EXAM NUMBER_____

STRUCTURAL BASIS OF MEDICAL PRACTICE

EXAMINATION 5

October 5, 2007

PART I. Answer in the space provided. (8 pts)

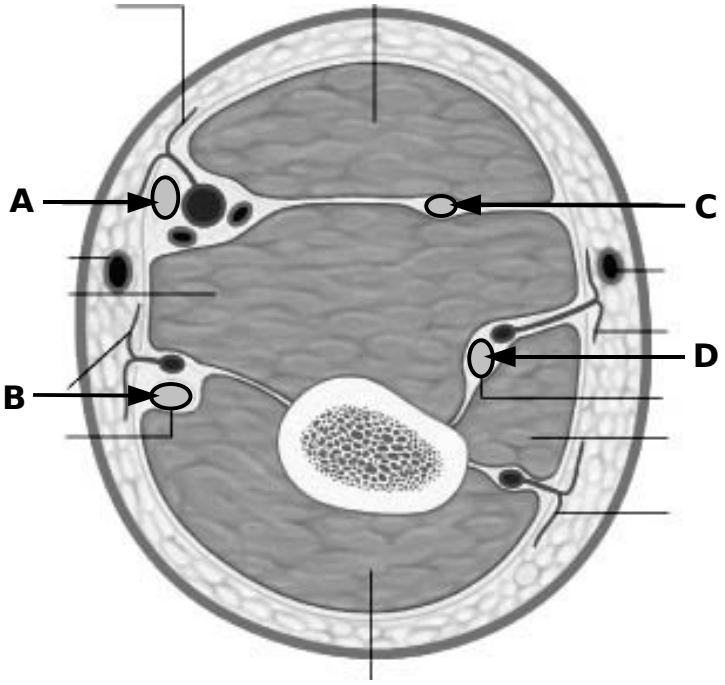
1. Identify the structures. (2 pts)

A. Median Nerve

B. Ulnar Nerve

C. Musculocutaneous Nerve

D. Radial Nerve



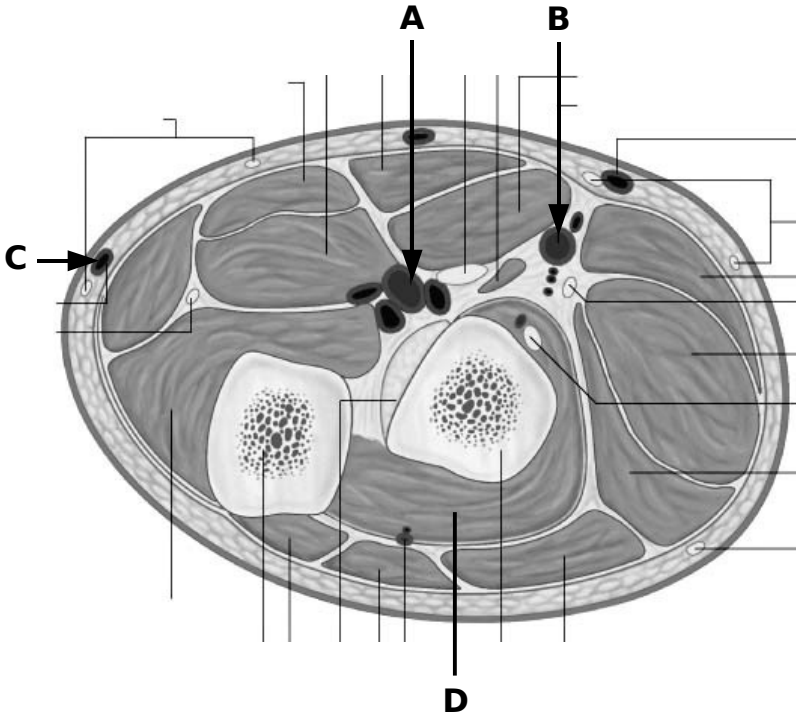
2. Identify the structures. (2 pts)

