Bone

1. In a bone that experienced a marked decline in mechanical stress, the activity of osteoblasts would __________ and the deposition of new bone matrix would __________.
   a. Increase – increase
   b. Increase – decrease
   c. Decrease – decrease
   d. Decrease – increase

2. Both the sternum and the vertebrae are examples of:
   a. Long bones
   b. Short bones
   c. Flat bones
   d. Irregular bones
   e. None of the above

3. Bones contain:
   I. Adipose tissue
   II. Nervous tissue
   III. Connective tissue
   IV. Simple squamous epithelial tissue
   a. I, II, III, and IV
   b. I and III only
   c. I and II only
   d. II and III only
   e. II, III, and IV only

4. Which of the following would be capable of the highest rate of collagen secretion?
   a. Osteoblast
   b. Osteocyte
   c. Osteoclast

5. Osseous tissue contains very little extracellular matrix.
   a. True
   b. False

6. On average there are 2.7 central canals per osteon.
   a. True
   b. False

7. Growth hormone is often used clinically to treat children who are unusually short due to a growth hormone deficiency.
   i. What organ is probably not functioning in these children?
   ii. How does the GH help the children?
   iii. Why would administering GH to an extremely short 27yo woman have little effect on her height?

8. You and your archaeologist friend find some human bones in the Rift Valley. The bones appear to belong to 3 different individuals. One of the femurs (person A) shows the presence of an epiphyseal plate while the other 2 (persons B and C) show epiphyseal lines. The femur C is very light and porous and not nearly as dense as the other 2. Rank the 3 persons (A, B, and C) in age from youngest to oldest and explain your logic behind the choices.
Bone

In each of the next 10 items, 2 quantities are given and are being compared. Choose A if quantity A is the larger of the 2. Choose B if quantity B is the larger of the 2. Choose C if the 2 quantities are equal in size.

9. A. The freedom of movement of a symphysis  
   B. The freedom of movement of a hinge joint
10. A. The strength of a plane joint  
     B. The strength of a suture
11. A. The number of saddle joints in the human body  
      B. The number of condyloid joints in the hand
12. A. The viscosity of synovial fluid before exercise  
       B. The viscosity of synovial fluid during exercise
13. A. The amount of collagen in the fibrous layer of the articular capsule  
       B. The amount of collagen in the synovial layer of the articular capsule
14. A. The distance between the hand and the midsagittal plane when the arm is flexed  
       B. The distance between the hand and the midsagittal plane of the body when the arm is extended
15. A. The angle of the elbow when the forearm is partially flexed.  
      B. The angle of the elbow when the forearm is fully extended.
16. A. The distance between the hand and the midline of the body when the arm is abducted  
       B. The distance between the hand and the midline of the body when the arm is adducted
17. A. The number of sutures found inferior to the diaphragm  
       B. The number of sutures found superior to the diaphragm
18. A. The amount of hyaline cartilage in a synovial joint  
       B. The amount of fibrocartilage in a synovial joint
Bone

Use the above diagram for questions 19 – 26.

19. Joint cavity B
20. Periosteum A
21. Articular cartilage C
22. Covers the diaphysis A
23. Location of synovial fluid B
24. Hyaline cartilage C
25. Synovial membrane D
26. Covers the epiphysis C

Use the following answer choices for the remaining 4 questions:

a. Long bones
b. Short bones
c. Flat bones
d. Irregular bones
e. All types of bones

29. Characterized by diploë
30. Contain osteocytes
31. Phalanges (e.g. finger bones)
32. Found inferior to the diaphragm