

**STRUCTURAL BASIS OF MEDICAL PRACTICE  
EXAMINATION 3**

October 16, 2015

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

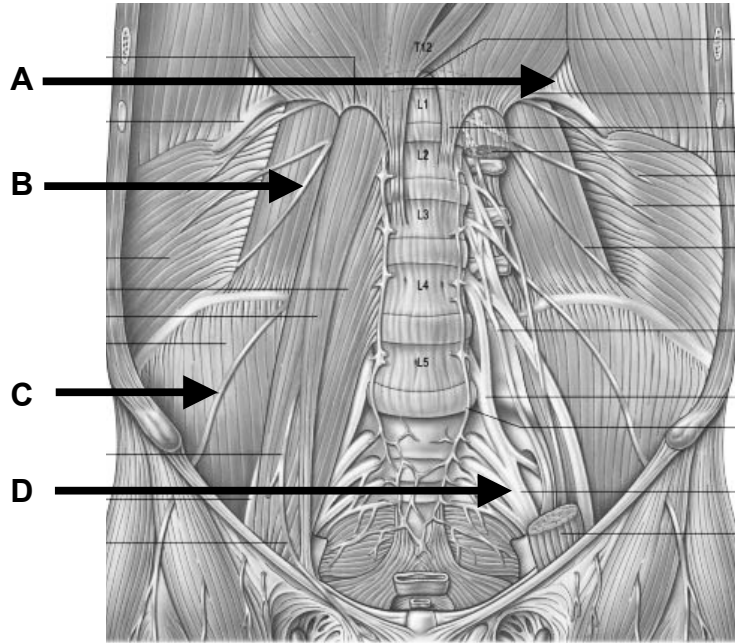
1. Identify the structures. (2 pts)

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_



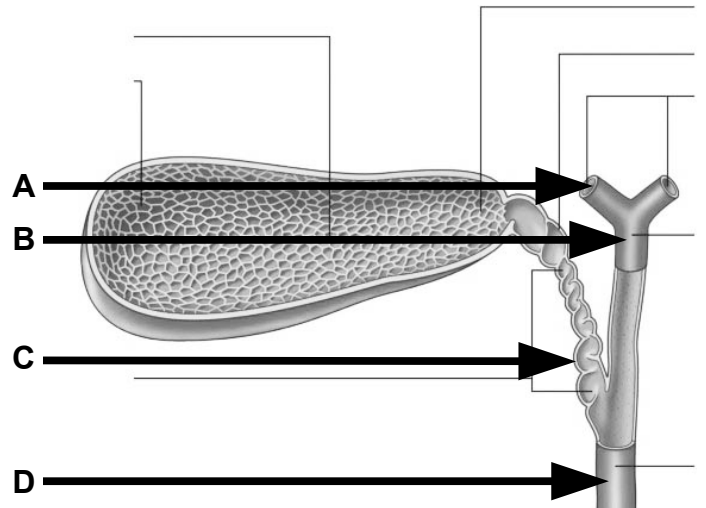
2. Identify the structures. (2 pts)

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_



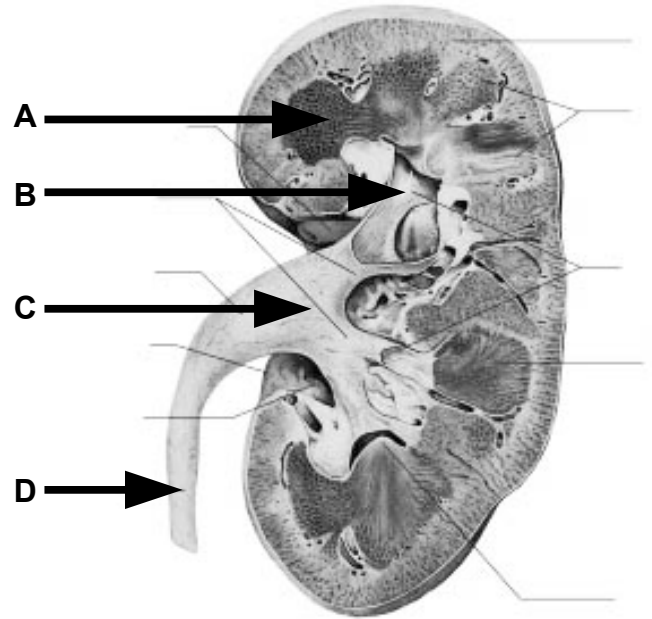
3. Identify the structures. (2 pts)

