EXAM NUMBER_____

HUMAN GROSS ANATOMY – ANAT 503
EXAMINATION 5

November 14, 2014

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

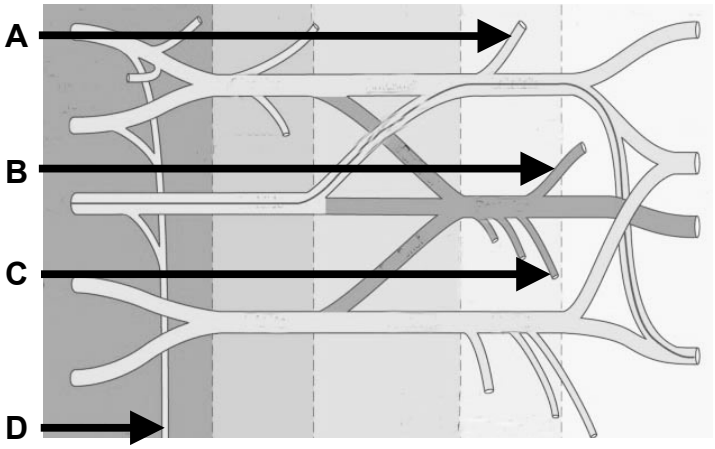
1. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



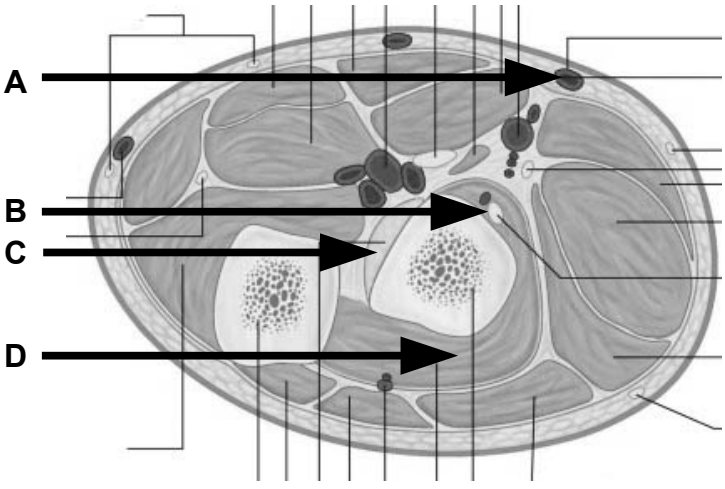
2. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



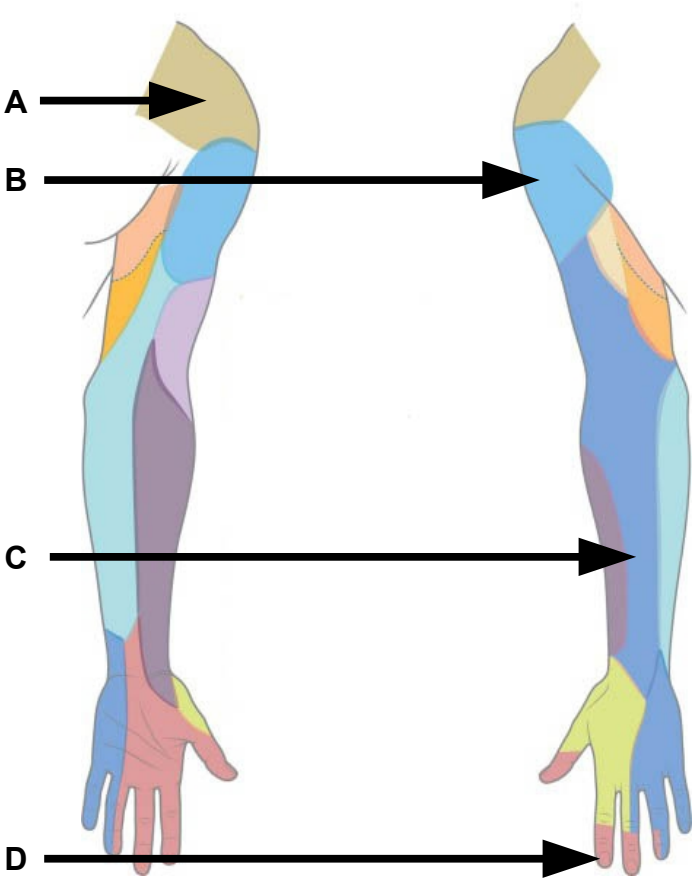
3. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



