

MULTIPLE CHOICE

1. Translation occurs when:
 - a. All parts of a body move in the same direction as every other part
 - b. All parts of a body move in opposite directions
 - c. A body moves around an axis of rotation
 - d. The center of mass is constant

ANS: A

Translation occurs when all parts of a body move in the same direction as every other part.

PTS: 1

2. If a clinician provided the force necessary to move a person's limb through the ranges of motion, this movement would demonstrate:
 - a. Active movements
 - b. Gravitational range of motion
 - c. Simulated movements
 - d. Passive range of motion

ANS: D

Passive movement is generated by sources other than muscular activation, and movement generated in this way demonstrates passive range of motion.

PTS: 1

3. The motion of bones relative to the three cardinal planes of the body is known as:
 - a. Transverse adjustment
 - b. Anatomic positioning
 - c. Osteokinematics
 - d. Pivot point rot

ANS: C

Osteokinematics describes the motion of bones relative to the three cardinal planes of the body: sagittal, frontal, and horizontal.

PTS: 1

4. _____ describes a circular motion through two planes.
 - a. Adduction
 - b. Circumduction
 - c. Flexion
 - d. Extension

ANS: B

Circumduction describes a circular motion through two planes; therefore joints must have at least 2 degrees of freedom in order to circumduct.

PTS: 1

5. When multiple points along one rotating articular surface contact multiple points on another articular surface, this is known as a:
 - a. Roll
 - b. Slide
 - c. Spin
 - d. Lever

ANS: A

Multiple points along one rotating articular surface contacting multiple points on another articular surface, such as a tire rotating across a stretch of pavement, is known as a roll.

PTS: 1

6. Rotation describes:
 - a. The arc of movement of a body about an axis
 - b. Movements generated by an active muscle
 - c. Movements generated by non-muscular activation such as gravity
 - d. Motion of the sagittal plane

ANS: A

Rotation describes the arc of movement of a body about an axis of rotation.

PTS: 1

7. The plane dividing the body into right and left halves is the:
 - a. Frontal plane
 - b. Horizontal plane
 - c. Sagittal plane
 - d. Transverse plane

ANS: C

The plane dividing the body into right and left halves is the sagittal plane.

PTS: 1

8. _____ are used in kinesiology to represent the magnitude and direction of a force.
- a. Axes of rotation
 - b. Vectors
 - c. Levers
 - d. External torques

ANS: B

Vectors are used in kinesiology to represent the magnitude and direction of a force. The magnitude of the force is indicated by the relative length of the vector line, and the direction is indicated by the orientation of the arrowhead.

PTS: 1

9. The moment arm is defined as:
- a. Tension generated from ligamentous elongation
 - b. The arthrokinematic spin occurring in the shoulder
 - c. Motion occurring between the articular surfaces of joints
 - d. The length between the axis of rotation and the perpendicular intersection of the force

ANS: D

This distance, called the moment arm, is the length between the axis of rotation and the perpendicular intersection of the force.

PTS: 1

10. The amount of _____ generated across a joint depends on the amount of force exerted and the distance between the force and the axis of rotation.
- a. Torque
 - b. Lever strength
 - c. Slide
 - d. Closed-chain motion

ANS: A

The amount of torque generated across a joint depends on the amount of force exerted and the distance between the force and the axis of rotation.

PTS: 1

11. Movement of the distal segment of bone about a relatively fixed proximal segment is often referred to as a(n) _____.
- a. Closed-chain motion
 - b. Arthrokinematic loop
 - c. Open-chain motion
 - d. Convex articulation

ANS: C

Movement of the distal segment of bone about a relatively fixed proximal segment is often referred to as an open-chain motion.

PTS: 1

12. Movement of the proximal segment of bone about a relatively fixed—or stationary—distal segment is referred to as a(n) _____.
- a. Closed-chain motion
 - b. Arthrokinematic loop
 - c. Open-chain motion
 - d. Convex articulation

ANS: A

Movement of the proximal segment of bone about a relatively fixed—or stationary—distal segment is referred to as a closed-chain motion.

PTS: 1

13. The motion of a top moving in one spot on the floor would best be described as _____
- a. Roll
 - b. Spin
 - c. Slide
 - d. Drop

ANS: B

The motion of a top moving in one spot on the floor would best be described as spin.

PTS: 1

14. Both passive and active forces generated from within the body are known as _____
- a. External forces
 - b. Intrinsic movements
 - c. Extrinsic movements
 - d. Internal forces

ANS: D

Internal forces are forces generated from within the body. Generally these are active forces generated by muscular contraction, but many times passive internal forces such as tension generated from ligamentous or muscular elongation must be considered as well.