A. \_\_\_\_\_

B. \_\_\_\_\_

C. \_\_\_\_\_

D. \_\_\_\_\_



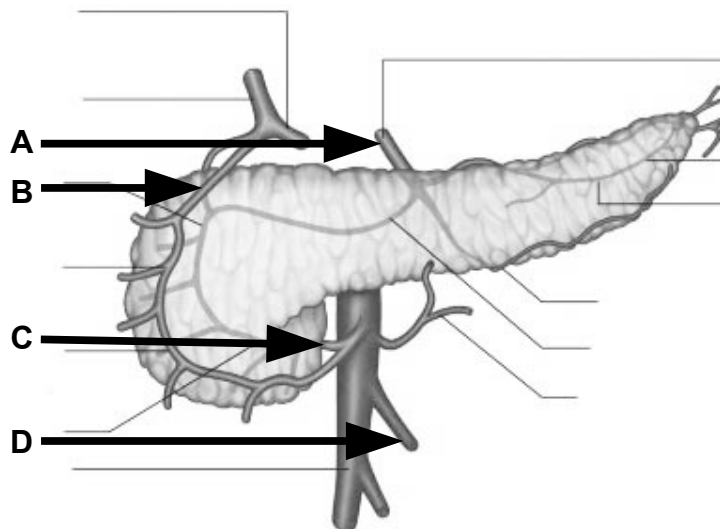
4. Identify the structures. (2 pts)

A. \_\_\_\_\_

B. \_\_\_\_\_

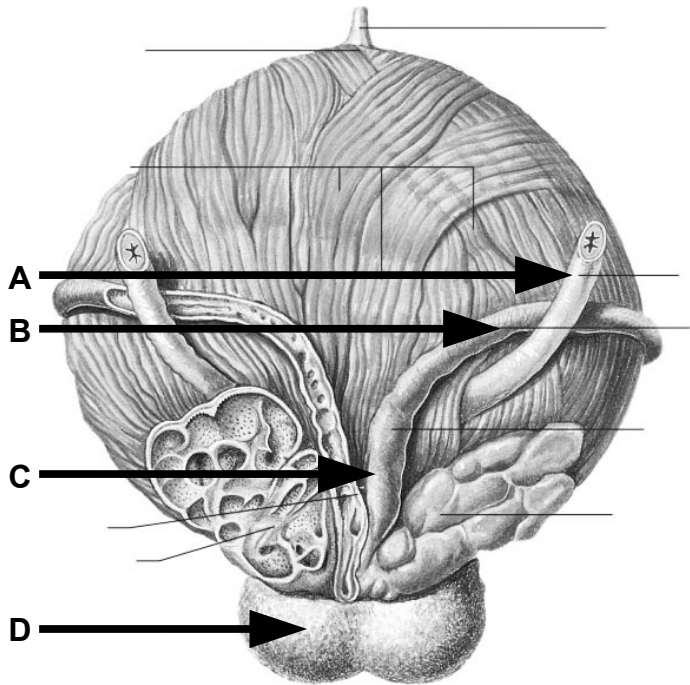
C. \_\_\_\_\_

D. \_\_\_\_\_



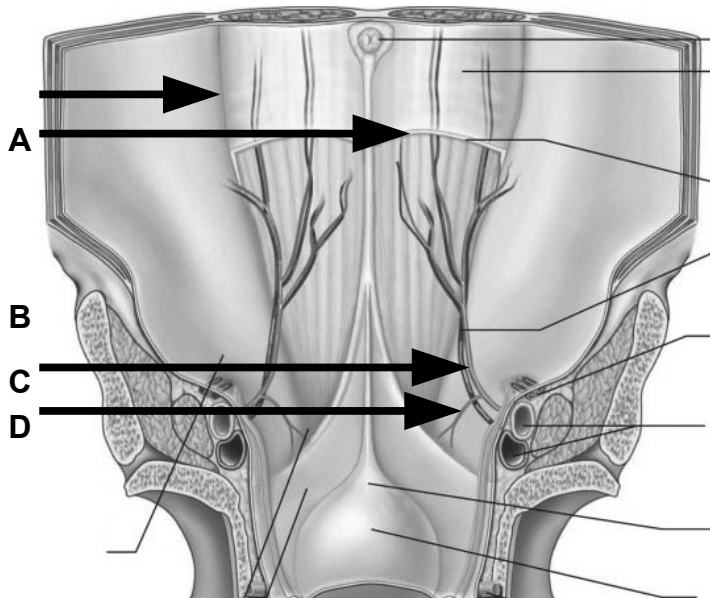
5. Identify the structures. (2 pts)

- 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 T10 and the cutaneous innervation is by the T8 spinal nerve.
  - b) The aponeurosis of the transversus abdominis muscle, inferior to the arcuate line, contributes to the anterior and posterior walls of the rectus sheath.
  - c) The tendinous intersections outline the lateral margin of the rectus sheath.
  - d) The inferior epigastric artery causes a fold of peritoneum named the medial umbilical fold.
  
