

## **Chapter 01**

### **Foundations of Structural Kinesiology**

#### **True / False Questions**

1. Both the size and shape of bones can limit or allow movements.

**TRUE**

2. There are approximately 552 muscles in the human body.

**FALSE**

3. The shape of bones does not limit movement.

**FALSE**

4. During the process of bone remodeling osteoblasts resorb existing bone and osteoclasts form new bone.

**FALSE**

5. Cortical bone has a low degree of porosity which consists of approximately 5-30% mineralized tissue.

**FALSE**

6. The medullary canal is located at the ends of long bones.

**FALSE**

7. The scapula is an example of an irregular bone.

**FALSE**

8. One of the functions of articular cartilage is to separate the diaphysis and epiphysis.

**FALSE**

9. Typical bony features include tendons, epiphysis, and articular cartilage.

**FALSE**

10. Epiphyseal plates generally close by age 18 but some may be present until age 27.

**FALSE**

11. Diagonal abduction is movement by a limb through a diagonal plane away from midline of body.

**TRUE**

12. Most outer bone is composed of cortical bone with cancellous bone underneath.

**TRUE**

13. Cancellous bone is stiffer and therefore can withstand greater stress but less strain than cortical bone.

**FALSE**

14. Collagen in bone provides flexibility and strength to resist tension.

**TRUE**

15. Longitudinal bone growth continues as long as epiphyseal plates are open.

**TRUE**

16. Osteoclasts are specialized cells that form and resorb new bone.

**FALSE**

17. Aging induces a progressive increase of collagen in bone that results in an increase in brittleness.

**FALSE**

18. Bone size and shape are influenced by both the direction and magnitude of applied forces.

**TRUE**

19. Bones reshape themselves based upon the stresses that are placed upon them.

**TRUE**

20. Ligaments through their bone to bone connections provide dynamic stability to diarthrodial joints.

**FALSE**

21. Diarthrodial joints are also known as synovial joints.

**TRUE**

22. Flexion/extension is an example of movement in a coronal plane about an anteroposterior axis.

**FALSE**

23. Of all the movements possible in the joints of the body, flexion/extension is the most commonly occurring.

**TRUE**

### **Multiple Choice Questions**

24. Which of the following is true regarding circumduction?

- A.** Combination of flexion, extension, adduction, and abduction
- B. Synonymous with rotation
- C. Occurs only one joint
- D. Combines flexion and extension

25. Which of the following is the correct definition of biomechanics?

- A. Study of motion of human movement
- B. Study of the human musculoskeletal and musculotendinous systems
- C.** Application of mechanical physics to human motion
- D. Study of muscles as they are involved in the science of movement

26. Which of the following is the correct definition of kinesiology?

- A.** Study of anatomy (active and passive structures), physiology, and mechanics in relation to human movement
- B. Study of the human musculoskeletal and musculotendinous systems
- C. Application of mechanical physics to human motion
- D. Study of muscles as they are involved in the science of movement

27. Which of the following is not an example of a movement in the sagittal plane?

- A. Flexion
- B. Extension
- C.** Lateral flexion
- D. Plantar flexion

28. The frontal plane divides the body into \_\_\_\_\_.

- A. right and left halves
- B.** front and back halves
- C. top and bottom halves
- D. medial and lateral halves

29. Movements in the transverse plane occur around which axis?

- A. Mediolateral
- B. Anteroposterior
- C.** Vertical
- D. Horizontal

30. Elbow extension takes place in what plane?

- A.** Sagittal
- B. Frontal
- C. Transverse
- D. Longitudinal

31. Abduction takes place around which axis?

- A.** Anteroposterior
- B. Mediolateral
- C. Longitudinal
- D. Horizontal

32. Shaking the head "No" occurs in which plane?

- A. Sagittal
- B. Frontal
- C.** Transverse
- D. Oblique

33. Each of the following joints allows a slight amount of motion to occur except?

- A. Gomphosis
- B. Syndesmosis
- C. Synchondrosis
- D. Symphysis

34. Which of the following movements occur at the shoulder joint but not at the knee?

- A. Flexion
- B. Extension
- C. Circumduction
- D. Rotation

35. During an underhand softball pitch that does not involve a windmill windup, the hand holding the ball is moved to a posterior position with respect the torso prior to the forward swing of the arm that releases the ball. In what order do the movements occur at the shoulder joint to make this motion possible?

- A. Abduction, adduction
- B. Adduction, abduction
- C. Extension, flexion
- D. Flexion, extension

36. What term is used to describe the motion of bringing the dorsum of the foot closer to the anterior leg?

- A. Flexion
- B. Extension
- C. Dorsiflexion
- D. Plantar flexion

37. Which of the following best describes the anatomical location of the head with respect to the left arm?

- A. Superior and medial
- B. Anterior and medial
- C. Distal and lateral
- D. Inferior and lateral

38. Bone is composed of all but one of the following constituents.

- A. Protein
- B. Calcium
- C. Phosphorus
- D. Water

39. Which of the following is not a function performed by the skeletal system?

- A. Protection of internal organs
- B. Support to maintain posture
- C. Mineral Storage
- D. Production of heat

40. Motion of the bones relative to the three cardinal planes resulting from physiological movements is known as \_\_\_\_\_.

- A. osteokinematic motion
- B. arthrokinematic motion
- C. accessory motion
- D. osteochondral motion

41. The three specific types of accessory motions are described as \_\_\_\_\_.

- A. slip, slide, and roll
- B. spin, twirl, and glide
- C. rock, slide, and circumfusion
- D. roll, spin, and glide

42. If the knee were not able to slide, the femur would \_\_\_\_\_ when going from flexion to extension on a stationary tibia.

- A. roll off the back of the tibia
- B. roll off the front of the tibia
- C. spin more internally on the tibia
- D. spin more externally on the tibia

43. Motion between the articular surfaces of bone is known as \_\_\_\_\_.

- A. kinetics
- B. osteokinematics
- C.** arthrokinematics
- D. biomechanics

44. Forward movement of the shoulder girdle in the horizontal plane away from the spine is \_\_\_\_\_.

- A. pronation
- B.** protraction
- C. retraction
- D. reduction

45. Movement of the little finger side of the hand toward the forearm in the lateral plane is \_\_\_\_\_.

- A. palmar flexion
- B. radial flexion
- C.** ulnar flexion
- D. volar flexion

46. An instrument used to measure the change in joint angles is a(an) \_\_\_\_\_.

- A. flexometer
- B. jointmeter
- C. arthrometer
- D.** goniometer

### Essay Questions



47. List the six (6) types of diarthrodial/synovial joints.

1. Arthrodial
2. Condylodial
3. Enarthrodial
4. Ginglymus
5. Seller
6. Trochoidal

48. Using proper joint terminology list the name and position of each joint involved upon completion of the following multiple joint movement. Starting from the anatomical position, reach with your right arm and touch the ipsilateral side of your head with the palm of your hand.

Answer will vary

49. List three (3) of the terms that are used to describe bone markings.

Answer will vary

50. List two of the most commonly occurring movements for each of the following planes. sagittal, frontal, transverse.

Answer will vary