PTS: 1

TRUE/FALSE

1. The origins of the word *kinesiology* are from the Greek *kinesis*, “to move,” and *ology*, “to study.”
 - a. True
 - b. False

ANS: T

The origins of the word *kinesiology* are from the Greek *kinesis*, “to move,” and *ology*, “to study.”

PTS: 1

2. Kinematics is a branch of biomechanics that deals only with the effects of torque on the body.
 - a. True
 - b. False

ANS: F

Kinematics is a branch of biomechanics that describes the motion of a body without regard to the forces that produce the motion.

PTS: 1

3. The sagittal plane divides the body into left and right halves.
 - a. True
 - b. False

ANS: T

The sagittal plane divides the body into left and right halves. Typically flexion and extension movements occur in the sagittal plane.

PTS: 1

4. The frontal plane divides the body into upper and lower sections.
 - a. True
 - b. False

ANS: F

The frontal plane divides the body into front and back sections. Nearly all abduction and adduction motions occur in the frontal plane.

PTS: 1

5. *Degrees of freedom* refers to the number of planes of motion allowed at a joint.
 - a. True
 - b. False

ANS: T

Degrees of freedom refers to the number of planes of motion allowed at a joint.

PTS: 1

6. *Abduction* describes movement of a body segment in the frontal plane, toward the midline.
 - a. True
 - b. False

ANS: F

Abduction describes movement of a body segment in the frontal plane, away from the midline.

PTS: 1

7. *Protraction* describes the translation of a bone away from the midline in a plane parallel to the ground.
 - a. True
 - b. False

ANS: T

Protraction describes the translation of a bone away from the midline in a plane parallel to the ground.

PTS: 1

MATCHING

Match the following terms with their definitions:

- a. Below, or toward the feet
 - b. Imaginary line coursing vertically through the center of the body
 - c. Toward the front of the body
 - d. Toward the back of the body
 - e. Above, or toward the head
1. Anterior
 2. Posterior

- | | |
|-----------|--------|
| 1. ANS: C | PTS: 1 |
| 2. ANS: D | PTS: 1 |
| 3. ANS: B | PTS: 1 |
| 4. ANS: E | PTS: 1 |
| 5. ANS: A | PTS: 1 |

- a. Away from the torso
- b. Closer to or toward the torso
- c. Toward the midline of the body
- d. Away from the midline of the body
- e. Toward the head

- | | | |
|-----|--------|--------|
| 6. | ANS: C | PTS: 1 |
| 7. | ANS: D | PTS: 1 |
| 8. | ANS: B | PTS: 1 |
| 9. | ANS: A | PTS: 1 |
| 10. | ANS: E | PTS: 1 |

- Proximal attachment of a muscle or ligament
- Toward the inside (core) of the body
- Toward the feet or “tail”
- Distal attachment of a muscle or ligament
- Toward the surface (skin) of the body

- | | | |
|-----|--------|--------|
| 11. | ANS: C | PTS: 1 |
| 12. | ANS: E | PTS: 1 |
| 13. | ANS: B | PTS: 1 |
| 14. | ANS: A | PTS: 1 |
| 15. | ANS: D | PTS: 1 |

- A rotational movement of the forearm that results in the palm facing posteriorly
- A frontal plane movement toward the midline
- Describes the motion of turning the palm anteriorly
- Describes the motion of one bone as it approaches the flexor surface of the other bone
- A movement that is an approximation of the extensor surfaces of two bones

- | | | |
|-----|--------|--------|
| 16. | ANS: D | PTS: 1 |
| 17. | ANS: E | PTS: 1 |
| 18. | ANS: B | PTS: 1 |
| 19. | ANS: A | PTS: 1 |
| 20. | ANS: C | PTS: 1 |

- Forces originating from outside the body
- The motion that occurs between the articular surfaces of joints
- The direction of muscular force, typically represented as a vector
- The path of moving bones
- A branch of mechanics that describes the effect of forces on the body

- 4

25. Line of pull

- 21. ANS: B PTS: 1
- 22. ANS: D PTS: 1
- 23. ANS: E PTS: 1
- 24. ANS: A PTS: 1
- 25. ANS: C PTS: 1

Match the following terms with their definitions:

- a. Plane dividing the body into upper and lower sections
- b. Is a branch of biomechanics that describes the motion of a body without regard to the forces that produce the motion
- c. The position of an individual lying face down
- d. Plane dividing the body into front and back sections
- e. The position of an individual lying face up

- 26. Prone
- 27. Supine
- 28. Kinematics
- 29. Horizontal plane
- 30. Frontal plane

- 26. ANS: C PTS: 1
- 27. ANS: E PTS: 1
- 28. ANS: B PTS: 1
- 29. ANS: A PTS: 1
- 30. ANS: D PTS: 1