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UNIVERSITY EXAMINATIONS 2024/2025

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN CLINICAL MEDICINE AND COMMUNITY HEALTH DEVELOPMENT

CCM 3214: HUMAN ANATOMY III

DATE: JANUARY 2025 **TIME: 3 HOURS**

INSTRUCTIONS: *Answer all questions in the booklet provided*

Ensure that all your answers are properly numbered

Section A: Short Answer Questions

Section B: Long Answer Questions

Section C: Multiple Choice Questions (MCQs)

SECTION A: SHORT ANSWER QUESTIONS (EACH IS 5 MARKS)

1. Describe the blood supply to the liver (5 Marks)
2. Describe the organization of the anterolateral abdominal wall from superficial to deep (5 Marks)
3. Describe the innervation of the stomach in relation to surgical management of peptic ulcer disease (vagotomy) (5 Marks)
4. The spleen can be partially resected without interfering with the functional of the remaining part. Give an anatomical explanation (5 Marks)

5. Describe regions of the abdomen and list 2 structures in each region (5 Marks)
6. Describe 2 portosystemic shunts and their clinical manifestations (5 Marks)

SECTION B: LONG ANSWER QUESTIONS (20 MARKS)

1. Describe the blood supply to the uterus and 2 clinical correlates (20 Marks)
2. Describe the organization of the pelvic diaphragm and its role in genitourinary prolapse (20 Marks)

SECTION C: MULTIPLE CHOICE QUESTIONS (EACH 1 MARK)

1. A 38-year-old pregnant woman is admitted to the emergency department with severe vaginal bleeding. Ultrasound examination confirms the initial diagnosis of ectopic pregnancy. Which of the following is the most common site of an ectopic pregnancy?
   A. Uterine tubes
   B. Cervix
   C. Mesentery of the abdominal wall
   D. Lower part of uterine body overlapping the internal cervical os
   E. Fundus of the uterus
2. A 54-year-old man is admitted to the emergency department with severe upper abdominal oain. Gastroscopy reveals a tumor in the antrum of the stomach. A CT scan is ordered to evaluate lymphatic drainage of the stomach. Which of the following lymph nodes is most likely to be involved in a malignancy of the stomach?
   A. Celiac
   B. Superior mesenteric
   C. Inferior mesenteric
   D. Lumbar
   E. Hepatic
3. After a "tummy-tuck" (abdominoplasty) procedure is performed on a 45-year-old man, which of the following layers of the abdominal wall will hold the sutures?

A. Scarpa's fascia (membranous layer)
B. Camper's fascia (fatty layer)
C. Transversalis fascia
D. Extraperitoneal tissue
E. External abdominal oblique aponeurosis

4. A 49-year-old man presents with acute abdominal pain and jaundice. Radiologic studies reveal a tumor in the head of the pancreas. Which of the following structures is most likely being obstructed?
   A. Common bile duct
   B. Common hepatic duct
   C. Cystic duct
   D. Accessory pancreatic duct
   E. Proper hepatic artery
5. A 34-year-old man is undergoing an emergency appendectomy. After the appendectomy has been performed successfully, the patient undergoes an exploratory laparoscopy. Which of the following anatomic features are the most useful to distinguish the jejunum from the ileum?
   A. Jejunum has thinner walls compared with the ileum
   B. Jejunum has less mesenteric fat compared with the ileum
   C. Jejunum has more numerous vascular arcades compared with the ileum
   D. Jejunum has more numerous lymphatic follicles beneath the mucosa compared with the ileum
   E. Jejunum has fewer Villi compared with the Ileum
6. A 45-year-old woman is admitted to the hospital with symptoms of an upper bowel obstruction. Upon CT examination it is found that the third (transverse) portion of the duodenum is being compressed by a large vessel. Which of the following vessels will most likely be causing the compression?
   A. Inferior mesenteric artery
   B. Superior mesenteric artery
   C. Inferior mesenteric
   D. Portal Inferior veinmesenteric vein

E. Splenic vein

7. A 45-year-old woman is admitted to the hospital after her automobile left the highway in a rainstorm and hit a tree. She had been wearing a seat belt. On radiographic examination, it is observed that she has suffered fractures of the ninth and tenth rib on her left side and that she has intraabdominal bleeding. Physical examination reveals hypovolemic shock and progressive hypotension. Which of the following organs is most likely injured to result in these clinical signs?
   A. Liver
   B. Pancreas
   C. Left kidney
   D. Spleen
   E. Ileum
8. A 15-year-old woman is brought to the hospital with fever, nausea, and diffuse paraumbilical pain, which later becomes localized in the lower right quadrant. An appendectomy procedure is begun with an incision at McBurney's point. Which of the following landmarks best describes McBurney's point?
   A. The midpoint of the inguinal ligament in line with the right nipple
   B. Two thirds of the distance from the umbilicus to the anterior superior iliac spine
   C. A line that intersects the upper one third of the inguinal ligament
   D. A line that intersects the lower third of the inguinal ligament, about 2 cm from the pubic tubercle
   E. One third of the distance from the anterior inferior iliac spine to the umbilicus
9. A 56-year-old man is diagnosed with midgut volvulus and intestinal ischemia. A laparotomy is performed to release the obstruction of the intestines. Which of the following structures is used as a landmark to determine the position of the duodenum junction?
   A. Superior mesenteric artery
   B. Inferior mesenteric artery
   C. Vasa recta
   D. Suspensory ligament of the duodenum (ligament of Treitz)
   E. Phrenocolic ligament

