EXAM NUMBER_____

Graduate Anatomy
EXAMINATION 1

September 18, 2015

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

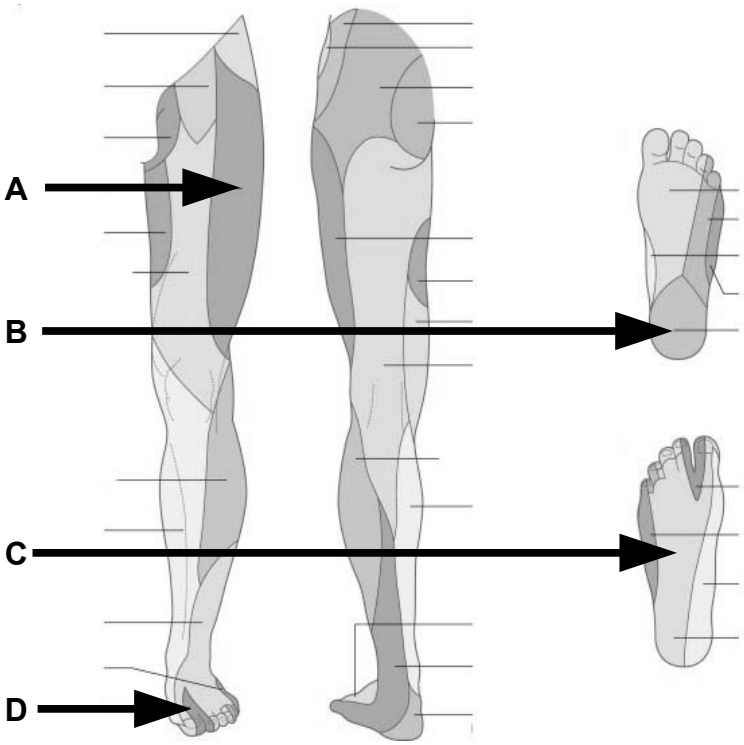
1. Identify the nerve distributions. (2 pts)

A. _____

B. _____

C. _____

D. _____



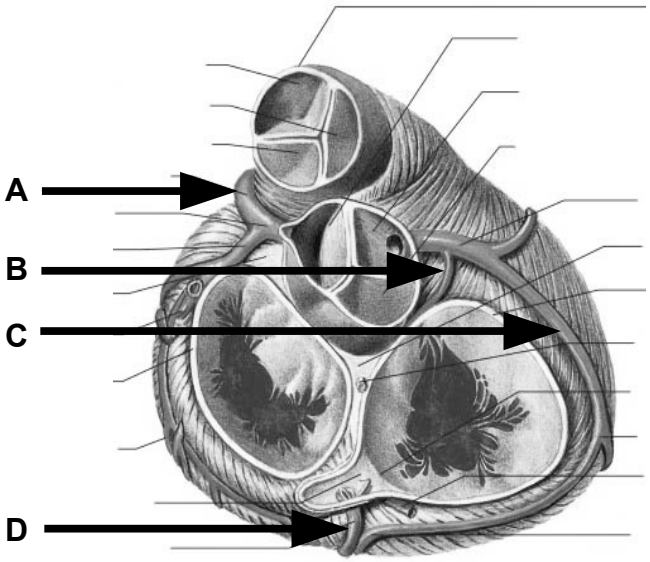
2. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



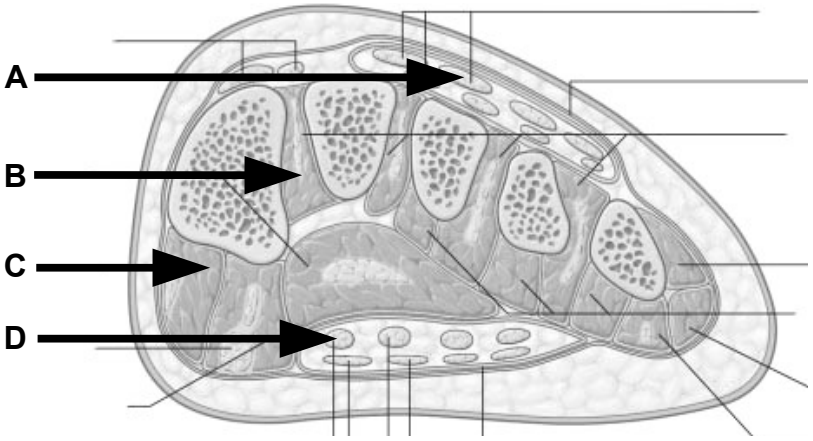
3. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