A. Ulnar Artery

B. Radial Artery

C. Basilic Vein

D. Supinator Muscle



EXAM NUMBER_____

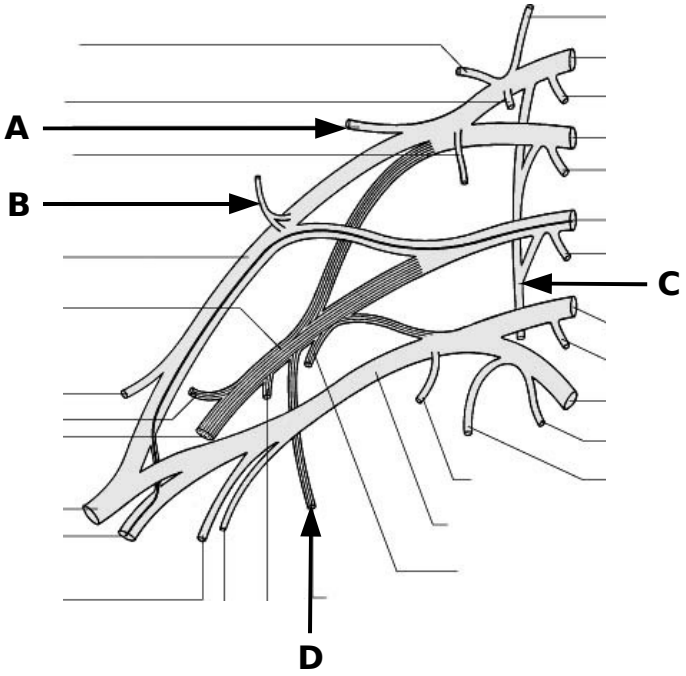
3. Identify the structure. (2 pts)

A. Suprascapular Nerve

B. Lateral Pectoral Nerve

C. Long Thoracic Nerve

D. Thoracodorsal Nerve



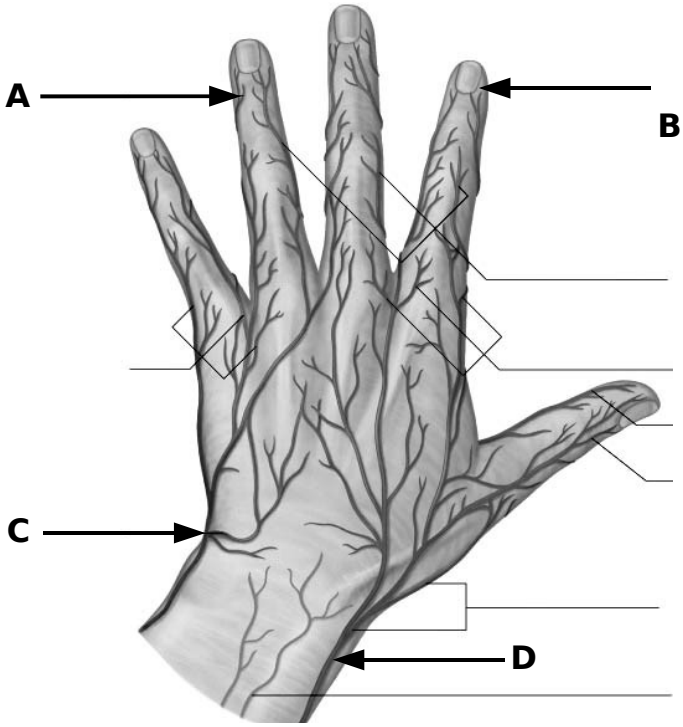
4. Identify the structure. (2pts)

A. Palmar Dig. Br. Ulnar N.

B. Palmar Dig. Br. Median N.

C. Dorsal Branch Ulnar N.

D. Superficial Radial Nerve



Part II. Circle the correct answer. All, none, or some may apply. (36 pts)

1. With regard to the back and the vertebral column:

   a. The anterior longitudinal ligament limits extension of the back.

      - True: Anterior to the axis of extension.

   b. The serratus posterior inferior muscle is innervated by the thoracodorsal nerve.

      - False: The long thoracic nerve.

   c. The suboccipital nerve provides motor innervation to the rectus capitis posterior major and minor and the superior and inferior obliquus capitis muscles.

      - True: Boundary muscles plus rectus capitus posterior minor.

   d. The denticulate ligaments are extensions of the arachnoidea.

      - False: Extensions of the pia.

   e. The thoracolumbar fascia provides a site of origin for the latissimus dorsi muscle.

      - True: Provides attachment to lumbar spines and iliac crest.

   f. The dural sac extends inferiorly to the level of the 2nd sacral vertebrae.

      - True: Spinal cord to L2, dural sac to S2.

   g. The internal posterior vertebral venous plexus is within the subarachnoid space.

      - False: The epidural space.

   h. The anterior longitudinal ligament of the spine forms part of the anterior boundary of the vertebral canal.

      - False: The posterior longitudinal ligament does this.

   i. The ligamentum fuscia extends between adjacent spines.

      - False: There is no ligament of this name. Flavum is between lamina.

   j. The levator scapula muscle originates from transverse processes C1-C4 and inserts onto superior angle of scapula.

