DIRECTIONS: Read each question carefully before answering. Understanding the questions is a part of the examination. Answer all of the questions in the spaces provided on the examination. Print your name in the space provided on the first page of the exam and at the top of each subsequent page. This exam consists of 7 questions on 7 pages. It is your responsibility to see that the exam is complete. Please write in a legible manner and **DO NOT WRITE IN RED INK**.

1. **(10 points)** During the histology lecture we discussed at least one site of distribution for several tissues in the body. Since then we have discussed many structures/layers and the specific tissues of which they are composed. Complete the table below by writing one, **and only one**, structure, layer, or primary distribution for each tissue listed below. Your answers must be as specific as possible. For example, before the cardiovascular lecture “heart” would be a specific answer for the tissue “striated cardiac muscle”. However, this would not be a specific answer after the cardiovascular lecture because we discussed the layers of the heart in detail during that lecture. Therefore, after the cardiovascular lecture the most specific answer would be “myocardium”.

<table>
<thead>
<tr>
<th>Tissue</th>
<th>Structure, Layer, or Primary Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesothelium</td>
<td></td>
</tr>
<tr>
<td>Hyaline cartilage</td>
<td></td>
</tr>
<tr>
<td>Simple columnar epithelium</td>
<td></td>
</tr>
<tr>
<td>Elastic cartilage</td>
<td></td>
</tr>
<tr>
<td>Transitional epithelium</td>
<td></td>
</tr>
<tr>
<td>Pseudostratified columnar epithelium</td>
<td></td>
</tr>
<tr>
<td>Endothelium</td>
<td></td>
</tr>
<tr>
<td>Elastic connective tissue</td>
<td></td>
</tr>
<tr>
<td>Fibrocartilage</td>
<td></td>
</tr>
<tr>
<td>Dense regular collagenous connective tissue</td>
<td></td>
</tr>
</tbody>
</table>
2. (8 points) The illustration below represents a simple diarthrotic (synovial) joint. Color the entire extent of each structure listed below on this illustration. Place the same color used for each structure in the box to the left of the structure name. Finally, answer the questions at the bottom of the page. Your answers must be as specific as possible. **Note: Structures not colored in their entirety will be marked incorrect.**

- Periosteum
- Fibrous membrane
- Articular cartilage
- Synovial membrane

What is the other main category of joints in the human body? ________________________________

Layer A is made of what tissue (be specific)? ________________________________

What is the function of layer A? ________________________________

What additional cartilaginous structure is found the knee joint? _____________________________
3. (8 points) Use the illustration below to answer the questions at the bottom of the page. Your answers must be as specific as possible.

What is the name for space A?

What occupies space A in living bone tissue?

What is the name for space B?

What is the name for space C?

What occupies space C in living bone tissue?

What is the name for area D?

What inorganic material is region D made of?

What is E?
4. **(12 points)** The illustration below depicts a step dissection of the superior limb and one of its muscles. Color the entire visible area of each layer/structure listed below using the color to the right of each layer/structure name. **Structures not colored in their entirety will be marked wrong.** Write the specific type of tissue each structure is made of on the line below each named structure. Finally, write a 1 to 2 sentence answer for each question at the bottom of the page.

- **Endomysium (yellow)**
  - Tissue __________________________

- **Epimysium (green)**
  - Tissue __________________________

- **Perimysium (blue)**
  - Tissue __________________________

- **Fascia (purple)**
  - Tissue __________________________

- **Muscle cells (red)**
  - Tissue __________________________

**What is a fasciculus?**

________________________________________________________________________

________________________________________________________________________

**What is a tendon?**

________________________________________________________________________

________________________________________________________________________
5. **(12 points)** Trace a red blood cell on a continuous route from the left foot to the right hand. Your trace must consist of a columnar list of all structures traversed by the red blood cell (this includes all vessels, chambers and valves). **Do not use abbreviations for any named structures in your trace.**

   Left foot

   Right hand
6. (15 points) Place the letter of EVERY structure that applies to each statement below in the blank space within each statement. You may use a letter in as many statements as necessary.

Structures ____________________________ form through the process of invagination.

Structures ____________________________ are made of or contain dense irregular collagenous connective tissue.

Structures ____________________________ are associated with thermoregulation.

Structures ____________________________ produce and/or contain keratin.

Structures ____________________________ are lined with simple cuboidal epithelial tissue.

Structures ____________________________ contain non-striated (smooth) muscle.
7. (10 points) Write the name for structures A, B, C, and D in the blanks to the left with the corresponding letter and answer the questions at the bottom of the page.

A. __________________________________________

B. __________________________________________

C. __________________________________________

D. __________________________________________

What is the function of B and C?

____________________________________________

____________________________________________

Other than those visible in the illustration above, where would one find structures functionally similar to B?

____________________________________________

How does C differ from B in terms of how it functions?

____________________________________________

____________________________________________

What specific tissues make up layer D?

____________________________________________

____________________________________________