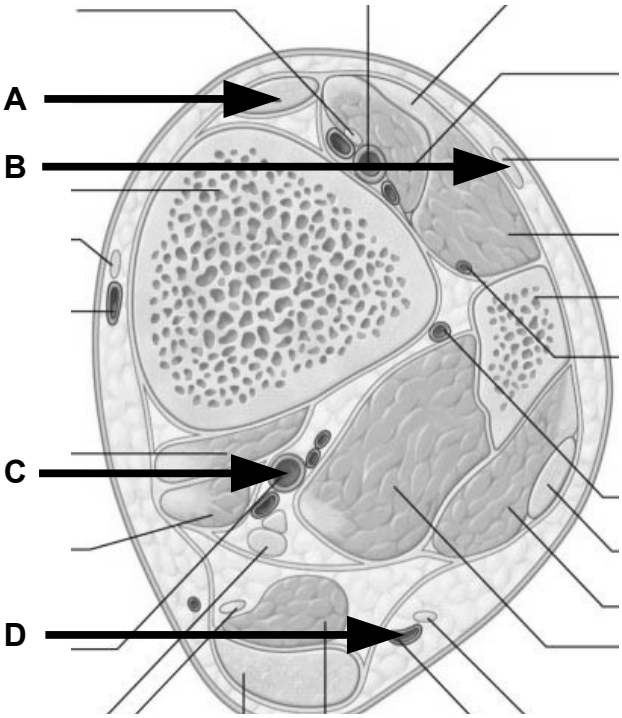
4. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



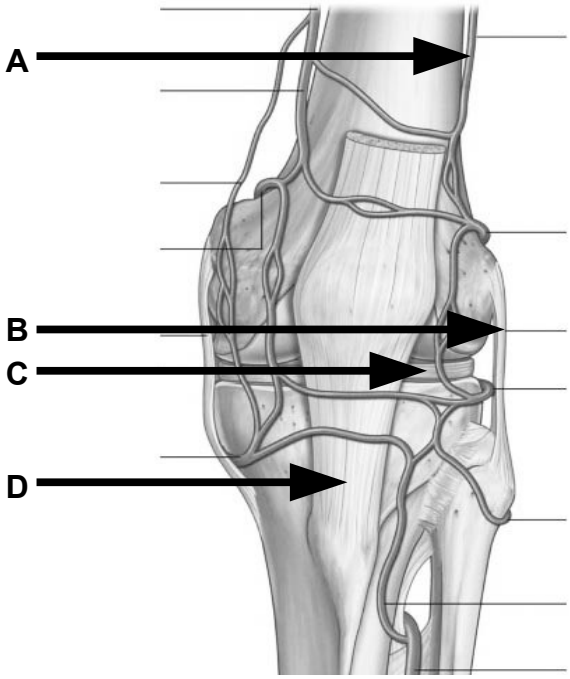
5. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



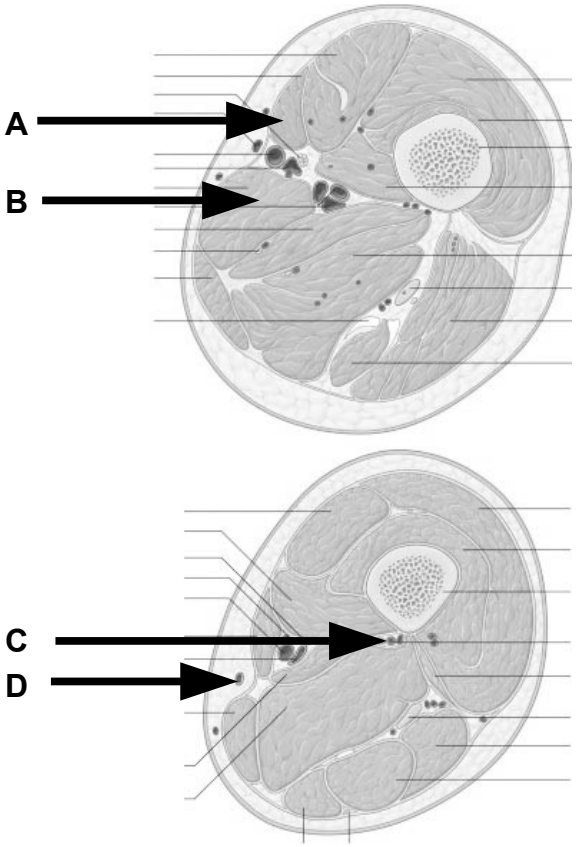
6. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



Part II. Circle the correct answer. All, none, or some may apply. (10 pts)

1. With regard to the thigh:

    a. The medial compartment of the femoral sheath has the femoral ring at the superior entrance into the femoral canal.

    b. The inferior cornu of the saphenous hiatus is crossed by the small saphenous vein.

    c. The anterior division of the obturator nerve passes along the anterior surface of the adductor brevis and the posterior surface of the adductor longus.

    d. Within the adductor canal the femoral vein lies superficial to the femoral artery.

    e. The saphenous nerve, but not the descending genicular artery, passes through the adductor hiatus.

    f. The tendons of the sartorius, gracilis, and semitendinosus muscles contribute to the formation of the pes anserinus and flex the knee. Each of these muscles have a different nerve supply and have different actions at the hip.

