoid, hydroxyapatite

29. The disease called “rickets” results from low blood calcium levels. A child with rickets often develops bowed (bent) legs. Why are the legs bowed?
   a. Low calcium makes bones less resistant to tensile forces (tension).
   b. The bones of a child with rickets are less resistant to compression.
   c. Bones with low calcium levels do not contain yellow marrow.
   d. Low calcium levels make the bones have too much hydroxyapatite.
   e. The child’s testosterone levels are too high.

For questions 30-32 select your answers from the following responses:
   a. osteoblast
   b. osteoclast
   c. osteocyte
   d. Responses “a” and “b” are both correct.
   e. Responses “b” and “c” are both correct.

30. Which cell carries out the process of osteolysis?

31. Which cell comes from a cell called a monocyte?

32. Which cell is responsible for osteogenesis?

33. Which one of the following statements is true about a healthy 30-year-old man?
   a. The bones are in a state of homeostasis, and there is no osteogenesis or osteolysis.
   b. Excess calcium in the diet may result in an increase in bone density.
   c. The rate of osteolysis should be significantly greater than the rate of osteogenesis.
   d. The man’s entire skeleton should be replaced with new bone by the age of 35.
34. Emma is 65 years old, and her bones are weak. Recently she has lost her appetite, and her blood calcium levels have been falling. Which one of the following statements should also be true of Emma?
   a. Her thyroid gland is releasing more calcitonin to stimulate osteogenesis.
   b. Her parathyroid glands are releasing more PTH to stimulate osteolysis.
   c. To strengthen her bones, levels of both calcitonin and PTH will decrease.
   d. Levels of both calcitonin and PTH will be higher than normal.
   e. Her ovaries will begin producing higher levels of estrogen.

35. Which of the following factors may put an elderly woman at risk of osteoporosis?
   a. low levels of estrogen
   b. a diet low in calcium
   c. low levels of physical activity
   d. All of the responses above are correct.
   e. None of the responses above is correct.

36. Bill has fair skin and spends a lot of time in the sun. He eats a diet that includes plenty of calcium and phosphorus. Unfortunately, his liver has been damaged by disease and it is not producing calcitriol. Which one of the following statements is most likely true?
   a. Bill’s blood calcium level is abnormally low.
   b. Bill’s vitamin D level is abnormally low.
   c. Bill’s calcitonin level is abnormally high.
   d. Bill’s osteoblasts are active at abnormally high levels.
   e. More than one of the statements above is likely true.

37. During appositional growth of a bone
   a. new compact bone is created on the outer surface of the bone.
   b. osteoclasts remove compact bone from the inside of the bone.
   c. old compact bone on the inside is replaced by new spongy bone.
   d. All of the responses above are correct.
   e. None of the responses above is correct.

38. Which type of cell produces new cartilage during the process of growth at an epiphyseal plate?
   a. chondroblast
   b. osteoblast
   c. osteoclast
   d. All of the responses above are correct.
   e. None of the responses above is correct.
39. What would have a negative effect on the strength and density of the skeletal system?
   a. high levels of testosterone
   b. high levels of estrogen
   c. high levels of calcitonin
   d. high levels of parathyroid hormone
   e. high blood calcium levels

For questions 40 through 43, select your answer from one of the responses below:
   a. fibrous joint
   b. cartilaginous joint
   c. synovial joint
   d. All of the responses above are correct.
   e. None of the responses above is correct.

40. What is a symphysis?

41. What is a freely moveable joint?

42. What is a suture?

43. What is the joint formed between the tibia and fibula, which involves an interosseus ligament?

44. Which one of the following statements about synovial joints is true?
   a. The articulating surfaces of the bones are covered by epithelial tissue.
   b. Reinforcing ligaments are made of reticular connective tissue.
   c. Adipose tissue fills the joint cavity.
   d. Reinforcing ligaments prevent movement of the joint.
   e. The articular capsule surrounds the joint cavity.

45. From anatomical position, you move your forearm forward. The angle at your elbow changes from 180° to 90°. What motion is happening at the elbow?
   a. flexion
   b. extension
   c. hyperextension
   d. abduction
   e. adduction
46. Which of the following joints may allow angular motion in more than one plane, but **NOT** rotation?
   a. hinge
   b. plane
   c. ball-and-socket
   d. condylar
   e. pivot

47. Which of the following joints allows rotation?
   a. hinge
   b. plane
   c. pivot
   d. condylar
   e. saddle

48. Consider the stick figures drawn below. What motion is shown at the shoulder joint?
   a. abduction
   b. adduction
   c. extension
   d. flexion
   e. hyperextension

49. What is the primary function of synovial fluid?
   a. to stabilize the joint
   b. to hold the bones together
   c. to lubricate the surfaces of the joint
   d. to store energy for the joint
   e. to promote the growth of the diaphysis

50. Which of the following joints allows the most different types of movement?
   a. condylar
   b. saddle
   c. ball-and-socket
   d. hinge
   e. Responses “a” and “b” are both correct.