2. With regard to the peritoneal cavity:
  - a) Visceral pelvic fascia lines the peritoneal cavity.
  - b) In the male, under non-pathological conditions, the peritoneal cavity is empty except for the ovary.
  - c) A swelling of the alimentary canal becomes the stomach and a diverticulum of the alimentary canal becomes the spleen.
  - d) The epiploic foramen provides a communication between the thoracic cavity and the abdominal cavity.
  - e) The lesser curvature of the stomach has reflections of original ventral mesentery.
  - f) The tail of the pancreas may become intraperitoneal within the gastrosplenic ligament.
  
3. With regard to the abdominal vasculature and the posterior abdominal wall:
  - a) There are five pairs of lumbar arteries.
  - b) The superior anterior and posterior pancreaticoduodenal arteries provide a site of anastomosis between the midgut and hindgut.
  - c) The vasa recta are shorter at the ileum and longer at the jejunum.
  - d) Blood from the portal system normally passes through the kidney before draining into the inferior vena cava.
  - e) Portacaval shunts include a pathway from the paraumbilical veins to the middle superficial epigastric veins.
  - f) Swelling of the renal pelvis is accommodated by pelvic visceral fascia.
  - g) The most distal extent along the alimentary canal where inhibition of peristalsis is driven by cell bodies in the superior mesenteric ganglion is at the pectinate line.
  - h) The right 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 seminal colliculus of the prostatic urethra.
  - b) Visceral pelvic fascia is a continuation of the extraperitoneal connective tissue into the pelvic cavity.
  - c) Passing along the superior margin of the lateral cervical ligament is the middle rectal artery.
  - d) An anastomosis between the internal and external iliac arteries occurs in the region of the iliac fossa.
  - e) The parietal pelvic fascia contributes to the formation of the pubosacral ligamentous complex.
5. With regard to the perineum:
  - a) The puborectalis muscle passes posterior to the anorectal junction.
  - b) The bulbourethral glands drain into the membranous urethra.
  - c) The inferior rectal nerve often branches from the pudendal nerve as the pudendal nerve passes through the greater sciatic foramen.
  - d) The anterior 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) Parasympathetic nerves conveyed by the pelvic splanchnic nerves dilate the helicine arteries.
  - c) Sectioning of the hypogastric nerves removes all autonomic supply to the uterus.
  - d) The bulbospongiosus and the ischiocavernosus muscles are controlled by the autonomic nervous system.
  - e) The cerebral release mechanism for urination is driven by afferent pathways of the somatic nervous system.

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

1. Indirect inguinal hernias follow a developmental pathway. Abdominal viscera may proceed into the depths of the scrotum. **Define the pathway and coverings of an indirect inguinal hernia. (6 pts)**

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2. Cirrhosis of the liver may lead to portal hypertension. **Discuss the anatomical basis for caput medusae, internal hemorrhoids, and esophageal varices. (6 pts)**



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3. Urinary catheterization of the male may go amiss at the membranous urethra and damage the urethral wall and the inferior fascia of the urogenital diaphragm. **Define the boundaries of Scarpa's fascia and its derivatives with respect to the containment of urine in the male. Specify the fascial layers associated with the accumulation of urine. Discuss whether urine will be found in the ischiorectal fossa. (6 pts)**

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4. Fecal continence and defecation involves a complex orchestration of somatic and autonomic structures. **Define the structure, innervation, and function of the puborectalis muscle. (6 pts)**

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

1. 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 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 initial 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. The prostate gland is prone to benign hypertrophy and malignancy leading to perturbations of micturation. **Review the anatomy of the prostate and prostatic urethra. Include structure, support, relationships, vasculature, innervation, and lymphatic drainage. (12 pts)**

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4. The transverse colon is a region of transition from the midgut to the hindgut. **Discuss the anatomy of the transverse colon. Include structure, support, relationships, innervation, vasculature, and lymphatics. (12pts)**

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