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Articulations

Answers and Explanations

I. Classification of Joints

A. Multiple Choice Questions

1. (b) – The joint capsule of a synovial joint is filled with lubricating synovial fluid, facilitating free movement between articulating bones.
2. (c) – A ball-and-socket joint is a specific type of synovial joint.

B. True–False Questions

1. True – A kinesiologist is concerned with muscular activity and the anatomy, physiology, and mechanics of body movement. The muscles provide the force for body movement, the long bones serve as levers, and the joints are the fulcra (pivot points).
2. False – The joints are part of the skeletal system.
3. True – In a kinetic study, all of the factors that influence body movement are examined.

II. Fibrous Joints

A. Multiple Choice Questions

1. (d) – An example of a plane joint is the articulation between the nasal bones, characterized by two smooth borders in contact with each other.
2. (c) – A synostosis is a temporary joint that permits growth before becoming totally ossified; for example, the joint between the two developmental components of the frontal bone.
3. (b) – Sutures replace the pliable fontanelles of an infant's skull.

B. True–False Questions

1. True – Sutures develop as the bones of the skull grow and come in contact with each other.
2. False – Syndesmoses are slightly movable fibrous joints located at the distal ends of the antebrachium and leg, respectively.
3. True – The tympanostapedial joint of the middle ear is also a syndesmosis.
4. True – Practicing sound dental hygiene, however, will greatly minimize the risk of periodontal disease.

III. Cartilaginous Joints

A. Completion Questions

1. symphysis
2. synchondroses

B. True–False Questions

1. True – As the epiphyseal plates ossify, the synchondroses become less apparent.
2. True – Synchondroses that do not ossify as a person ages are those between the occipital, sphenoid, temporal, and ethmoid bones of the skull, and those between the ribs and the sternum.

IV. Synovial Joints

A. Multiple Choice Questions

1. (a) – Only a few of the synovial joints contain a meniscus.
2. (c) – The shape of the articulating bony portions of condyloid joints permits movement in only two planes.
3. (a) – A saddle joint is found only in the hand; specifically, the carpometacarpal joint of the thumb.
4. (c) – The rounded head of one bone and the reciprocal cuplike depression of the other in a ball-and-socket joint allows for the greatest range of movement.

B. True–False Questions

1. True – Synovial joints are the most common kind of articulation in the body.
2. True – Synovium, or synovial fluid, is secreted by the synovial membrane.
3. True – The articular cartilage of one bone of a joint articulates with the articular cartilage of the other.
4. False – Bursae are located near synovial joints, not within the joints.
5. False – Hinge joints are the most common type of synovial joint.
6. False – Hinge joints are common throughout the upper and lower extremities.

V. **Movements at Synovial Joints**

A. Multiple Choice Questions

1. (c) – Retraction is the opposite of protraction.
2. (d) – An example of elevation is shrugging a shoulder, and an example of depression is drooping the shoulder.
3. (d) – Extension is increasing the joint angle at the elbow, and supination is rotating the elbow such that the palm is up, ready to receive the money.
4. (a) – The pivot, resistance, effort sequence is that which would be employed in prying an object with a crowbar.
5. (b) – In a third-class lever, the effort lies between the fulcrum and the resistance, as with many joints, muscles, and bones within the body.

B. True–False Questions

1. False – Adduction is the movement of a body part toward the main axis of the body.
2. False – Supination and pronation are rotational movements.
3. True – In anatomical position, the palm of the hand is facing forward.
4. False – A conelike movement of a body segment is called circumduction.
5. True – In a first-class lever, the pivot is between the resistance and the effort.

VI. **Specific Joints of the Body**

A. Multiple Choice Questions

1. (c) – In many respects, the movement permitted at the temporomandibular joint is similar to that permitted at a ball-and-socket joint. This range of movement is possible because the temporomandibular joint is a combination of a gliding joint and a hinge joint.
2. (d) – The principal support at the shoulder joint is the array of muscles that span the joint. Other synovial joints are supported mainly by ligaments and reinforced by muscles.
3. (d) – Menisci and ligaments within the joint add to the complexity of the tibiofemoral (knee) joint.
4. (a) – There are actually two joints at the ankle—the articulation of the medial malleolus of the tibia with the talus and that of the lateral malleolus of the fibula with the talus.

B. True–False Questions

1. True – The shoulder joint is also the most vulnerable.
2. False – The supporting ligaments of the fingers are on the anterior sides.
3. False – The knee joint also permits limited rolling and gliding movements.
4. False – The malleoli actually assist side-to-side movement at the ankle, at the same time providing stability.

VII. **Developmental Exposition of Synovial Joints**

A. True–False Questions

1. True – As the joint cavity is formed, the synovial membrane develops and begins to produce synovial fluid.
2. False – Synovial fluid is secreted by the synovial membrane.
3. True – The joints form early in development, enabling movements of the fetus as the muscles develop and are exercised.
4. True – Continued joint movement is important for both the development of joints and their maintenance.

VIII. Clinical Considerations

A. True-False Questions

1. False – Tearing the ligament of a joint is called a sprain.
2. True – Joint luxation varies widely in severity.
3. True – A sprain is trauma to the ligaments of tendons that surround a joint.
4. False – Lordosis is an abnormal curvature of the lumbar region.
5. True – Ossification of a joint limits joint movement.
6. True – Gouty arthritis has a genetic basis.

IX. Chapter Review

A. Completion Questions

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|---------------------------------|-------------------------|
| 1. arthrology | 9. third-class |
| 2. quickening | 10. temporomandibular |
| 3. fibrous | 11. Osteoarthritis |
| 4. cartilagenous | 12. patellofemoral |
| 5. synovial | 13. collateral/cruciate |
| 6. bursae | 14. luxation |
| 7. tendon sheath | 15. Arthroscopy |
| 8. dorsiflexion/plantar flexion | |

B. Matching Questions

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| 1. C, (g) | 9. C, (g) |
| 2. B, (e) | 10. A, (j) |
| 3. C, (d) | 11. C, (a) |
| 4. C, (a) | 12. A, (c) |
| 5. C, (g) | 13. C, (d) |
| 6. C, (f) | 14. B, (e) |
| 7. C, (f) | 15. C, (b) |
| 8. B, (e) | |