EXAM NUMBER_____

Graduate Anatomy 503

EXAMINATION 3

October 12, 2018

PART I. Answer in the space provided. (16 pts)

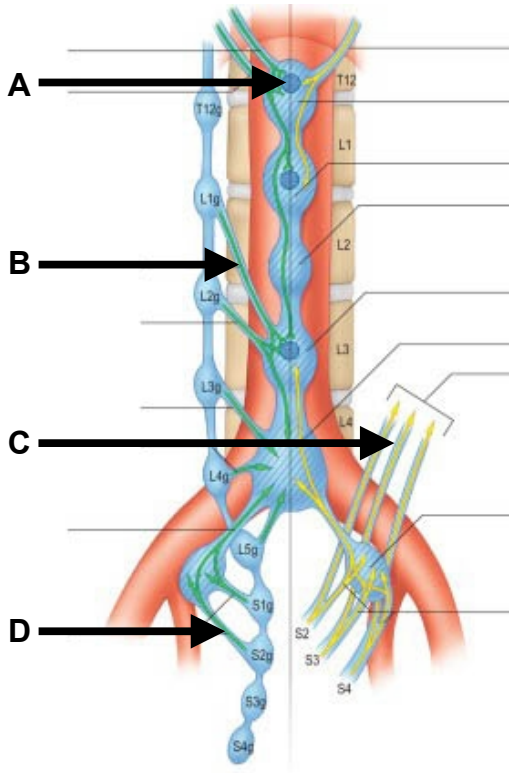
1. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



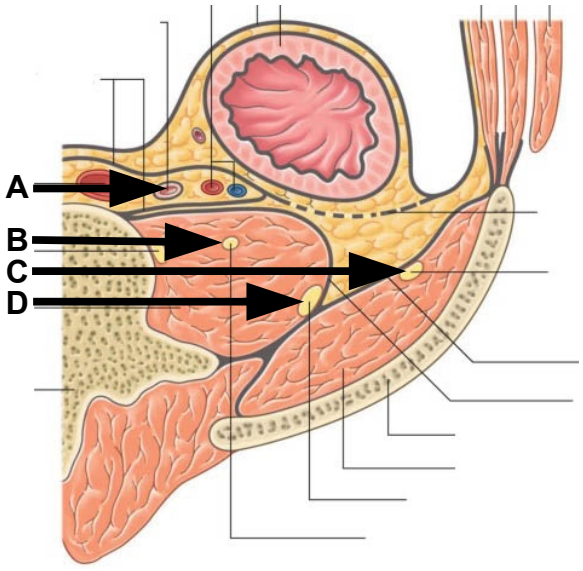
2. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



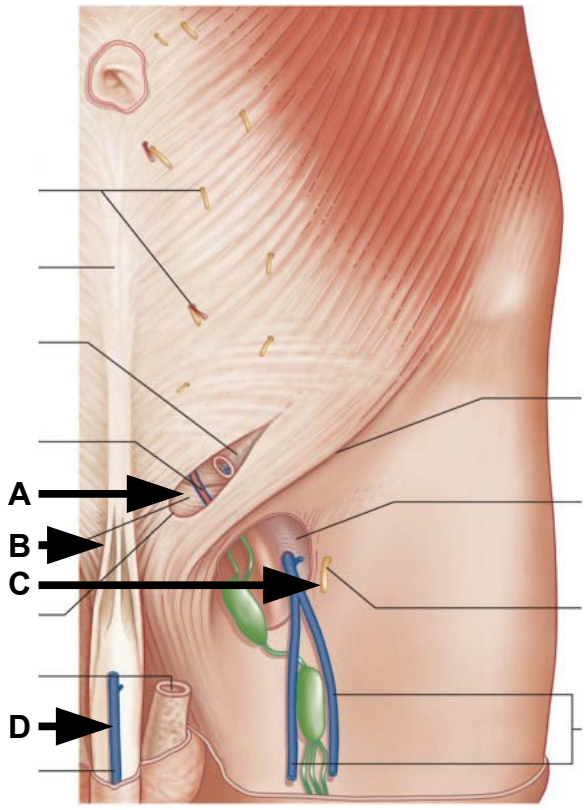
3. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