      - True: Simply the case.

   k. A lesion of the upper root of the brachial plexus would weaken protraction of the scapula.

      - True: C5 contributes to long thoracic nerve.

   l. The long thoracic nerve is derived from the lower 3 roots of the brachial plexus.

      - False: The upper three roots

m. A lesion of the long thoracic nerve would affect complete abduction of the arm.

- True: Serratus anterior contributes to upward rotation of the scapula.

n. Entrapment of the suprascapular nerve at the suprascapular notch could cause uncompensated loss of arm abduction from 0 - 15 degrees and compensated loss of medial rotation of the arm.

- False: No loss of medial rotation; only abduction and lateral rotation.

o. A lesion of the lower subscapular nerve would cause weakened arm adduction.

- True: Loss of teres major.

2. With regard to the axilla and brachial plexus:

a. The dorsal scapular nerve arises from the posterior cord of the brachial plexus.

- False: The ventral ramus of C5.

b. A lesion of the medial and lateral pectoral nerves would weaken medial rotation and abduction of the arm.

- False: Weaken depression.

c. The thoracoacromial artery usually arises from the second segment of the axillary artery.

- True

d. Transection (complete division) of the medial cord of the brachial plexus would result in loss of elbow flexion.

- False: Brachioradialis and Brachialis intact.

e. A lesion of the ulnar nerve within the axilla would cause the resting hand to be extended and adducted.

- False: Extended and abducted.

f. A lesion of the radial nerve within the axilla would cause anesthesia of the dorsum of the hand in the region of the anatomical snuffbox.

- True

g. The ascending branch of the profunda brachii artery enters an anastomosis in the shoulder region.

- True

h. Complete lesions of the ulnar, median, and musculocutaneous nerves within the axilla will cause total loss of flexion at the elbow.

- False: Brachioradialis intact.

i. A lesion of the radial nerve at the spiral groove would cause loss of extension at the elbow.

- False: Branches to triceps are spared.

j. The ulnar nerve enters the anterior arm by passing through the heads of origin of the flexor carpi ulnaris.

- False: Enters the forearm having this relationship.

k. Ligation of the axillary artery distal to the thyrocervical trunk and proximal to the subscapular artery causes reverse blood flow in the circumflex scapular artery.

- True

l. Ligation of the axillary artery immediately distal to the posterior humeral circumflex artery causes reverse blood flow in the ascending branch of the profunda brachii artery.

- True

m. The upper subscapular nerve sends a lateral branch to the teres major muscle.

- False: The lower subscapular nerve does this.

3. With regard to the arm:

a. The brachioradialis muscle assists the biceps brachii in flexing the arm.

- False: The forearm.

b. The pectoralis major muscle crosses the transverse humeral ligament prior to inserting on the lateral lip of the intertubercular sulcus (bicipital groove).

- True

c. The radial collateral artery, within the cubital fossa, is between brachioradialis and the medial border of the brachialis.

- False: Lateral border of brachialis.

d. Within the cubital fossa the median nerve lies lateral to the brachial artery.

- False: Gray's Fig. 51.1.

e. The median cubital vein crosses the superficial surface of the bicipital aponeurosis.

- True: Significant for drawing blood.

f. The interosseous recurrent artery is, in part, within the cubital fossa.

- False: Posterior to cubital fossa.

g. The humeral head of the pronator teres takes origin from the lateral humeral epicondyle.

- False: The medial humeral epicondyle

h. The lateral head of the triceps brachii originates superior and lateral to the spiral groove whereas the medial head of the triceps brachii originates medial and inferior to the spiral groove.

- True: Due to the direction of the spiral.

i. The profunda brachii artery gives rise to the middle collateral artery and the radial recurrent artery.

- False: Gives rise to the middle and radial collateral.

j. The ulnar head of the pronator teres takes origin from the coronoid process of the ulna.

- True: Gray's pg 875.

k. A complete lesion of the radial nerve at the spiral (radial) groove causes uncompensated loss of pronation of the forearm.

- False: Pronator teres intact.

l. The radial nerve passes posterior to the superior free edge of teres minor to enter into the triangular interval.

- False: Inferior free edge of teres major.

m. Both the coracobrachialis and the short head of the biceps flex the forearm and both arise from the corocoid process.

- False: Coracobrachialis does not cross elbow.

4. With regard to the forearm:

a. The ulnar nerve passes between the two heads of origin of the extensor carpi radialis muscle.

- False: Passes between the two head of origin of flexor carpi ulnaris.

b. The pronator quadratus muscle has a ulnar origin and an radius insertion.

