

**HUMAN GROSS ANATOMY – ANAT 503
EXAMINATION 5**

November 6, 2015

PART I. Answer in the space provided. (12 pts)

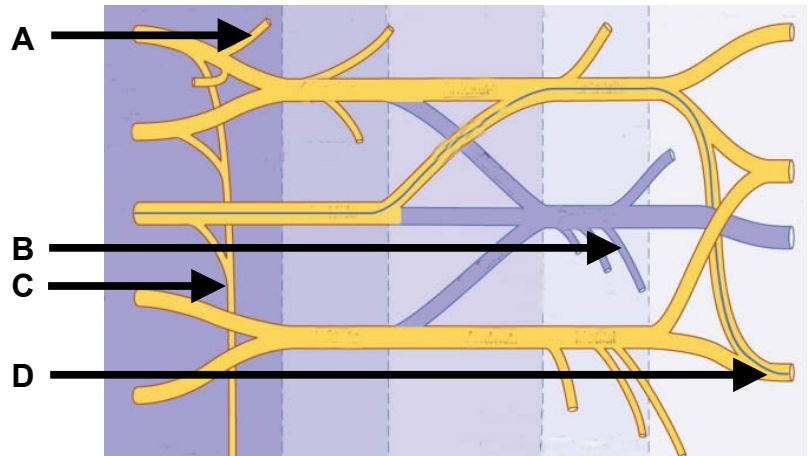
1. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



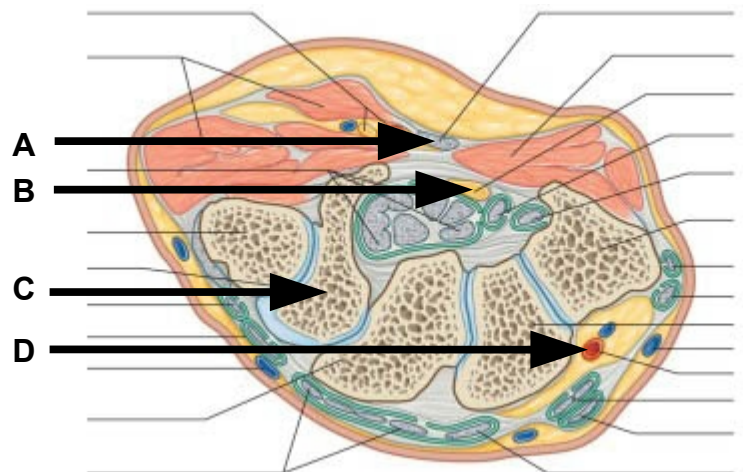
2. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



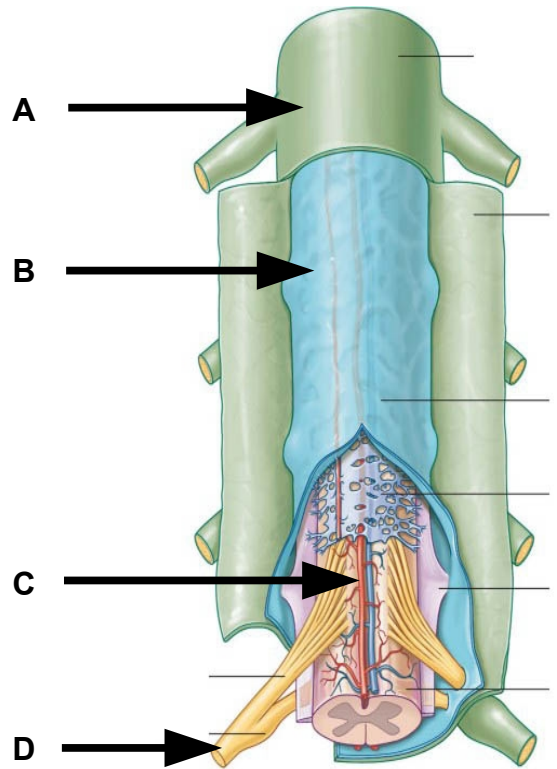
3. Identify the Structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



