EXAM NUMBER_____

HUMAN GROSS ANATOMY – ANAT 503
EXAMINATION 5

November 4, 2016

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

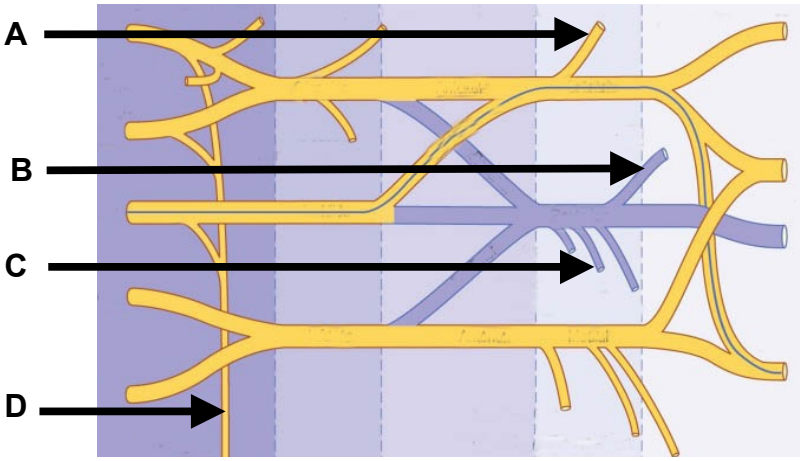
1. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



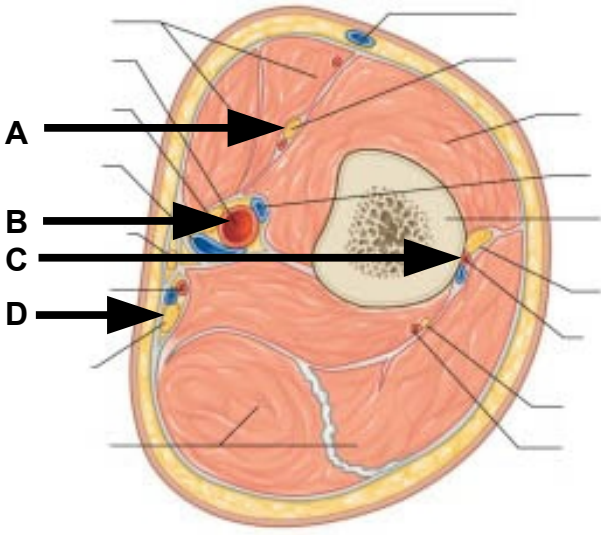
2. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



EXAM NUMBER_____

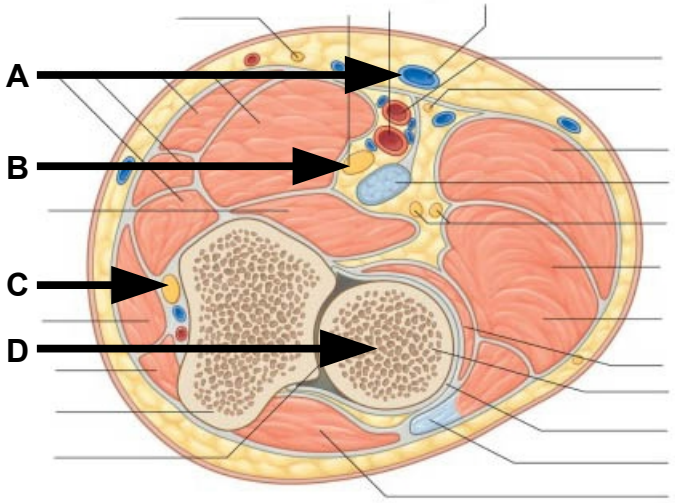
3. Identify the Structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



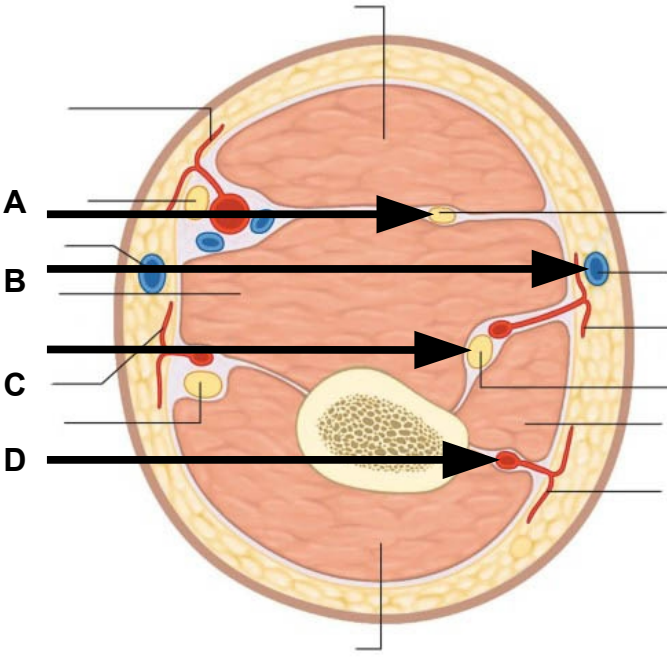
4. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



