

**STRUCTURAL BASIS OF MEDICAL PRACTICE
EXAMINATION 3**

October 17, 2014

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

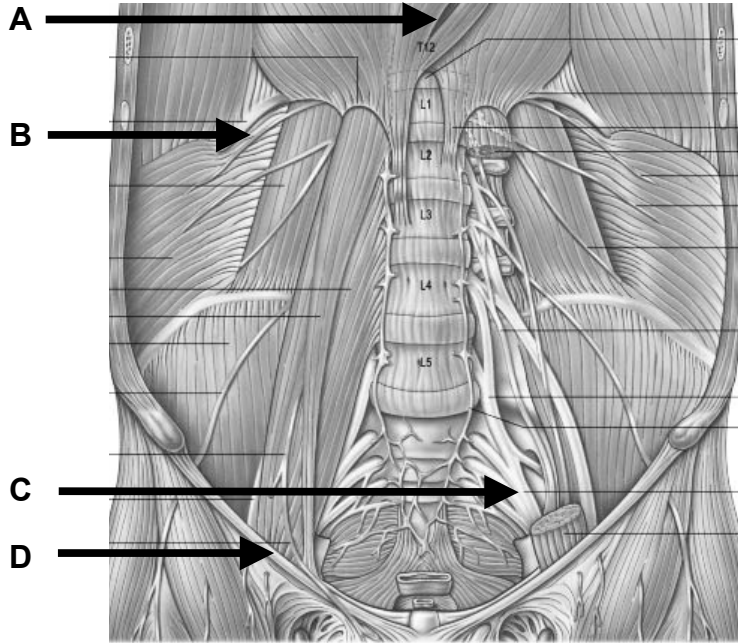
1. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



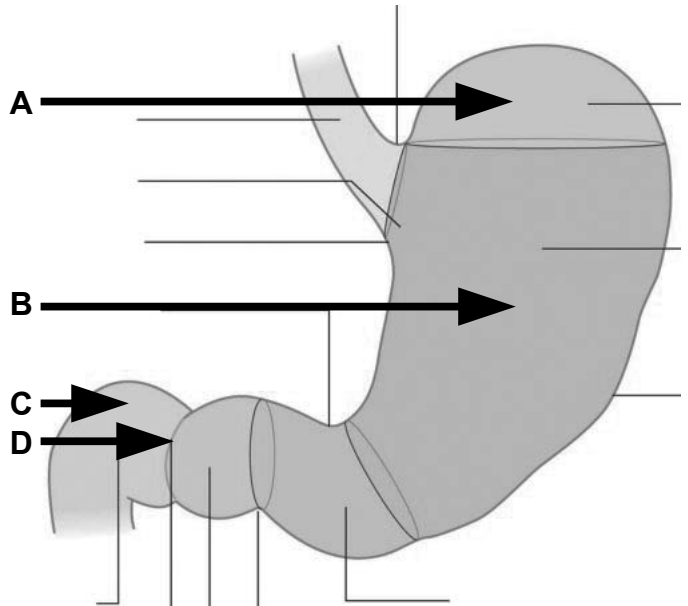
2. Identify the structures. (2 pts)