- True: Gray's pg 875.

c. A complete lesion of the ulnar nerve at the ulnar groove would cause loss of willful flexion at the distal interphalangeal joints for the medial two digits.

- True: Paralysis of medial flexor digitorum profundus.

d. A complete lesion of the ulnar nerve at the ulnar groove would cause the wrist joint of the resting hand to be partially extended and partially adducted.

- False: Partially abducted.

e. A complete lesion of the median nerve in the axilla will weaken flexion at the elbow joint.

- True: Paralysis of pronator teres.

f. A complete lesion of the median nerve superior to the cubital fossa will cause the wrist to be partially extended and partially adducted.

- True: Paralysis of flexor carpi radialis.

g. The ulnar artery leaves the cubital fossa by passing between the humeral and ulnar heads of origin of the pronator teres muscle whereas the ulnar nerve proceeds into the forearm between the humeral and ulnar heads of origin of the flexor carpi ulnaris muscle.

- False: The ulnar artery passes deep to pronator teres. Gray's fig. 51.10.

h. The median nerve passes anterior to the superior free edge of the flexor digitorum profundus.

- False: Posterior to the superior free edge of the flexor digitorum superficialis. There is no superior free edge of profundus.

i. Within the distal forearm the median nerve is along the medial border of flexor carpi radialis.

- True: Gray's fig. 52.20.

j. The extensor carpi ulnaris and flexor carpi ulnaris are synergists in regards to adduction of the hand at the wrist.

- True: They just are.

k. The posterior interosseous nerve pierces the interosseous membrane to innervate pronator quadratus.

- False: Innervation is by anterior interosseous nerve.

l. Flexor Carpi Radialis is included in the carpal tunnel.

- False: Separate compartment.

m. The anterior interosseous artery passes anterior to pronator quadratus.

- False: Posterior. Gray's fig. 52.2.

n. The anterior ulnar recurrent artery courses between the brachialis muscle and pronator teres muscle to anastomose with the inferior ulnar collateral artery.

- True: Gray's fig. 51.1.

o. The primary action of the pronator quadratus muscle is pronation, however this muscle can "switch" origin and insertion and act as a supinator if the forearm and hand are fully pronated.

- False: Pronation only. Gray's pg. 878.

5. With regard to the hand:

a. The ulnar nerve enters the palm of the hand medial to the pisiform bone and then passes the lateral aspect of the hook of the hamate.

- False: Lateral to pisiform and medial to hook of hamate.

b. In part, the origin of the abductor digiti minimi muscle is from the pisiform bone.

- True: Gray's fig. 53.46.

c. The interossei and the lumbricals resist hyperextension at the MP joint.

- True: Lecture on claw hand.

d. The deep branch of the ulnar nerve passes deep into the palm of the hand by passing between the heads of origin of abductor digiti minimi and flexor digiti minimi brevis.

- True: Gray's pg 932.

e. The superficial radial nerve provides sensation to the nail bed of the fifth digit.

- False: Dorsal digital branches of ulnar do this. Gray's fig. 53.3b.

f. The radial artery passes deep into the palm by passing between the heads of origin of the first dorsal interosseous.

- True: Gray's pg 925.

g. The anterior interosseous artery enters into the dorsal carpal rete.

- True: Gray's pg 925.

h. The princeps pollicis artery passes along the posterior border of the first metacarpal bone medial to the radial head of the first dorsal interosseous and lateral to the oblique head of adductor pollicis.

- True: Gray's pg 928

i. The extensor hood of the third digit receives contributions from the attachments of five tendons.

- False: Attachments of 4 tendons. Index and little finger have 5.

j. The pisiform bone is a sesamoid bone within the tendon of flexor carpi ulnaris.

- True:

k. Ulnar nerve injury at the level of the hook of the hamate is expected to result in claw hand (flexed interphalangeal joints and hyperextended metacarpalphalangeal joints).

- True: Deep branch is vulnerable at this location. Gray's pg. 933.

l. Recurrent median nerve injury is expected to result in simian (ape) hand (supinated thumb).

- True: Paralysis of opponens policis

m. The ulnar boundary of the anatomical snuff box is the tendon of extensor pollicis longus.

- True

n. The trapezium makes up the floor of the anatomical snuff box.

- False: The scaphoid bone does this.

o. The interossei muscles attach to the extensor hood distal to the attachment of the lumbrical muscles.

- False: Proximal or at same location.

p. Distal to the extensor pollicis brevis the posterior interosseus nerve runs superficial to extensor pollicis longus.

- False: Gray's fig. 52.18.