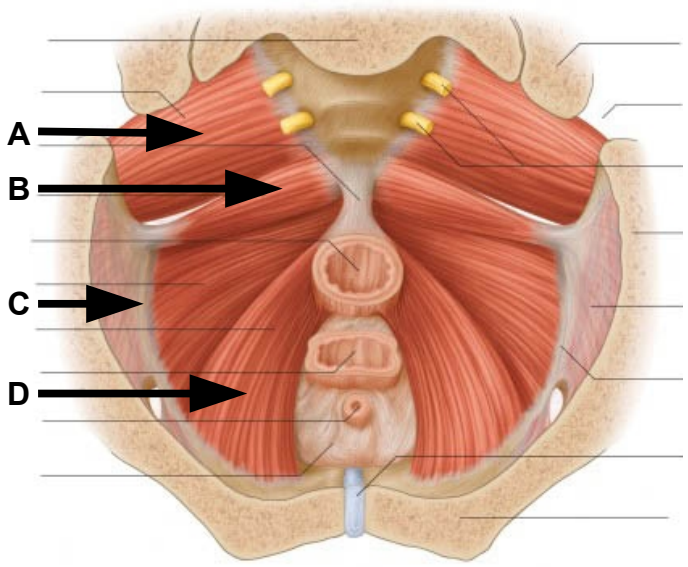
4. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



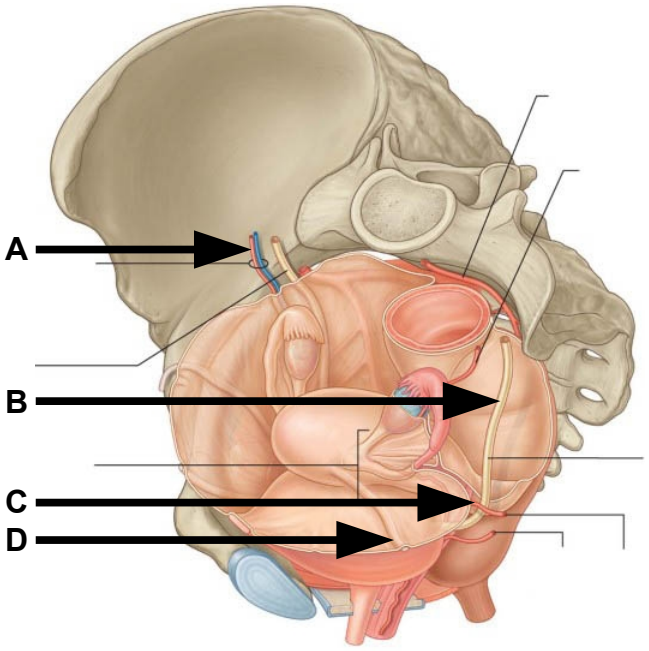
5. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



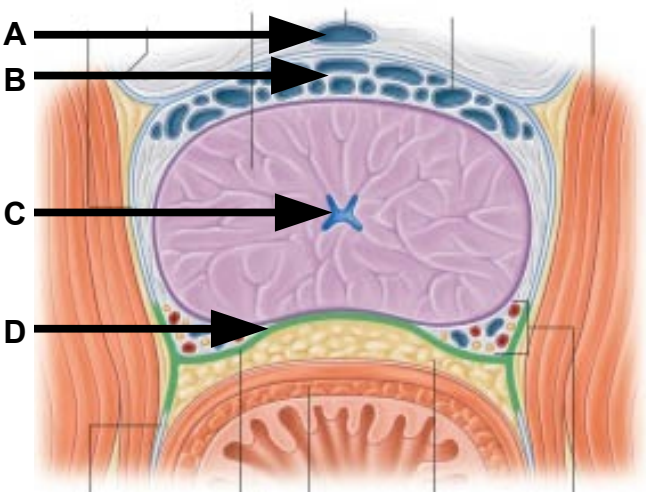
6. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



