All questions are worth 1 point unless otherwise specified
Answers are highlighted or put in original answer table

Score: 160/160
Part I: The Integumentary System

Multiple Choice

1. Which of the following is not a function of the integumentary system?
   A. Regulation of body temperature
   B. Sensory perception
   C. **Produces waste products in perspiration**
   D. Providing the 1st line of defense in immunity

2. Which layer of skin is the uppermost layer of skin? It can form marks to cause fingerprints and is the site where sweat glands open up on the surface of the skin.
   A. **stratum corneum**
   B. stratum spinosum
   C. stratum basale
   D. stratum lucidum

3. What type of membrane are found in joints, which contain its namesake fluid?
   A. Serous
   B. **Synovial**
   C. Cutaneous
   D. Mucous

4. Which layer of skin would be not be found on your cheeks but on the soles of your feet?
   A. stratum corneum
   B. stratum spinosum
   C. stratum basale
   D. **stratum lucidum**

5. Being the bottommost layer of the skin, this stratum contacts the dermis and contains melanocytes.
   A. stratum corneum
   B. stratum spinosum
   C. **stratum basale**
   D. stratum lucidum

6. (2 pts) What degree of burn is commonly marked by blisters and sores, as shown to the right?
   A. 1st
   B. **2nd**
   C. 3rd
   D. 4th
7. This layer of the skin contains Merkel cells that take part in sensory perception with tactile discs.
   A. stratum corneum
   B. stratum spinosum
   C. stratum basale
   D. stratum lucidum

8. (2 pts) What part of a hair follicle surrounds the hair root and only runs along the bottom portion of the hair length?
   A. external root sheath
   B. connective tissue sheath
   C. internal root sheath
   D. glassy membrane

9. What skin cancer is the least malignant of all skin cancers, and is also the most common and treatable? A picture of it is shown at left.
   A. Squamous cell carcinoma
   B. Merkel cell carcinoma
   C. Basal cell carcinoma
   D. Malignant melanoma

10. What type of skin gland secretes an oily, lipid secretion onto hair follicles?
    A. sebaceous
    B. sweat
    C. apocrine
    D. eccrine

Labeling, True | False

Labeling: 11-21 Examine the diagram of the skin at right. Provide labels some numbers below.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>11 (1) Epidermis</td>
<td>12 (2) Dermis</td>
<td>13 (3) Hypodermis</td>
<td>14 (4) Eccrine sweat gland</td>
<td>15 (5) Hair</td>
</tr>
<tr>
<td>17 (8) Sebaceous sweat gland</td>
<td>18 (9) Arrector pili muscle</td>
<td>19 (11) Hair follicle</td>
<td>20 (12) Papilla</td>
<td>21 (13) Adipose tissue</td>
</tr>
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<td>16 (6) Stratum corneum</td>
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22. **True** | **False** The skin is also known as the connective membrane.

23. **True** | **False** Nails, nerve endings, hair, and sweat glands are all considered to be accessory structures of the skin.

**Labeling**: 24-32 Provide the labels for a nail in the table at right.

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>24</td>
<td>Eponychium</td>
<td>25</td>
</tr>
<tr>
<td>27</td>
<td>Hyponychium</td>
<td>28</td>
</tr>
<tr>
<td>30</td>
<td>Perionychium</td>
<td>31</td>
</tr>
</tbody>
</table>

24. **True** | **False** One function of the skin is the synthesize molecules like vitamin D inside the skin.

25. **True** | **False** Ceruminous glands produce earwax in the ear canal.

26. **Labeling**: What disorder does the person pictured right have? **Vitiligo**

**Part II: The Skeletal System**

**Multiple Choice**

36. What is the name of the long, shaft-like region of a long bone?
   A. **diaphysis**
   B. metaphysis
   C. osteon
   D. epiphysis

37. These cells synthesize new bone by depositing calcium.
   A. Osteocytes
   B. **Osteoclasts**
   C. Osteogenic cells
   D. Osteoblasts

38. These cells proliferate into osteoblasts due to a response in injury of the bone
   A. Osteocytes
   B. Osteoclasts
   C. **Osteogenic cells**
39. These cells are found in shallow depressions in the bone, and function to breakdown old bone tissue. What is the bone cell shown in the picture at right?
   A. Osteocytes  
   B. **Osteoclasts**  
   C. Osteogenic cells  
   D. Osteoblasts

40. What cells are mature bone cells found in high numbers throughout the bone?
   A. **Osteocytes**  
   B. Osteoclasts  
   C. Osteogenic cells  
   D. Osteoblasts

41. How many bones are in the axial skeleton?
   A. 60  
   B. 70  
   C. **80**  
   D. 90

42. Joints allow for the movement limited to in all directions. Which of the following bones are matched with the incorrect joint?
   A. wrist → ellipsoid  
   B. **thumb → ball and socket**  
   C. elbow → hinge  
   D. shoulder → ball and socket