3. With regard to the leg:

    a. The superior and inferior regions of the lateral compartment of the leg receive blood supply from the genicular and malleolar anastomosis, the middle region of this compartment receives blood supply from branches of the peroneal artery.

    b. Anterior compartment syndrome diminishes the posterior tibial pulse and disrupts cutaneous sensation between the first and second digit.

    c. The deep peroneal nerve and the anterior tibial artery are applied to the neck of the fibula as they enter the anterior compartment of the leg.

    d. The tibialis anterior muscle takes origin mostly from the fibula.

4. With regard to the mediastinum and lungs:

    a. The left posterior intercostal arteries cross the anterior margin of the vertebral bodies and pass deep to the thoracic sympathetic trunk.

    b. The bifurcation of the trachea occurs at the T4 vertebral level.

    c. The right superior intercostal vein is a branch of the arch of the azygos vein.

    d. The thoracic duct receives lymphatic drainage from the left breast but not from the outer margin of the right breast.

    e. The epicardium is innervated by visceral afferent fibers and the fibrous pericardium is innervated by somatic afferent fibers.

    f. A bronchopulmonary segment consists of a pulmonary artery, pulmonary vein, and lung tissue.

g. The inferior border of the superior mediastinum is defined by a line from the sternal angle to the T4 vertebra.

h. The vagus nerve passes anterior to the hilum of the lung and the phrenic nerve passes posterior to the hilum of the lung.

i. The horizontal fissure of the right lung is at the level of the seventh rib.

j. The lingula projects from the lower lobe of the left lung.

Part III. Indicate your understanding of the following. Answer in the space provided. (30 pts)

1. **Discuss the perfusion of the heart with regards to anatomy of the aortic valve and the heart cycle. (6 pts)**

2. Enlarged bronchopulmonary lymph nodes may lead to a variety of symptoms known as middle lobe syndrome. **Discuss the anatomy of the hilum of the right lung and discuss the symptoms that may result from enlargement of the bronchopulmonary lymph nodes. (6 pts)**

3. Ischemia of the myocardium may cause referred pain along the medial side of the left arm. **Give a general account of referred pain. What nervous pathways may link the heart to the medial arm? (6 pts)**

4. The hip joint may be dislocated or the femur broken in automobile accidents that cause the knee to bang into the dashboard. **Discuss the expected resting position of the lower limb if the neck of the femur is broken compared to if the subtrochanteric femur is broken. (6 pts)**

5. The location of shingles is generally unilateral and limited to a single dermatome. **Define a dermatome. Explain the difference between sensory disturbances due to spinal nerve compression and sensory disturbances due to peripheral nerve entrapment. (6 pts)**

Part IV. Essay. (48 pts)

1. The thoracic cage protects the thoracic viscera, provides for movements of respiration, and has great clinical significance in the case of breast cancer. **Discuss the structure (muscles, bones, fascia, innervation, articulations, and vertebral projections), movements, collateral circulation, vasculature, and lymphatic drainage of the thoracic wall. (12 pts)**

2. The swelling of tissues within a defined space may cause a compartment syndrome. Compartment syndromes of the leg may lead to surgical emergencies. **Discuss the boundaries, contents, and relationships for the anterior compartment of the leg; include muscles, nerves, vasculature, and fascial specializations. Discuss functional deficits that may be observed due to compression of structures in this region. How would you test for neurovascular compromise. (12 pts)**

3. A weakening of the structures supporting the medial longitudinal arch may cause pes planus (flat foot). **Discuss the anatomy and support of the medial longitudinal arch. What functional deficits may result from compression of structures due to pes planus? (12 pts)**

4. Incorrectly placed intragluteal injections may injure critical anatomical structures located superior to and inferior to the piriformis muscle. These injuries may cause permanent disability. **Discuss the anatomical relationships of the piriformis muscle. Describe the anatomical pathways of the superior gluteal nerve and the functional deficits and compensations(s) resulting from injury to this nerve. (12 pts)**