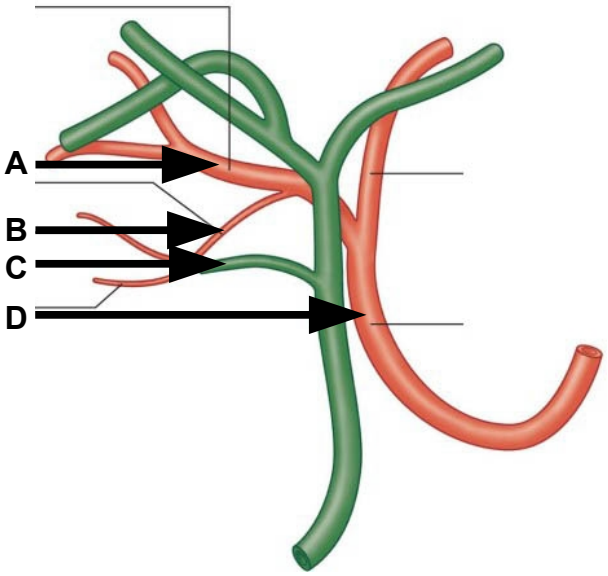
7. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



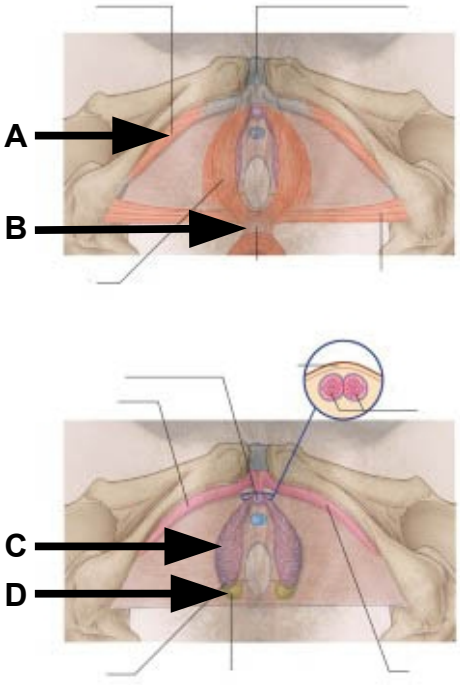
8. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



Part II. Circle the correct answer. All, none, or some may apply. (18 pts)

1. With regard to anterior abdominal wall and inguinal canal:
    a) Inferior to the arcuate line, the rectus abdominis muscle is in contact with extraperitoneal connective tissue.
    b) The umbilicus is at the L3 vertebral level and the T10 dermatome level.
    c) The external oblique muscle contributes to the inguinal, reflected inguinal, pectineal, and lacunar ligaments; to the medial, lateral, and intercrual crural fibers; and to the conjoint tendon.
    d) The inferior free edge of the transversus abdominis muscle passes superior to the deep ring.
    e) Each of the three digastric muscles that make up the anterior abdominal wall contribute a tunic to the spermatic cord.
    f) Metastatic disease from the inferior pole of the ovary may follow a lymphatic pathway through the inguinal canal and then to the superficial inguinal lymph nodes.
2. With regard to the abdominal cavity and vasculature:
    a) The celiac artery supplies blood to the foregut, diverticula of the foregut, and to the spleen.
    b) The middle and left colic arteries anastomose along the alimentary canal at a location that marks the transition from midgut to hindgut.
    c) Lymphatic drainage from the duodenal cap is to the inferior mesenteric nodes.
    d) Lymphatic drainage from the fundus of the stomach is to the superior mesenteric nodes.
    e) The superior anterior and posterior pancreaticoduodenal arteries anastomose with the inferior anterior and posterior pancreaticoduodenal arteries at a location along the alimentary canal that marks the transition from foregut to midgut.
    f) Lymphatic drainage from the descending colon is to the inferior mesenteric nodes.
3. With regard to the liver, duodenum, pancreas, and posterior abdominal structures:
    a) The caudate lobe of the liver provides the posterior boundary of the epiploic foramen.
    b) The inferior vena cava passes through the bare area of the liver and provides the anterior boundary of the epiploic foramen.
    c) The falciform ligament is a visceral ligament that contains a fibrous ligament and the paraumbilical veins.
    d) Blood from the portal system normally passes through the liver before draining into the inferior vena cava by way of the hepatic veins.
    e) The ligament venosum extends from the portal vein to the left hepatic vein.
    f) The common bile duct is joined by the accessory pancreatic duct to form the ampulla of Vater.

