

# Biology 112

## Exam 3 Questions

### Chapter 6

1. Identify the 2 true layers of skin. What is the major tissue composition of each?
2. Where is the subcutaneous layer located & what is its major tissue composition?
3. Identify the major secretory product of: keratinocytes; melanocyte. Which layer of skin contains these cells & which is the dominant cell type?
4. Identify the 3 major skin pigments. How does the body acquire each pigment?
5. What is the major function of each of the above skin pigments?
6. What is bilirubin & how is it related to jaundice?
7. What is the outermost cell layer (stratum) of the epidermis? What is the deepest cell layer?
8. Which cell layer is responsible for most of the cell division in the epidermis? Why?
9. Identify the major cell types of the dermis & their functions.
10. Define: dermal papillae; dermal ridges.
11. Identify the predominant cell type involved in producing: hair; nails.
12. Define: nail plate; cuticle; lunula.
13. Define: hair shaft; hair root; arrector pili muscle. What produces hair color?
14. What is the product of sebaceous glands? What is it composed of & what is its function?
15. Identify the location & product (secretion) of the following: Eccrine sweat glands; apocrine sweat glands; ceruminous glands; mammary glands.
16. What part of the brain is the main integration center for body temperature regulation?
17. Identify the major body responses involved in: heat promotion; heat loss.
18. Define the following with respect to deep wound healing: inflammation; blood clotting; epidermal & dermal repair; fibrosis.
19. Identify the portion of skin damaged by each of the 3 major types of burns.

### Chapter 7

20. Identify 5 major functions of bones.
21. Define: epiphysis; diaphysis; periosteum; endosteum.
22. For each of the following, indicate its structure & location in a bone: compact bone; spongy bone.
23. Define: osteon; central canal; perforating canal.
24. Define: osteocytes; lacunae; canaliculi.
25. Define: osteogenesis. Distinguish between intramembranous ossification & endochondral ossification.
26. Define: osteoblast; osteoclast; epiphyseal plate.
27. How do lever systems in the body accomplish movement?
28. Define hematopoiesis. Where are blood cells formed in the body (generally & specifically)? What is yellow bone marrow?
29. What minerals are stored in bone? Where are they stored?
30. Identify the hormone involved in: increasing blood calcium; decreasing blood calcium.

31. Identify the number of bones included in the: entire skeleton; axial skeleton; appendicular skeleton.

32. Identify the major bone groups of the: axial skeleton; appendicular skeleton.

### **The Axial Skeleton: The Skull**

33. Identify the location & major features of the following cranial bones: frontal bone; parietal bone; temporal bone; occipital bone; ethmoid bone; sphenoid bone.

34. Identify the location of the following facial bones: nasal bones; palatine bones; inferior nasal conchae; vomer.

35. Identify the location & major features of the following facial bones: maxillae; zygomatic bones; lacrimal bones; mandible.

36. Identify the location of the 4 major cranial sutures (which bones are joined by each?).

37. Identify the bone(s) of the axial skeleton with the following features: no articulations with other bones; articulations with all cranial bones; movable.

### **The Axial Skeleton: Vertebral Column**

38. List the 3 types of vertebrae and the number of each type. Which 2 bones are composed of fused vertebrae forming the inferior aspect of the vertebral column?

39. Identify the name & function of the first 2 cervical vertebrae. What type of vertebrae articulate with the ribs posteriorly?

### **The Axial Skeleton: Thorax**

40. Give the total number of: total ribs; true ribs; false ribs; floating ribs.

41. Identify the location & major features of the sternum. Which ribs connect directly with the sternum? How?

### **The Appendicular Skeleton: The Pectoral Girdle**

42. Identify the bones that compose the pectoral girdle. Give the location & list the major features of each.

### **The Appendicular Skeleton: The Upper Limb Bones**

43. Identify the upper arm bone. List the major features of this bone.

44. Identify the lower arm bones. List the major features of each bone. Which bone is: lateral (thumb side); medial (pinky side)?

45. How many of each of the following are in each arm: carpals; metacarpals; phalanges.

### **The Appendicular Skeleton: The Pelvic Girdle**

46. Identify the 3 bones that compose the pelvic girdle. Give the location & list the major features of each. What is the name given to the 3 fused bones together?

### **The Appendicular Skeleton: The Lower Limb Bones**

47. Identify the upper leg bone. List the major features of this bone.

48. Identify the lower leg bones. List the major features of each bone. Which bone is: lateral; medial?

49. How many tarsals are in each leg? Identify the: kneecap bone; heel bone. Which tarsal articulates with the lower leg bones?

### **Joints**

50. For each of the following, indicate its tissue composition & freedom of movement, and list one example: fibrous joints; cartilaginous joints; synovial joints.

51. Describe the structure & give an example of each of the following synovial joint types: ball & socket joint; condyloid joint; hinge joint; pivot joint.

52. Define: flexion; extension; Dorsiflexion; plantar flexion; abduction; adduction.

53. Define: rotation; circumduction; pronation; supination; eversion; inversion.

## Chapter 8

54. For each of the following muscle tissues, indicate the general structure, location & function (voluntary or involuntary): smooth muscle; skeletal muscle; cardiac muscle.
55. Identify the location of the following relative to a skeletal muscle: fascia; aponeuroses; epimysium; perimysium; endomysium.
56. Define the following parts of a skeletal muscle cell: sarcolemma; sarcoplasm; sarcoplasmic reticulum; sarcomere.
57. What are skeletal muscle myofibrils? What are they composed of? What makes up the striations in skeletal muscle?
58. What type of neuron stimulates a skeletal muscle cell? What type of chemical (generally & specifically) transmits the stimulation?
59. Identify the role of each of the following in skeletal muscle contraction: myosin; actin; troponin; tropomyosin.
60. Identify the role of each of the following in skeletal muscle contraction: sodium ions; potassium ions; calcium ions; acetylcholinesterase.
61. Identify the events that begin contraction in skeletal muscle cells.
62. Identify the events that end contraction in skeletal muscle cells.
63. Identify the role of each of the following in skeletal muscle contraction: creatine phosphate; myoglobin; lactic acid.
64. Identify 3 major pathways that produce energy for skeletal muscle contraction.
65. Define: threshold stimulus; tetanus; muscle tone.
66. How does smooth muscle contraction differ from skeletal muscle contraction?
67. Define: origin; insertion; agonist; antagonist; synergist.

### Principal Skeletal Muscles

68. List the major muscles (covered in class/notes) of the head & neck. For each, give the general location & function.
69. List the major muscles (covered in class/notes) of the abdominal wall. For each, give the general location & function.
70. List the major muscles (covered in class/notes) used in breathing.
71. List the major muscles (covered in class/notes) that move the pectoral girdle (scapula). For each, give the general location & function.
72. List the major muscles (covered in class/notes) that move the humerus. For each, give the general location & function.
73. Identify the flexors that move the radius & ulna. Identify the extensor that moves the radius & ulna. Where on the arm are these muscle groups located?
74. Identify the flexors that move the wrist & hand. Identify the extensors that move the wrist & hand. Where on the arm are these muscle groups located?
75. List the major muscles (covered in class/notes) that move the femur. For each, give the general location & function.
76. Identify the flexor(s) that move the tibia & fibula (muscle group & individual muscles). Where on the leg are these muscles located?
77. Identify the extensor(s) that moves the tibia & fibula (muscle group & individual muscles). Where on the leg are these muscles located?
78. Identify the dorsiflexors that move the ankle & foot. Identify the plantar flexors that move the ankle & foot. Where on the leg are these muscles located?