**Question 1**

What is the least mobile part of the uterus?

A Cervix

B Isthmus

C Fundus

D Body

Explanation A

The cervix is the least mobile part of the uterus because of the passive support provided by the attached condensations of the endopelvic fascia (ligaments), which may also contain smooth muscle.

The ligaments are the cardinal (transverse cervical) and the utero sacral.

Cardinal ligament: extends form the supravaginal cervix and lateral parts of the fornix of the vagina to the lateral wall of the pelvis.

Uterosacral ligaments: pass superiorly and slightly posteriorly from the sides of the cervix to the middle of the sacrum

**Question 2**

Which of the following is INCORRECT regarding inguinal hernias?

A Direct inguinal hernias are more common than indirect inguinal hernias

B Indirect inguinal hernias traverse the inguinal canal within the process vaginalis

C Indirect inguinal hernias commonly pass into the scotum

D Direct inguinal hernias occur as a result of a weakness of the anterior abdominal wall

Explanation A

Characteristics of Inguinal hernias:

Direct: Acquired weakness of the anterior abdominal wall, less common than direct, exits from abdominal cavity through peritoneum plus transversalis fascia, passes through the or around inguinal canal, via superficial ring, lateral cord, rarely enters scrotum. Direct hernias herniate medially to the inferior epigastric artery

Direct inguinal hernias RIP through Hasselbach's triangle (R - rectus abdominis, I - inferior epigastric artery, P - Puopart's ligament = inguinal ligament).

Indirect: Congenital weakness-patency of the process vaginalis, more common than direct hernias (2/3 or 3/4 of all inguinal hernias), exits from the abdominal cavity through peritoneum of persistent process vaginalis plus all 3 fascial coverings of cord/round ligaments, traverses inguinal canal within process vaginalis via superficial ring inside cord, commonly passing into scrotum/labium majora. Remember indirect hernias herniate laterally to the inferior epigastric artery

**Question 3**

Regarding the anatomy of the spleen, which is CORRECT?

A The approximate size of the spleen is 12cm long and 7 cm wide

B The spleen is often palpable through the anterolateral abdominal wall

C The diaphragmatic surface of the spleen is concave to fit the convexity of the diaphragm.

D Lymph drainage of the spleen is via the pancreaticoduodenal nodes

Explanation A

The spleen is ovoid, purplish, pulpy mass. The spleen is usually the size of ones fist but can vary considerably. The approximate size is 12cm long and 7 cm wide. The diaphragmatic surface of the spleen is convexly curved to fit the concavity of the diaphragm. The anterior and superior borders of the spleen are sharp and often notched whereas the inferior and posterior borders are rounded. The spleen is seldom palpable through the anterolateral abdominal wall unless it is enlarged. The relations of the spleen: anterior=stomach, posterior=left part of the diaphragm, inferiorly=left colic flexure and medially=left kidney. The arterial supply of the spleen is from the splenic artery, the largest branch of the celiac trunk. Venous drainage is via the splenic vein, which joins the superior mesenteric vein to form the portal vein. Lymph drainage=pancreaticosplenic nodes. Nerve supply is derived from the celiac plexus and is vasomotor in function.

**Question 4**

Referred pain from pancreatitis is felt at what level?

A T12/L1

B T7/8

C T3/4

D L1/2

Explanation B

The pain fibres accompany the sympathetic supply so that the pancreatic pain may radiate in the distrubution of the thoracic dermatomes T6-T10

**Question 5**

Regarding the relations of the ureter, which of the following is false?

A It crosses the sacro iliac joint at the bifurication of the iliac vessels

B It crosses the vas deferens in males

C The gonadal vessels cross over the ureters

D It runs down the tips of the transverse processes of lumbar spine

Explanation B

The ductus deferens crosses above the ureter and then runs medially to it. "Bridge over water"

Note: In the old (now non- prescribed TB: the ureters lie medial to the tips of the transverse processes of the lumbar vertebrae)

The new prescribed textbook: the ureters occupy a sagittal plane that intersects the tips of the transverse process of the lumbar vertebrae

The wording although different reflects the same thing: the ureters overlie the tips of the transverse processes

**Question 6**

Which of the following structures pass through the lesser sciatic foramen?