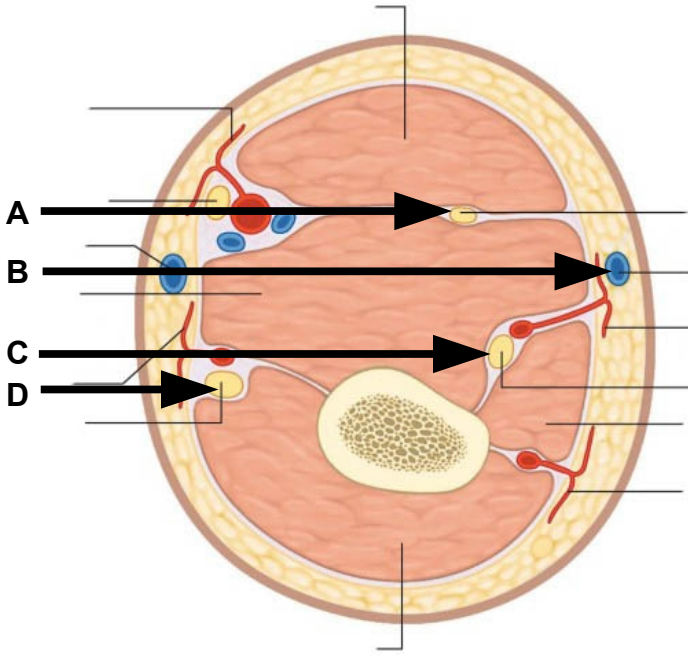
4. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



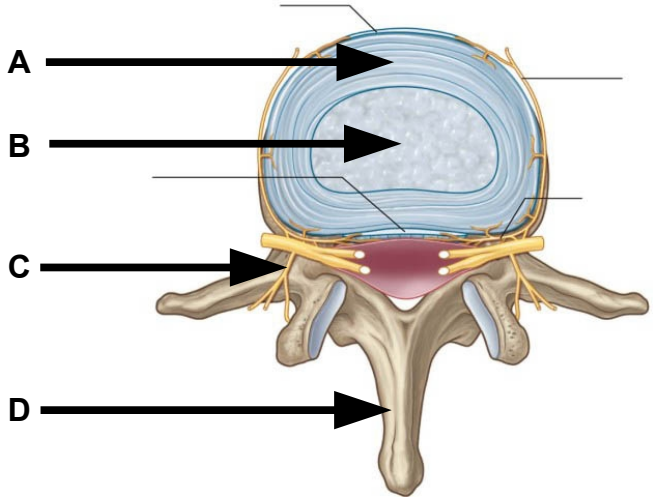
5. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



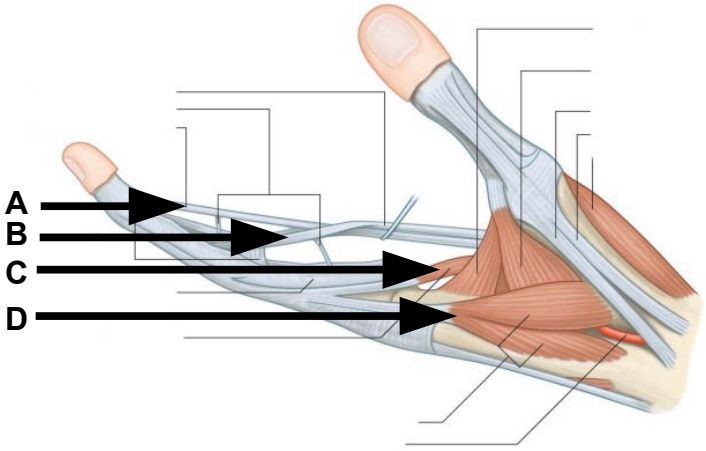
6. Identify the structures. (2 pts)

