Unit 02 Dry Lab Questions – A

Use the following case has 4 question.
A 79 year old female presents with diarrhea and constipation alternating for the past 6 months. A barium enema is performed (barium is retro filled from the rectum into colon, barium looks white on x-ray). The radiologist reports no abnormal findings.

1) Assuming that the x-ray above is hung correctly, which of the following is located in the area of #3?

A) Appendix  
B) Cecum  
C) Liver  
D) Spleen  
E) Stomach

A=Incorrect, the appendix is found on the cecum which is located at #1.  
B=Incorrect, the cecum is the area where the ileum empties into the colon, located at #1.  
C=Correct, the liver is located at #3, #3 is called the hepatic flexure or the right colic flexure.  
D=Incorrect, the spleen is on the left side of the body located at #5.  
E=Incorrect, the stomach is located on the left side of the body above #5.

2) The patient had been having epigastric pain with her constipation. Which number best marks the area of her pain?

A) 1  
B) 2  
C) 3  
D) 4  
E) 5  
F) 6  
G) 7  
H) 8

A=Incorrect, this is the right groin region (inguinal region).  
B=Incorrect, this is the right flank region (lumbar region).  
C=Incorrect, this is the right hypochondrium region (hypochondriac region).  
D=Correct, this is the epigastric region.  
E=Incorrect, this is the left hypochondrium region (hypochondriac region).  
F=Incorrect, this is the left flank (lumbar region).
3) The folds seen in the patient’s colon, particularly at #4 and #7, are:

A) diverticulitis of the colon called haustra caused by not chewing food properly.  
B) epiploic appendages in the colon called haustra caused by eating too much fat.  
C) polyps inside the colon called haustra caused by old age.  
D) sacculations called haustra caused by the taeniae coli.  

A=Incorrect, haustra are sacculations caused by the taeniae coli as it runs the length of the colon.  
B=Incorrect, haustra are sacculations caused by the taeniae coli as it runs the length of the colon.  
C=Incorrect, polyps are in-pouchings of the colon.  
D=Correct, haustra are sacculations caused by the taeniae coli as it runs the length of the colon. 

4) The arrow in the below abdomen CT points to a portion of the colon.  Which portion on the plain film x-ray does it correlate too? (use the x-ray above)  

A) 1  
B) 2  
C) 3  
D) 4  
E) 5  
F) 6  
G) 7  
H) 8  

A=Incorrect, the arrow is pointing to the left colic flexure (splenic flexure). This is found on the left side just below the spleen.  #1 points to the cecum. 
B=Incorrect, the arrow is pointing to the left colic flexure (slenic flexure). This is found on the left side just below the spleen.  #2 points to the ascending colon.  
C=Incorrect, the arrow is pointing to the left colic flexure (splenic flexure). This is found on the left side just below the spleen.  #3 points to the hepatic flexure found on the right side under the liver. 
D=Incorrect, the arrow is pointing to the left colic flexure (splenic flexure). This is found on the left side just below the spleen.  #4 is pointing to the transverse colon. 
E=Correct, the arrow is pointing to the left colic flexure (splenic flexure). This is found on the left side just below the spleen. 
F=Incorrect, the arrow is pointing to the left colic flexure (splenic flexure). This is found on the left side just below the spleen.  #6 is pointing to the descending colon. 
G=Incorrect, the arrow is pointing to the left colic flexure (splenic flexure). This is found on the left side just
5) A patient comes to the ED with diffuse abdomen pain, she is diagnosed with appendicitis. Which of the following images would best show the nerve root that is responsible for the referred pain felt by the patient in her dermatome?

A) Image 1
B) Image 2
C) Image 3
D) Image 4

A=Incorrect, dermatome 10 so T10 nerve is the one that senses the referred pain from the infected appendix. This MRI image does not show T10 nerve root.
B=Incorrect, this is an MRI image of the L-spine it does not show the T10 vertebral level.
C=Correct, this image shows a lateral t-spine x-ray which includes the T10 vertebral level and root.
D=Incorrect, this image is of the C-spine, it does not show the T10 vertebral level.
6) A patient presents with diffuse abdomen pain that localizes a few hours later in the dermatome around the umbilicus. The patient's pain is referred from an inflamed organ. Which artery feeds the infected organ?