10. A 22-year-old man is admitted to the emergency department with acute abdominal pain at his right lower quadrant. Radiographic and physical examinations provide evidence of acute appendicitis. An appendectomy is performed, beginning with an incision at the McBurney's point. Through which of the following abdominal layers must the surgeon pass to reach the appendix through this incision?
    A. External abdominal oblique muscle, internal oblique muscle, transversalis fascia, and parietal peritoneum
    B. Aponeurosis of the external abdominal oblique muscle, internal oblique muscle, transversus abdominis muscle, transversalis fascia, and parietal peritoneum
    C. Aponeurosis of the external abdominal oblique muscle, internal oblique muscle, transversus abdominis muscle, and parietal peritoneum
    D. Aponeurosis of the external abdominal oblique muscle, aponeurosis of internal oblique muscle, transversus abdominis muscle, transversalis fascia, and parietal peritoneum
    E. Aponeurosis of the external abdominal oblique muscle, aponeurosis of internal oblique muscle, aponeurosis of transversus abdominis muscle, transversalis fascia, and parietal peritoneum
11. A 55-year-old woman complains of fecal incontinence. The most likely contributing factor to such a problem is atrophy, paralysis, or dysfunction of which of the following structures?
    A. Pubococcygeus muscle
    B. Iliococcygeus muscle
    C. Coccygeus muscle
    D. Pubovesicocervical fascia
    E. Urogenital diaphragm

12. A 34-year-old woman is admitted to the hospital due to severe lower abdominal pain. Radiographic examination reveals tumors in both of her ovaries. A biopsy is ordered and confirms the initial diagnosis of ovarian cancer. Which of the following lymph nodes are the first to receive lymph from the diseased ovaries?
    A. Superficial and deep inguinal lymph nodes
    B. External iliac nodes
    C. Para-aortic nodes at the level of the renal vessels

D. Node of Cloquet

E. Internal iliac nodes accompanying the uterine artery and vein

13. A 29-year-old pregnant woman is admitted to the hospital to deliver her baby. During a vaginal delivery the obstetrician performs a median episiotomy in which the area of the perineal body is cut deeply. Two weeks after the delivery the woman complains that she has had fecal incontinence since the delivery. Which of the following structures was also most likely damaged during the episiotomy?

A. Superficial and deep transverse perineal muscles

B. External anal sphincter

C. Ischiocavernosus muscle

D. Sacrospinous ligament

E. Sphincter urethra

14. A 34-year-old woman is admitted to the hospital complaining of urinary incontinence. MRI examination reveals that one of the skeletal muscles of the pelvis has a significant tear. Which of the following muscles is the most significant in terms of maintaining continence?

A. Pubococcygeus

B. Obturator internus

C. Piriformis

D. Coccygeus

E. Iliococcygeus

15. A 42-year-old woman has a malignancy involving the vestibule of her vagina. Which are the first lymph nodes to filter the lymph drainage from this area and therefore the most likely to become involved in the spread of the tumor?

A. Superficial inguinal

B. Internal iliac

C. Lumbar/lateral aortic

D. Presacral lymph

E. Axillary lymph

16. A 15-year-old boy is admitted to the emergency department 2 days after crashing his bicycle. MRI examination reveals severe edema of the boy's scrotum and abdominal wall and extravasated urine. Which of the following structures is most likely ruptured?
    A. Spongy urethra
    B. Preprostatic urethra
    C. Prostatic urethra
    D. Urinary bladder
    E. Ureter
17. A 23 -year-old woman in her seventh month of pregnancy visits her gynecologist for a routine checkup. The patient is informed that a hormone called "relaxin" is responsible for the relaxation of the sacroiliac joint and pubic symphysis. Which of the following pelvic distances will most likely remain unaffected?
    A. Transverse diameter
    B. Interspinous distance
    C. True conjugate diameter
    D. Diagonal conjugate
    E. Oblique diameter
18. During the physical examination of a 35-year-old man, his urologist palpated the anterolateral surface of the scrotum. This part of the scrotum is most likely innervated by which of the following nerves?
    A. Ilioinguinal nerve (Ll)
    B. Iliohypogastric nerve (L 1)
    C. Ilioinguinal nerve (L2)
    D. Iliohypogastric nerve (L2)
    E. Pudendal nerve (S3)
19. A 28-year-old pregnant woman delivers her baby before reaching the hospital and incurs a tear. A pudendal nerve block is necessary to adequately anesthetize the area to facilitate proper closure of the wound. If this block is performed transvaginally, which landmark can be palpated in order to determine the proper site of anesthetic injection?
    A. Ischial spine

B. Posterior inferior iliac spine
C. Ischial tuberosity
D. Posterior superior iliac spine
E. Coccyx

20. A 22-year-old woman is involved in a motor vehicle collision. Her complaints are consistent with a pelvic fracture and a CT scan is ordered to rule out internal bleeding. The CT shows no bleeding and that her uterus is in the most typical position. What is this position?
A. Anteflexed and retroverted
B. Retroflexed and anteverted
C. Anteflexed and anteverted
D. Retroflexed and retroverted
E. Posteriorly retroflexed and anteverted