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 resists extension of the back.
   b) The vertebral artery lies on the superior surface of the transverse process of the atlas in the groove for the vertebral artery.
   c) At the superior nuchal line the greater occipital nerve is medial to the occipital artery.
   d) The suprascapular artery passes superior to the superior transverse scapular ligament.
   e) The distribution of supraclavicular nerve can be used to test for injury to the axillary nerve.
2. **With regard to the axilla and brachial plexus:**
   a) A lesion of the upper subscapular nerve weakens lateral rotation of the arm.
   b) The axillary artery becomes the brachial artery at the inferior edge of the teres major.
   c) The axillary nerve innervates two muscles and each of these muscles laterally rotate the arm.
   d) A lesion of the middle subscapular nerve would weaken lateral rotation of the arm.
   e) A lesion of the dorsal scapular nerve causes uncompensated loss of retraction of the scapula.
3. **With regard to the arm and cubital fossa:**
   a) The radial tuberosity faces anterior when the forearm is pronated.
   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) The extensor carpi radialis longus muscle, a flexor of the elbow, is innervated by the radial nerve and extends the wrist.
   e) The radial collateral artery is in the cubital fossa.
   f) The inferior ulnar collateral artery passes anterior to the medial epicondyle of the humerus and enters the cubital fossa.

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

a) Flexion of the distal interphalangeal joints is by one muscle whereas intrinsic muscles and long extensors act together to extend the distal interphalangeal joints.

b) The supinator and the biceps brachii muscles supinate the forearm and are innervated by the radial nerve.

c) The posterior interosseous nerve enters the posterior compartment of the forearm from the anterior compartment of the forearm by passing the inferior free edge of the oblique ligament.

d) The radial two heads of the flexor digitorum profundus muscle are innervated by the radial nerve.

e) The interossei are posterior to the deep transverse metacarpal ligament and posterior 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 ulnar nerve.

5. With regard to the hand:

a) Guyon's canal (ulnar tunnel) is anterior and lateral to the transverse carpal ligament (flexor retinaculum).

b) The deep transverse metacarpal ligament stabilizes the bases of the metacarpal bones.

c) The palmaris brevis and the palmaris longus insert onto the extensor retinaculum.

d) The thenar muscles are innervated by the median nerve with the exception of the deep head of the flexor pollicis longus that is innervated by the ulnar nerve.

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) The olecranon fossa of the humerus receives the olecranon process of the radius during maximum flexion of the forearm.

b) The annular ligament stabilizes the head of the radius without attaching to the radius.

c) The glenohumeral joint capsule attaches to the margins of the surgical neck of the humerus.

d) The central slip of the extensor hood extends distal to the lateral bands to insert on the base of the distal phalanx.

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 anatomy of the anatomical snuffbox. Why is the scaphoid bone prone to vascular necrosis? (6 pts)**

2. Stab wounds to the axilla may require surgical ligation of the axillary artery. **Review the scapular anastomosis. Define were there is retrograde arterial blood flow if the axillary artery is ligated proximal to the subscapular arterial trunk. (6 pts)**

3. Withdrawing blood by venupuncture often involves the median cubital vein. **Review the anatomy of the median cubital vein. What vascular anomaly must be appreciated to assure a safe procedure. (6 pts)**

4. The index finger is operates independently during extension. **Review the anatomy of the extensor apparatus of the index finger. (6pts)**

Part IV. Long Essay. (12 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. A crushing blow to the posterior medial epicondyle of the humerus may damage the ulnar nerve. **Review the anatomy of the ulnar nerve. Discuss the functional deficits, resting joint positions, and deformities resulting from damage to the ulnar nerve. (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, innervation, and relationships. Include an account of the fascial layers penetrated during lumbar puncture. (12 pts)**

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