**Introduction to Anatomy**

Define the following terms and include examples (use p. 109 in hardcopy and p. 147 in electronic) when directed.

1. **anatomy**  
   The study of the form and structure

2. **physiology**  
   The study of the processes/functions of living organisms, or why or how they work

3. **pathophysiology**  
   The study of how disease occurs & the responses of living organisms to disease process

4. **organelle**  
   cell structures that helps a cell to function, are located in the cytoplasm  
3 Examples: nucleus, mitochondria, ribosomes, lysosomes, centrioles, golgi apparatus.

5. **cell**  
   mass of protoplasm; the basic unit of structure of all animals and plants  
3 Examples: epithelial cell, nerve cell, muscle cell

6. **tissue**  
   a group of similar cells that join together to perform a particular function  
3 Examples: epithelial tissue, nervous tissue, muscle tissue, connective tissue

7. **organ**  
   part of body made of tissues that have joined together to perform a special function  
3 Examples: lung, brain, kidney, stomach, etc.

8. **system**  
   a group of organs and other parts that work together to perform a certain function  
3 Examples: respiratory system, nervous system, digestive system, etc.

9. Use Figure 6-4 on p. 109 of hardcopy textbook or Figure 7-4 on p. 147 of electronic textbook to arrange the following components of the human organism from **smallest to largest**: organs, tissues, organelles, atoms, molecules, organism, systems (also called organ systems), and cells.  

   **atoms, molecules, organelles, cells, tissues, organs, organ systems, organism**

**The Cell**

Label the parts of the cell using Figure 6-1 on p. 105 of hardcopy textbook or Figure 7-1 on p. 143 of electronic textbook.
Organelles
Define the following components of the cell and explain their function.

22. cell membrane  outer protective covering of the cell
   Function  allows certain substances to enter & leave cell while preventing the passage of others
23. cytoplasm  a semi-fluid inside the cell
   Function  site for chemical reactions that take place in a cell
24. nucleus  a mass in the cytoplasm
   Function  controls many cell activities and is important in cell division
25. nucleolus  located inside the nucleus
   Function  important in cell reproduction, manufactures ribosomes
26. chromatin  located in the nucleus and made of DNA and protein
   Function  contain and carry genes which carry inherited characteristics
27. mitochondria  rod-shaped organelles located throughout the cytoplasm
   Function  break down carbohydrates, proteins and fats, major energy source of cell
28. Golgi apparatus  a stack of membrane layers located in the cytoplasm
   Function  produces, stores and packages secretions for discharge from the cell
29. Endoplasmic Reticulum  a fine network of tubular structures located in the cytoplasm
   Function  transports materials into/out of nucleus, aids in synthesis/storage of proteins
30. Lysosomes  oval or round bodies found throughout the cytoplasm
   Function  contain digestive enzymes that digest & destroys old cells, bacteria & foreign materials

Tissue
Use class notes and p. 107-108 of hardcopy textbook and p. 145-147 of electronic textbook to answer the following.

31. What is tissue?  A group of similar cells that join together to perform a particular function
32. Tissues are 60 – 99 %  water (that has a small amount of salt dissolved in it)
33. What is dehydration?  Insufficient amounts of fluids in the tissues.
34. What is edema?  Swelling; excess amount of fluid in the tissues.
35. Identify the four major types of tissue, define each, and describe and their functions.
   (a.) Type 1:  nerve tissue
      Definition:  body tissue that conducts or transmits impulses throughout the body
      Function:  controls and coordinates body activities by transmitting messages throughout the body
   (b.) Type 2:  muscle tissue
      Definition:  body tissue composed of fibers that produce movement
      Function:  produces power and movement by contraction of muscle fibers
   (c.) Type 3:  connective tissue
      Definition:  body tissue that connects, supports, or binds body organs
      Function:  connect parts of the body and body systems
   (d.) Type 4:  epithelial tissue
      Definition:  tissue that forms the skin & parts of the secreting glands, & that lines the body cavities
      Function:  to cover the surfaces of the body and is the main tissue in the skin
Labeling Body Planes and Directional Terms
Label each of the body planes/directional terms by writing the corresponding letter from the diagram below.

36. Transverse Plane  D
37. Midsagittal (Median) Plane  A
38. Coronal (Frontal) Plane  C
39. Anterior  G
40. Posterior  H
41. Superior  E
42. Inferior  F
43. Medial  I
44. Lateral  J
45. Distal  L
46. Proximal  K

Defining Body Planes and Directional Terms
Define each of the following body planes/directional terms.

47. Transverse Plane  horizontal plane that divides the body into upper and lower halves
48. Midsagittal (Median) Plane  vertical plane that divides the body into left and right halves
49. Coronal (Frontal) Plane  vertical plane that divides the body into front and rear halves
50. Anterior  the front of the body
51. Posterior  the back of the body
52. Superior  body parts above other body part
53. Inferior  body parts below other body parts
54. Medial  close to the midline (middle)
55. Lateral  far from the midline (middle)
56. Distal  far from a specified point of reference
57. Proximal  close to a specified point of reference
58. The wrist is distal/proximal (circle) to the shoulder and the elbow is distal/proximal (circle) to the shoulder.
59. The knee is superior/inferior (circle one) to the ankle, but superior/inferior (circle one) to the hip.
60. The nose is medial/lateral (circle one) and the ears are medial/lateral (circle one).
Body Cavities
Use Figure 6.6 on p. 112 of hardcopy or Figure 7.6 on p. 150 of electronic book to label the cavities in the diagram below.

Abdominal Regions
Use Figures 6-7 and 6-8 from p. 112 of hardcopy or Figures 7-7 and 7-8 from p. 150 of electronic textbook to label the abdominal quadrants and the nine abdominal regions.