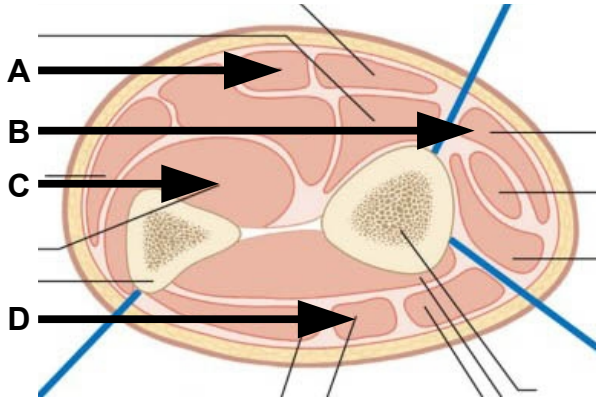
5. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



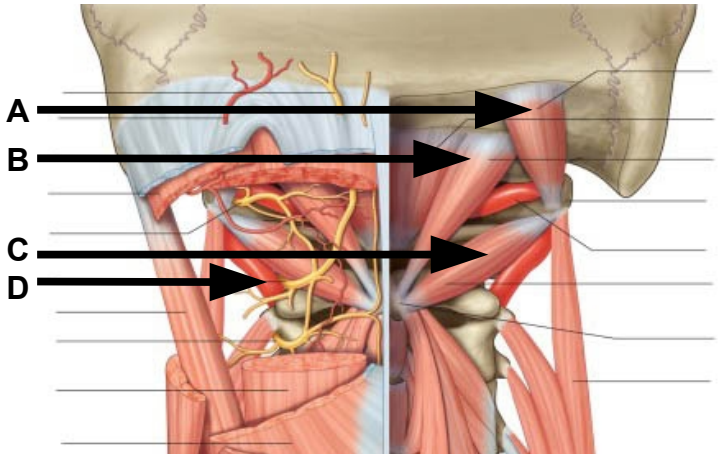
6. Identify the structures. (2 pts)

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 ligamentum flavum forms, in part, the posterior boundary of the spinal canal.
   b) A lesion of the long thoracic nerve weakens protraction of the scapula.
   c) The denticulate ligament is derived from pia mater and is in between the white and gray rami.
   d) The posterior internal vertebral plexus 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 supraclavicular nerves.
2. **With regard to the axilla and brachial plexus:**
   a) The ventral ramus of C7 is both a root and a trunk of the brachial plexus.
   b) A lesion of the upper subscapular nerve entirely eliminates medial rotation.
   c) The suprascapular nerve innervates two muscles and each of these muscles laterally rotate the arm.
   d) A lesion of the dorsal scapular nerve weakens lateral rotation of the arm.
   e) A lesion of the posterior cord weakens flexion at the wrist.
3. **With regard to the arm and cubital fossa:**
   a) The radial tuberosity moves anterior during pronation.
   b) A lesion of the musculocutaneous nerve in the axilla entirely eliminates flexion at the elbow.
   c) The ulnar artery passes through the heads of origin of the pronator teres muscle.
   d) A lesion of the posterior cord causes loss of extension at the elbow.
   e) The brachioradialis muscle flexes the elbow, flexes the wrist, and is innervated by the radial nerve.
   f) The interosseous recurrent artery forms an anastomosis with the superior ulnar collateral artery.

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

   a) The lumbrical muscles and long extensor muscles act together to extend the distal interphalangeal joints.

   b) The posterior relationships of the lateral humeral epicondyle include the interosseous recurrent artery and the anconeus muscle.

   c) The anterior interosseous artery enters the posterior compartment of the forearm by passing the inferior 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 lumbrical muscles pass anterior to the deep transverse metacarpal ligament and anterior to the transverse axis of the metacarpophalangeal joints.

   f) The flexor digitorum profundus is dually innervated; the ulnar side by the ulnar nerve and the radial 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 median nerve.

   c) The deep transverse metacarpal ligament provides transverse fibers of the palmar aponeurosis.

   d) The tendons of flexor digitorum superficialis split into medial and lateral slips that insert onto the base of the proximal phalanges.

   e) The deep ulnar artery enters the radial side of the deep palmar arch.

   f) The anterior interosseous artery continues onto the hand and supplies the dorsal carpal rete.

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

   a) Joints having high mobility are less stabile than joints having low mobility.

   b) The annular ligament stabilizes the head of the radius, but does not attach to the radius.

   c) A shoulder separation occurs at the acromioclavicular joint.

   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)**

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)**

3. Radial head subluxation, also known as pulled elbow, is a common upper-extremity injury in infants and young children. Pulling the child by the upper extremity may cause the radial head to move away from the joint articulation. **Review the supporting structures of the proximal radioulnar joint. (6 pts)**

4. The scapular anastomosis may supply the upper limb during surgical ligation of the axillary artery proximal to the subscapular artery. **Trace the collateral circulation of scapular anastomosis when the axillary artery is ligated. Note the location of retrograde flow. (6pts)**

Part IV. Essay. (48 pts)

1. The shoulder joint has extreme mobility paired with inherent instability. The head of the humerus and the glenoid fossa have been compared to a golf ball on a tee. Much of the support for glenohumeral joint is derived from soft tissues. **Review the anatomy of the glenohumeral joint. Include bones, articulations, ligaments, capsules, cavities, contents, muscles, movements and limitations of movement, vasculature , lymphatic drainage, innervation, and relationships. (12 pts)**

2. Prolonged compression of the medial humeral epicondyle may damage the ulnar nerve within the cubital tunnel. **Review the anatomy of the ulnar nerve. Discuss the functional deficits, resting joint positions, and deformities that result from damage to the ulnar nerve. What ulnar nerve innervations and functions are spared if the damage is at Guyon's canal (ulnar canal) instead of at the cubital tunnel? (12 pts)**

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)**

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)**