4. With regard to the pelvic viscera and perineum:
    a) The presacral space provides surgical access to the pubovesical ligament without the need to enter the peritoneal cavity.
    b) The seminal vesicle lies posterior to the bladder and lateral to the ampulla of the vas deferens.
    c) The rectouterine pouch is a subperitoneal space posterior to the uterus and anterior to the rectum.
    d) The rectovesical pouch is unique to the male.
    e) Periprostatic fascia is thickened at the posterior wall of the prostate and, at this location, is known as the fascia of Denonvilliers.
    f) Lymphatic channels passing through the inguinal canal communicate with uterine nodes and superficial inguinal nodes.
5. With regard to the pelvic diaphragm and anal region:
    a) The ischiococcygeus (coccygeus) takes origin from the internal surface of the sacrospinous ligament.
    b) The puborectalis muscle is tethered to the anococcygeal raphe.
    c) Pelvic visceral fascia condenses to form the fascia of Denonvilliers.
    d) Internal hemorrhoids, more so than external hemorrhoids, may develop during portal hypertension.
    e) The arcus tendineus is a specialization of the obturator externus fascia that provides a site of attachment for the ischiococcygeus muscle.
    f) Contraction of the iliococcygeus raises the pelvic floor.
6. With regard to the pelvic nerves and vessels:
    a) A transection of the spinal cord at the L2 cord level preserves the spinal reflexes of micturition.
    b) The cavernous nerves are derived from pelvic splanchnic nerves.
    c) Sectioning of the hypogastric nerves to disrupt visceral afferent fibers removes all sympathetic supply to the uterus.
    d) Disruption of the sacral splanchnic nerves is expected to cause impotence.
    e) The falciform edge is on the lateral margin of the ischial tuberosity and contributes to formation of the pudendal canal.
    f) The sympathetic supply to the descending colon follows a periarterial plexus. The parasympathetic supply follows a retroperitoneal path along the medial margin of the descending colon.

Part III. Indicate your understanding of the following. (30 pts)

1. Direct inguinal hernias occur at the medial inguinal fossa. **Define the indirect inguinal hernia. (6 pts)**

2. Cirrhosis of the liver causes portal hypertension. **Discuss the anatomical basis for internal hemorrhoids. (6 pts)**

3. The liver and pancreas communicate with the duodenum. **Define the major duodenal papilla. (6 pts)**

4. A varicocele is caused by venous engorgement of the pampiniform venous plexus. **Define the left pampiniform venous plexus and the conditions that may lead to a varicocele. (6 pts)**

5. A hysterosalpingogram assesses patency of the uterine tubes. Radiographic contrast is injected into the uterine cavity through the vagina and cervix. If the uterine tubes are patent, dye enters into the abdominal cavity. Blockages are then ruled out as a cause of infertility. **Indicate your understanding of the uterine tubes as to structure, orientation, relationships (anterior, posterior, superior, inferior, medial, lateral), ligamentous support, peritoneal associations, innervation (preganglionic, postganglionic, and visceral afferent pathways), vasculature, and lymphatics. (6 pts)**

Part IV. Answer in the space provided. (36 pts)

1. Peptic ulcer disease may erode the posterior wall of the stomach. Stomach contents spills into the lesser sac. **Define the boundaries (including spaces and/or recesses) of the lesser sac. Account for dull pain followed by sharp pain when the posterior stomach wall perforates. Discuss the pathway of spilled stomach contents that pass from the lesser sac into the greater sac, and the location of these contents with respect to body position. (12 pts)**

2. Catheterization of the urinary bladder may tear the membranous urethra and the superior fascia of the urogenital diaphragm. **Discuss the boundaries and contents of the ischiorectal fossa. Specify the fascial layers associated with the accumulation of urine. Discuss whether urine will be found in the superficial perineal pouch. (12 pts)**

3. Urinary continence and micturation require a complex orchestration of somatic and autonomic nervous control. **Discuss the structures, functions, relationships, ligaments, spaces, and innervations (preganglionic, postganglionic, visceral afferent, somatic efferent and somatic afferent) that mediate urinary continence and micturation. (12 pts)**