A) artery #1
B) artery #2
C) artery #3
D) artery #4
E) artery #5

A=Incorrect, the superior mesenteric artery feeds the appendix through the appendicular artery. Arrow 1 points to the left gastric artery.
B=Incorrect, the superior mesenteric artery feeds the appendix through the appendicular artery. Arrow 2 points to the left renal artery.
C=Correct, the superior mesenteric artery feeds the appendix through the appendicular artery.
D=Incorrect, the superior mesenteric artery feeds the appendix through the appendicular artery. Arrow 4 points to the left iliac artery.
E=Incorrect, the superior mesenteric artery feeds the appendix through the appendicular artery. Arrow 5 points to the right iliac artery.

7) Pancreatic islets secrete glucagon, which breaks down glycogen to increase blood glucose concentration. Describe the route that a molecule of glucagon will travel from the pancreas to reach glycogen stored in the inferior belly of the rectus abdominis muscle.

Alpha cells in pancreatic islets, pancreatic veins, splenic vein, portal vein, liver sinusoids, hepatic veins, IVC, heart, aorta, common iliac artery, external iliac artery, inferior epigastric artery to rectus abdominis muscle

OR

Alpha cells in pancreatic islets, pancreatic veins, splenic vein, portal vein, liver sinusoids, hepatic veins, IVC, heart, aorta, left subclavian artery, internal thoracic artery, superior epigastric artery anastomosing with inferior epigastric artery

8) After a particularly rough day at the gym your pectoralis major muscles are very sore. You take an oral NSAID to help relieve some of the pain and inflammation. Trace the medicine from the oral cavity to the pectoralis major muscle.
Mouth, pharynx, esophagus, stomach, duodenum, jejunum, jejunal veins, superior mesenteric vein, portal vein, hepatic sinusoids, hepatic veins, IVC, heart, aorta, brachiocephalic trunk, right subclavian artery, thoracoacromial trunk, pectoral arteries, pectoralis major muscle
9) The OB recommends moving the patient into the operating room for a c-section due to lack of progress moving the baby down the birth canal. The OB chooses to make a horizontal incision (the “bikini cut”) through abdominal muscle and fascia as opposed to the vertical incision.

A study conducted by surgeons in the Netherlands reported that 9 out of 243 women experienced a specific abnormality due to a horizontal incision that would otherwise not exist if their physician performed the vertical incision. What abnormality did these 9 women experience? (Ann. Surg. 1997 April; 225(4): 365–369.)

a. Numbness of the lateral thigh
b. Numbness of the mons pubis
c. Weakness in the external oblique
d. Weakness in the medial compartment of the thigh

a. NO. The lateral cutaneous nerve of the thigh courses laterally across the iliacus muscles toward the anterior superior iliac spines where it passes posterior to the inguinal ligament and enters the thigh. It would not be severed in a horizontal c-section incision.
b. YES. The OB has cut the iliohypogastric n. (L1) that pierces the transversus abdominis muscle and internal oblique muscle. The nerve is responsible for cutaneous sensation of pubic region
c. NO. At the level of the incision, the external oblique muscle has transitioned into the aponeurotic part of the external oblique. Both the vertical and horizontal incision would be passing through aponeurotic tissue and would yield the same effect.
d. NO. The medial compartment of the thigh is innervated by the nerves originating at spinal cord levels L2 and below. These nerves do not course inferiorly and medially across the abdomen.
10) Is this a direct or indirect hernia?

Direct hernia. Observe the ductus deferens coursing from the deep inguinal ring down into the pelvis. The course of the ductus deferens indicates that the left side of the picture is medial and right side of the picture is lateral. As a result, direct hernias are medial to the epigastric vessels.