43. Which of the following is **not** part of the axial skeleton?
   A. hyoid bone  
   B. sternum  
   C. **scapula**  
   D. frontal bone
44. (2 pts) Which of the following is true about cartilage?
A. Cartilage starts developing in the stages of embryonic growth after the development of bone
B. If cartilage is injured, the repair process is typically effective
C. **Appositional cartilage growth occurs as layers are added to the surface**
D. Fibrocartilage is a tough, resilient type of cartilage found in synovial joints to protect the ends of bones

45. What type of bone is found in the skull?
A. Flat bones
B. **Sutural bones**
C. Long bones
D. Sesamoid bones

Labeling, True | False

**Labeling:** Label the bones of the human body.
Numbers 55, 57, and 58 refer to general structures, not the specific bones pointed to.
**Note:** If specific labels were to be used, 55, 57 and 58 would be as follows: Frontal bone, body, 6\text{th} rib
69. True | False  Osteons are found in spongy bone

70. True | False  Your wrist is the most commonly broken bone

71. True | False  Long bones have defined epiphyses

72. True | False  Sprains occur when tendons tear slightly

73. True | False  One function of the skeletal system is to store lipids

Short Answer

74. The **axis** vertebrae is the second and swivels the head

75. The **atlas** vertebrae is the first and supports the head

76. **Osteons** are small cavities in compact bones that contain osteocytes.

77. **Greenstick** fractures occur when one side of the bone breaks and the other side bends.

78. The autoimmune disorder that affects joints around the body is called **rheumatoid arthritis**.

**Part III: The Muscular System**

**Multiple Choice**

79. (5 pts) Select all the following that are functions of the muscular system?
   A. Maintain position and posture
   B. Regulate body temperature
   C. Protection of internal organs
   D. Movement of skeletal system

80. Which of the following is a thick filament?
   A. myosin
   B. A-band
   C. actin
   D. I-band

81. Which of the following refers to the layer of collagen fibers that surrounds a muscle and isolates it from other tissues?
   A. endomysium
   B. **epimysium**
   C. myosium
   D. perimysium
82. What is the resting tension in a muscle called?
   A. muscle rigidity  
   B. **muscle tone**  
   C. muscle tension  
   D. muscle strength  

83. This highly infectious viral disease proliferates in the intestine, where it attacks the nervous system which eventually leads to potential paralysis and dysfunction of muscles. What disease has symptoms that include pain in the limbs, headache, stiffness in the neck, and fever?
   A. tetanus  
   B. muscular dystrophy  
   C. **poliomyelitis**  
   D. SP syndrome  

84. What is the smallest functional unit of a muscle?
   A. myofibril  
   B. **sarcomere**  
   C. myosin heads  
   D. muscle fiber  

85. What type of muscle is shown in the microscope slide at right?
   A. smooth  
   B. **cardiac**  
   C. skeletal  
   D. cranial  

86. Which of the following is a thin filament?
   A. T tubules  
   B. myosin  
   C. **actin**  
   D. troponin  

87. Which muscle covers the shoulder and is responsible for moving the shoulder in many directions?
   A. trapezius  
   B. triceps  
   C. **deltoid**  
   D. sartorius
88. In the microscope picture, what are the thick vertical lines scattered across the figure?
   A. M line
   B. desmin
   C. Z line
   D. **intercalated discs**

**Labeling, True | False**

**Labeling:** Label some muscles of the human body at right. Some are worth more than a point!

If a prefix such as musculus preceded each answer or a few, still count them correct!

1: occipitofrontalis
2: temporoparietalis
3: orbicularis oculi
4: levator labii superior
5: masticatorii
6: sternocleidomastoideus
7: orbicularis oris
8: deltoideus
9: trapezius
10: pectoralis major
11: latissimus dorsi
12: triceps brachii
13: biceps brachii
14: serratus anterior
15: rectus abdominis
16: obliquus externus abdominis
17: tensor fascia lata
18: rectus femoris
19: gluteus maximus
20: pronator quadratus
21: flexor retinaculum
22: flexor digitorum communis
23: sartorius
24: quadriceps femoris
25: ischiocrurale
26: gastrocnemius
27: tibialis anterior
28: soleus
29: extensor retinaculum
30: triceps surae
120. True | False Smooth muscle have no striations and are spindle-shaped

121. True | False A motor unit are all muscle fibers that are serviced by a single motor neuron.

122. True | False Sprains are injuries from overexertion or trauma which involve stretching or tearing of muscle fibers

123. (2 pts) True | False As a muscle contracts, H zones increases in size

124. True | False You gain muscle tissue as you grow older

125. True | False Potassium is stored in the sarcoplasmic reticulum

**Labeling:** Label the anatomy of a muscle fiber

126. V Tendon

127. F Bone

128. D Muscle fibers

129. E Muscle fiber

130. Y Myofibril

131. N Nuclei

132. T Fasciculus

133. A Perimysium

134. W Endomysium

135. H Epimysium

136. R Skeletal muscle