Module 4 A & P

Assignment #1 Read pages 97 – 110.

Write the answers on your own paper, not on this sheet.

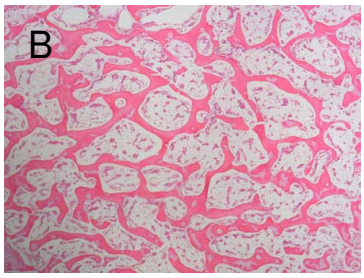
1. Define the following terms:
   a. Osteoblast
   b. Osteocyte
   c. Osteoclast
   d. Osteon
   e. Canaliculi
   f. Interstitial
   g. Hematoma
   h. Callus

2. The two principal materials in bone matrix are collagen and hydroxyapatite. What property does each material give to bone tissue?

3. A bone cell is completely surrounded by bone matrix. What kind of bone cell is it and what is its function?

4. A bone cell has more than one nucleus. What kind of bone cell is it and what is its function?

5. Which bone tissue slide shows:
   a. Cancellous bone
   b. Compact bone
   c. Osteons
   d. Trabeculae



6. What is in the spaces between trabeculae?

7. What is in the central canal of an osteon?

8. What is in the spaces between the osteons?

9. List five reasons that bone must be continually remodeled.

10. Astronauts in space exercise as part of their daily routine, yet they still have problems with bone weakness after prolonged stays in space. Why does this happen?

11. Bone growth occurs when new cartilage is added to the bone's epiphyseal plate. Why doesn't the epiphyseal plate get thicker as bone grows?

12. The epiphyseal plate separates the diaphysis from the epiphysis. On which side of the plate does the tissue ossify?

13. Describe what changes occur to the bone during appositional bone growth.

14. List the four stages of bone repair, in order.

15. What is the purpose of the external callus? What is the purpose of the internal callus?

16. What gland secretes calcitonin? What gland secretes PTH?

17. What is the effect of calcitonin on bone cells? What is the effect of PTH on bone cells?

18. A person's medical tests show a large increase in the calcitonin levels of the body. What does that tell you about the calcium level in the person's blood?

19. What gland secretes human growth hormone? What affect does it have on bone tissue?

20. What effect do estrogen and testosterone have on bone growth?

21. Use the internet or a medical dictionary - Explain the causes or symptoms of each bone disease:

    a. Osteomalacia

    b. Osteopenia

    c. Osteoporosis

    d. Paget's disease

    e. Osteoarthritis

22. Honors: What are osteogenic cells? Where are they located and what do they do?

Assignment #2 Read pages 111-118.

23. Explain the difference between fibrous joints, cartilaginous joints, and synovial joints.
24. Fibrous joints can be divided into sutures or syndesmoses. Explain the difference between these two types of fibrous joints. Give an example of each type.
25. Cartilaginous joints can be divided into synchondroses or symphyses. Explain the difference between these two types of cartilaginous joints. Give an example of each type.
26. List the six types of synovial joints and give an example of each type.
27. Which type of synovial joint allows for the greatest range of movement?
28. Which type of synovial joint allows for the least range of movement?
29. What is the purpose of articular cartilage in a synovial joint?
30. What is the purpose of synovial fluid in a synovial joint?
31. What produces synovial fluid?
32. What is the definition of a sprain? (Look it up.)
33. What is anatomical position?
34. Choose the correct word to identify the relative positions of the body parts.
    a. The cervical vertebrae are superior/inferior to the lumbar vertebrae.
    b. The calf muscle is proximal/distal to the fibula.
    c. The carpals are proximal/distal to the scapula.
    d. The thumb is lateral/medial to the longest finger.
    e. The sternum is anterior/posterior the heart.
35. Name the kind of motion exhibited by the following actions:
    a. You stand up on your tiptoes
    b. You do push-ups. You lift your body by straightening your arms at the elbow.
    c. You draw circles in the air with your left leg.
    d. Your palms are facing down toward the ground, then you flip your palms so they face upward.
    e. You bend forward from the waist to bow.
    f. Your arms are at your sides and you lift them so they are parallel with the ground and you look like the letter T.
    g. You are standing on the outer edges of your feet with your soles pointing inward.
    h. You are standing with both of your feet flat on the ground, toes pointed forward, then you turn your feet out so that your toes point to the sides.
    i. You curl your upper arm so you can show everyone how big your arm muscles are.