A. _____

B. _____

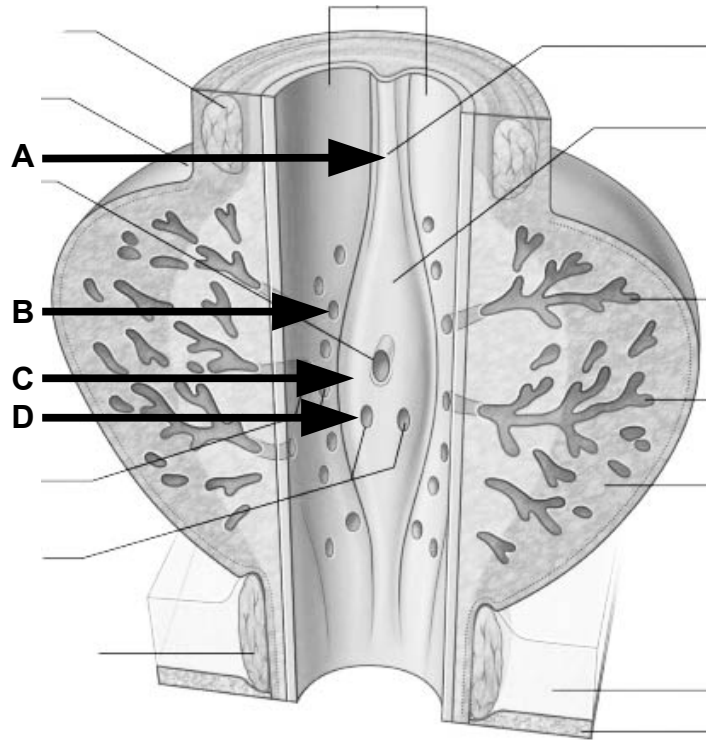
C. _____

D. _____



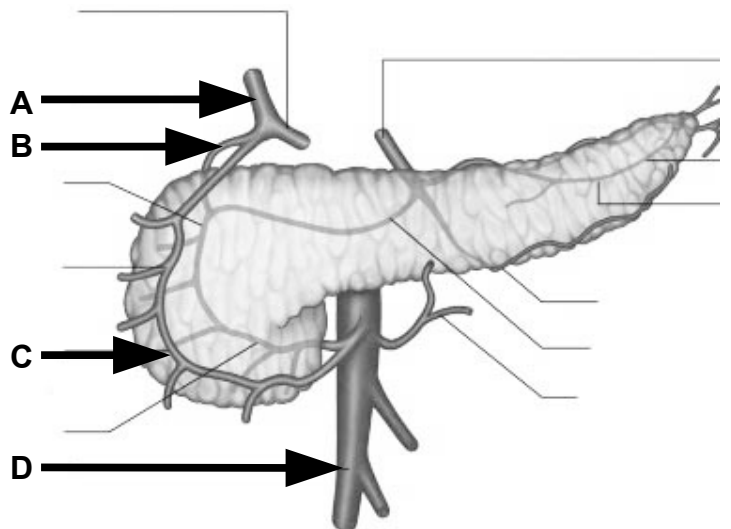
3. Identify the structures. (2 pts)

- A. _____
- B. _____
- C. _____
- D. _____



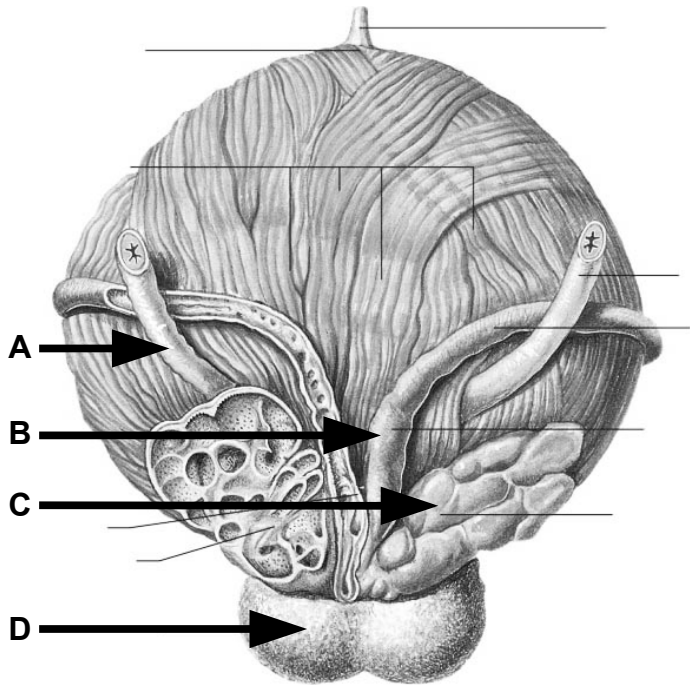
4. Identify the structures. (2 pts)

- A. _____
- B. _____
- C. _____
- D. _____



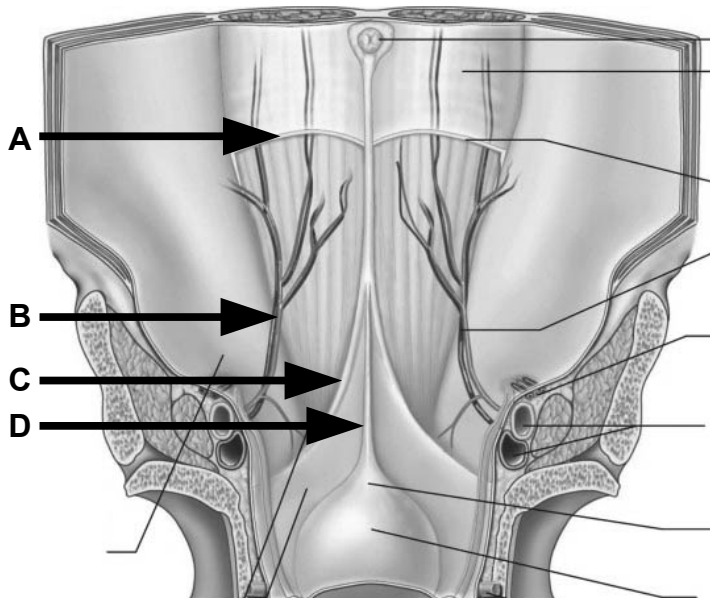
5. Identify the structures. (2 pts)