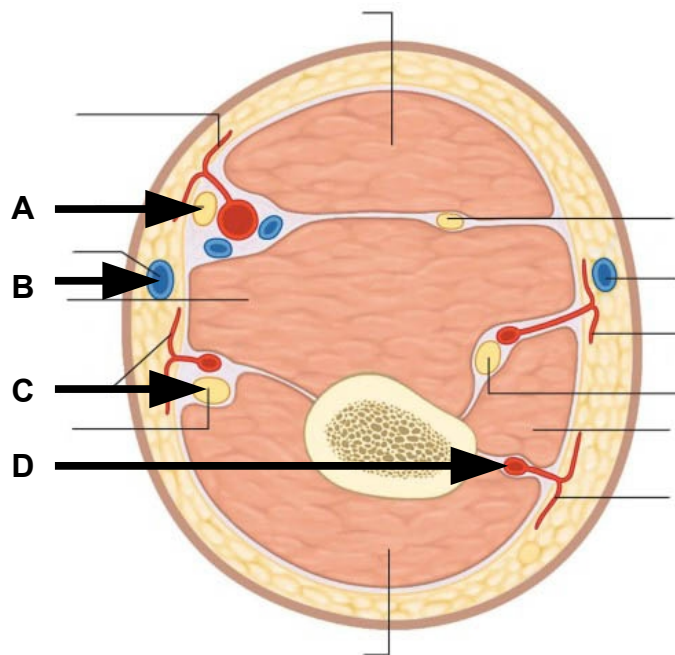
4. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



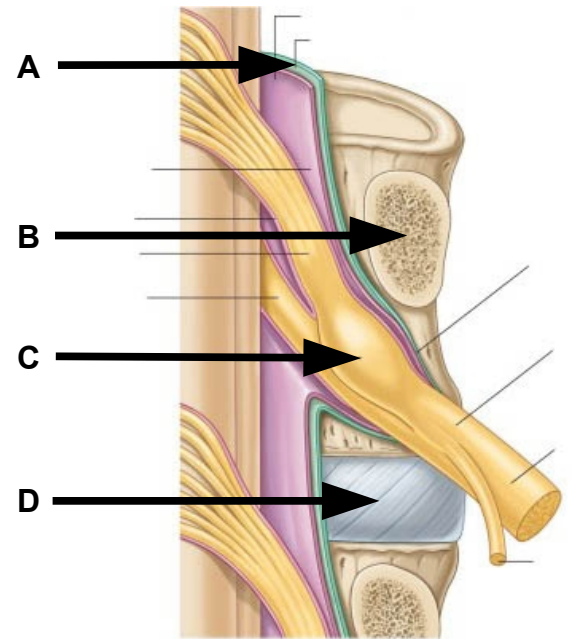
5. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



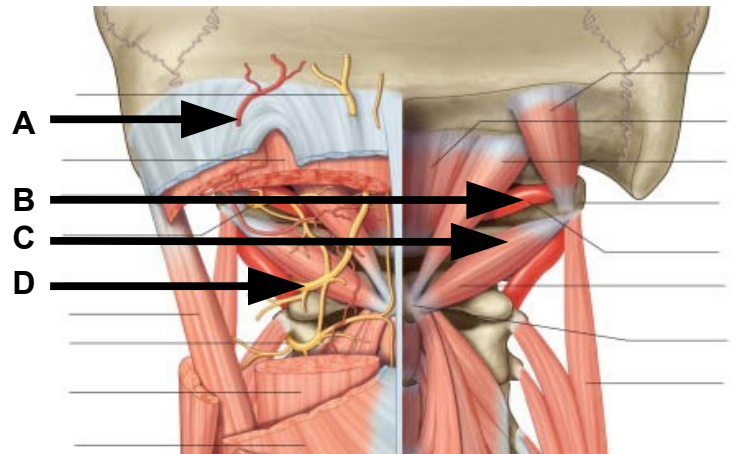
6. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



Part II. Circle the correct answer. All, none, or some may apply. (16 pts)

1. With regard to the back, suboccipital region, and scapular region:

- a) The anterior longitudinal ligament forms, in part, the anterior boundary of the spinal canal.
- b) A lesion of the dorsal scapular nerve weakens protraction of the scapula.
- c) The filum terminale internum is derived from pia mater whereas the filum terminale externum is derived from dura mater and pia mater.
- d) Cerebral spinal fluid is located immediately deep to ligamentum flavum, between it and the dura mater.
- e) The upper lateral cutaneous nerve of the arm is used to test the integrity of the axillary nerve.

2. With regard to the axilla and brachial plexus:

- a) The ventral root of C7 is both a root and a trunk of the brachial plexus.
- b) A lesion of the long thoracic nerve severely weakens protraction of the scapula.
- c) The axillary nerve innervates two muscles and each of these muscles laterally rotate the arm.
- d) A lesion of the middle subscapular nerve weakens lateral rotation of the arm.
- e) A lesion of the posterior cord proximal to the upper subscapular nerve causes an uncompensated loss of medial rotation.

3. With regard to the arm and cubital fossa:

- a) The radial tuberosity faces anterior when the forearm is supinated.
- b) A lesion of the musculocutaneous nerve in the axilla eliminates flexion at the elbow.
- c) The radial recurrent artery passes through the heads of origin of the flexor carpi ulnaris muscle.
- d) A lesion of the radial nerve at the spiral groove causes loss of extension at the elbow.
- e) The brachioradialis muscle flexes the elbow, extends the wrist, and is innervated by the radial nerve.
- f) The interosseous recurrent artery forms an anastomosis with the middle collateral artery.

