LECTURE 5: CARTILAGE AND BONE

A. Explain the difference between cartilage and bone

CARTILAGE:

STRUCTURE/FUNCTION OF CARTILAGE
1) Describe the characteristics of cartilage that distinguish it from other types of tissues
2) Identify the specific locations of cartilages in the adult body
3) Explain the functional properties of cartilage as a tissue
4) Define the unique characteristics and locations of hyaline cartilage, fibrocartilage, and elastic cartilage.
5) Compare the three kinds of cartilage, including column notes on structure, function, and location

BONE:

CLASSIFICATIONS
1) Classify bones according to shape; include several examples for each category

GROSS ANATOMY
2) Explain why bones are considered organs. Select a specific bone, such as the femur, and discuss the tissues comprising it
3) List tissue types that compose bones as organs
4) Describe the gross anatomy of a typical long bone and a typical flat bone

MICROSCOPIC ANATOMY/HISTOLOGY OF BONE
5) Describe the structure, function, and relationships among central (Haversian) canal, perforating (Volkmann’s) canal, lamellae, lacuna, and cannaliculi
6) Diagram the microscopic structure of compact bone tissue; include the osteon (Haversian system), central (Haversian) canal, lamellae, canaliculi, and osteocytes.
7) Summarize the organic and inorganic composition of bone

STRUCTURE/FUNCTION RELATIONSHIPS
8) List and explain the main functions of the bony skeleton
9) Describe where compact and spongy bones are located in a long bone
10) Differentiate the histology of compact and spongy bone
11) Explain why spongy bone and compact bones are found where they are in a long bone

PROCESSES INVOLVED IN BONE GROWTH:
12) Explain the processes of endochondral and intramembranous bone formation
13) Explain the difference between epiphyseal plate and epiphyseal line
14) Explain the anatomy of epiphyseal growth areas. Describe how the presence of epiphyseal plates determine whether bone is still growing in length
15) Explain the process of longitudinal bone growth
16) Describe the cause of osteoporosis, osteomalacia, and Paget's Disease and predict their pathologies
17) Describe the role of osteoblasts and osteoclasts in bone tissue remodeling
18) List some diagnostic features of osteoporosis, osteomalacia, rickets, Paget's disease, and osteosarcoma.
19) Identify the basic steps in the healing of a bone fracture.