- 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 anterior abdominal wall and inguinal canal:
 - a) The umbilicus vertebral projection is to L1 and the cutaneous innervation is by the T8 spinal nerve.
 - b) The aponeurosis of the transversus abdominis muscle, superior to the arcuate line, contributes to the anterior and posterior walls of the rectus sheath.
 - c) The linea semilunaris outlines the lateral margin of the rectus sheath.
 - d) The superior epigastric artery creates a fold of peritoneum named the medial umbilical fold.
2. With regard to the peritoneal cavity:
 - a) Transversalis fascia lines the peritoneal cavity.
 - b) In the male, under non-pathological conditions, the peritoneal cavity is empty except for the gall bladder.
 - c) A swelling of the alimentary canal becomes the stomach and a diverticulum of the alimentary canal becomes the pancreas.
 - d) The epiploic foramen provides a communication between the pelvic cavity and the abdominal cavity.
 - e) The greater curvature of the stomach has reflections of original ventral mesentery.
 - f) The tail of the pancreas may become intraperitoneal within the lienorenal ligament
3. With regard to the abdominal vasculature and the posterior abdominal wall:
 - a) There are four pairs of lumbar arteries.
 - b) The superior anterior and posterior pancreaticoduodenal arteries anastomose with the vasa recta.
 - c) The vasa recta are shorter at the ileum and longer at the jejunum.
 - d) Blood from the portal system normally passes through the liver before draining into the inferior vena cava.
 - e) Portacaval shunts include a pathway from the superior rectal vein to the middle rectal veins.
 - f) Swelling of the renal pelvis is accommodated by perirenal fascia.
 - g) The most distal extent along the alimentary canal where inhibition of peristalsis is driven by the inferior mesenteric ganglion is along the right transverse colon.
 - h) The left crus of the diaphragm contributes to the esophageal hiatus and to the suspensory ligament of the duodenum.

4. With regard to the pelvic viscera:
 - a) The ejaculatory duct enters the posterior wall of the spongy urethra.
 - b) Parietal pelvic fascia is an continuation of the transversalis fascia into the pelvic cavity.
 - c) Passing along the superior margin of the lateral cervical ligament is the uterine artery.
 - d) An anastomosis between the internal and external iliac arteries occurs in the ischiorectal fossa.
 - e) The parietal pelvic fascia extends onto the surfaces of the pelvic viscera.
5. With regard to the perineum:
 - a) The puborectalis muscle is tethered to the coccyx.
 - b) The bulbourethral glands drain into the prostatic urethra.
 - c) The inferior rectal nerve often branches from the pudendal nerve at a location immediately proximal to the entrance of the pudendal canal.
 - d) The distal opening of the pudendal canal is at the posterior free edge of the urogenital diaphragm.
6. With regard to the pelvic floor, nerves, and vessels:
 - a) Spinal cord levels S2-4 provide somatic and autonomic nerves that contribute to urination, defecation, and ejaculation.
 - b) Sympathetic nerves conveyed by the pelvic splanchnic nerves dilate the helicine arteries.
 - c) Sectioning of the hypogastric nerves removes all autonomic supply to the testis.
 - d) The bulbospongiosus and the ischiocavernosus muscles are controlled by the autonomic nervous system.
 - e) The cerebral release mechanism for urination is mostly driven by the somatic nervous system.

Part III. Indicate your understanding of the following. (24 pts)

1. Direct inguinal hernias result from a weakened anterior abdominal wall. Abdominal viscera may protrude superior and medial to the pubic tubercle. **Review the anatomy of a direct inguinal hernia. Include fascial barriers, location, and coverings. (6 pts)**

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2. Cirrhosis of the liver may lead to portal hypertension. **Discuss the anatomical basis for caput medusae. (6 pts)**

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3. The seemingly unrelated symptoms of nausea, flank pain, changes in facial hair, and scrotal swelling may, in fact, be related. **Discuss anatomical conditions that may lead to blockage of the left renal vein and the anatomical basis for the resulting symptoms. (6 pts)**

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4. Catheterization of the urethra may go awry at the membranous urethra and cause urine to extravasate into the potential space defined by the attachments of Scarpa's fascia. **Define the relationships of fluids accumulating in the potential space defined by Scarpa's fascia and its derivatives. (6 pts)**

EXAM NUMBER _____

Part IV. Answer in the space provided. (48 pts)

1. A hysterosalpingogram assesses patency of the uterine ostia and uterine tubes. Radiographic contrast is injected into the uterine cavity through the vagina and cervix. If the fallopian tubes are patent, dye spills into the abdominal cavity. Blockages are then ruled out as the cause of a patient's infertility. **Indicate your understanding of the uterus, uterine tubes, and ovary 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. (12 pts)**

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2. Peptic ulcer disease may erode the posterior wall of the stomach and spill stomach contents 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)**

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3. Damage to the pelvic floor and urogenital diaphragm may lead to fecal incontinence. At least three anatomical features contribute to fecal continence. **Provide an account for the anatomical basis of fecal continence. Include structures, relationships, ligaments, vasculature, and lymphatics. (12 pts)**

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4. Defecation requires a complex interplay between the autonomic, visceral, and somatic nervous systems. **Provide an account for the neural control of defecation. Include nerve pathways (preganglionic, postganglionic, visceral, and somatic) and nerve function. (12pts)**

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