4. With regard to the forearm and the dorsum of the hand:

- a) Flexion of the distal interphalangeal joints is done by one extrinsic muscle of the hand whereas intrinsic muscles and long extensors act together to extend the distal interphalangeal joints.
- b) The posterior relationships of the medial humeral epicondyle include the ulnar nerve, inferior ulnar collateral artery, and the humeral head of flexor carpi ulnaris.
- c) The anterior interosseous artery enters the posterior compartment of the forearm by passing the superior free edge of the oblique ligament.
- d) Complete lesions of the musculocutaneous, radial, and ulnar nerves in the axilla eliminate flexion of the forearm.
- e) The tendons of the interossei pass posterior to the deep transverse metacarpal ligament and anterior to the axis of the metacarpophalangeal joints.
- f) The flexor digitorum profundus is dually innervated; the radial side by the median nerve and the ulnar side by the radial nerve.

5. With regard to the hand:

- a) Within Guyon's tunnel the ulnar artery is lateral to the ulnar nerve.
- b) All seven of the interosseous muscles are innervated by the deep branch of the radial nerve.
- c) The deep transverse metacarpal ligament is between the tendons of the interosseous and lumbrical muscles.
- d) The tendons of flexor digitorum superficialis split into medial and lateral slips that insert onto the base of the middle phalanges.
- e) The ulnar artery dominates the superficial palmar arch and the radial artery dominates the deep palmar arch.
- f) The anterior interosseous nerve, after providing motor innervation to the pronator quadratus, continues onto the hand and supplies sensation to the joints of the wrist.

6. With regard to the joints of the upper limb:

- a) Joints having high mobility are less stability than joints having low mobility.
- b) The annular ligament stabilizes the head of the radius, but does not attach to the radius.
- c) The short head of the biceps tendon passes within the glenohumeral joint capsule.
- d) The triangular fibrocartilage complex (TFCC) limits adduction at the wrist.

Part III. Indicate your understanding of the following. (24 pts)

1. Falling on an outstretched hand may fracture the scaphoid bone at the floor of the anatomical snuff box. **Review the boundaries and contents of the anatomical snuffbox. Why is the scaphoid bone prone to vascular necrosis? (6 pts)**

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2. Regional anesthesia of the shoulder joint requires blocking the suprascapular nerve in the supraspinous fossa. **Review the anatomy and relationships of the superior transverse scapular ligament. (6 pts)**

EXAM NUMBER _____

3. Shoulder dislocation refers to a disruption of the glenohumeral joint. Shoulder separation refers to a disruption of the acromioclavicular joint. **Review the supporting structures of the acromioclavicular joint. (6 pts)**

EXAM NUMBER _____

4. The middle finger provides the reference line that defines abduction and adduction of the fingers (medial four digits). **Review the anatomy of the extensor apparatus of the middle finger. (6pts)**

EXAM NUMBER _____

Part IV. Essay. (48 pts)

1. A 14 year-old baseball pitcher, having parental approval, is throwing an excessive number of daily pitches. Eventually the ulnar collateral ligament of the elbow ruptures and surgical repair is indicated. **Review the anatomy of the elbow region and cubital fossa. Include bones, articular surfaces, cavities, capsules, ligaments, contents, boundaries, muscles, movements and limitations of movement, vasculature, innervation, relationships to surrounding structures, and lymphatic drainage. (12 pts)**

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2. Prolonged compression of the medial posterior arm secondary to amorous intent or to inebriated analgesia may damage the radial nerve at the spiral groove. **Review the anatomy of the radial nerve. Discuss the functional deficits and resting joint positions that result from damage to the radial nerve at the spiral groove. What radial nerve innervations and functions are spared? (12 pts)**

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3. Narrowing of the spinal canal (spinal stenosis) may cause bilateral symptoms. Narrowing of the intervertebral foramina may cause unilateral symptoms. **Review the anatomy of the vertebral column and spinal canal. Include bones, articulations, ligaments, spaces, contents, muscles, movements and limitations of movement, vasculature and lymphatic drainage, innervations, and relationships. Include an account of the fascial layers penetrated during lumbar puncture. (12 pts)**

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4. Repetitive wrist motion may cause swelling within the carpal tunnel. **Review the anatomy of the carpal tunnel. Discuss functional deficits and deformities caused by long term compression of the contents of the carpal tunnel. (12 pts)**

EXAM NUMBER _____

EXAM NUMBER _____