A Obturator internus

B Piriformis muscle

C Inferior gemelli

D Superior gemelli

Explanation A

It transmits the following structures:

* The tendon of obturator internus
* Internal pudendal artery
* Internal pudendal veins
* Pudendal nerve
* Nerve to obturator internus

**Question 7**

Regarding the testicle, which of the following statements is correct?

A Appendix testis is attached to inferior pole of the testis

B It drains to the pre-aortic and inguinal nodes

C It has no parasympathetic supply

D Vas deferens lies in the lower, posterior part of the cord

Explanation D

The autonomic nerves of the testis arise as the testicular plexus of nerves on the testicular artery, which contains vagal and parasympathetic and visceral afferent fibres and sympathetic fibres from T10 (T11) segment of spinal cord.

NOTE THE OLDER TB EDITION READS SYMPATHETIC FIBRES FROM T7

Note: some texts say that the testis is supplied by sympathetic nerves only. (older textbooks)

The appendix testis is attached to the upper pole of the testis.

The vas deferens lies in the posterior and lower part of the cord. It enters the spermatic cord, passess through the inguinal canal, across the side wall of the pelvis just under the peritoneum and crosses the pelvic cavity. It pierces the prostate

Lymphatics drainage follows the testicular artery /vein to the right and left lumbar and pre-aortic nodes. The testicualr lymph does not drain to the inguinal nodes, although the overlying scrotal skin does. Note: some texts say the drainage is to the PARA-aortic nodes

**Question 8**

Regarding the male urethra, which of the following statements is correct?

A The spongy urethra lies within the corpus carvernosum

B It is 15cm long

C The narrowest point of the urethra is in the prostate

D The urethra takes a right angle curve in the bulbous portion of the corpus spongiosum

Explanation D

The size of male urethra: intramural part 0.5-1.5cm, prostatic part 3-4cm, intermediate part 1.0-1.5cm, Spongey part ~15cm, =19.5-22cm long. The narrowest point is at the external meatus; it runs below the corpora cavernosa. The spongy or penile urethra lies within the corpus spongiosum of the penis and can be divided into bulbous and pendulous parts. The urethra takes a right angle curve in the bulbous portion of the corpus spongiosum

**Question 9**

In relation to the internal anal sphincter, which of the following statements is correct?

A It extends along the length of the anal canal

B It is skeletal muscle

C It has no bony attachment

D It has longitudinal fibres

Explanation C

The internal anal sphincter is smooth muscle and is circular. It extends 3/4 of the length of the anal canal

**Question 10**

Which of the following statements is true of colon?

A The lymphatic drainage is via superior and inferior mesenteric lymph nodes

B The ascending is longer than the descending colon

C The marginal artery is weakest at the hepatic flexure

D The only part suspended on mesentry is the transverse colon

Explanation A

The ascending colon is 15cm long, and the descending is 30cm. The sigmoid colon is also suspended. The marginal artery is weakest at the left colic flexure, which consequently has a poor blood supply.

**Question 11**

What is the blood supply to the body of the pancreas?

A Left gastroepiploic artery

B Splenic artery

C Hepatic artery

D Left Gastric artery

Explanation B

The main vessel is the splenic artery which supplies the neck, head, body and tail of the pancreas. The superior and inferior pancreaticoduodenal arteries also supply the head of the pancreas. The gastric and gastroepiploic arteries supply the stomach

**Question 12**

Which of the following statements is correct with regard to the ureters?

A The pelvo-ureteric junction (PUJ) is the widest diameter

B They are approximately 31 cm in length

C An intact innervation of the ureter is not necessary for peristalsis

D They lie lateral to the transverse processes of the lumbar vertebrae

Explanation C

The pelvo-ureteric junction (PUJ), the pelvic brim, and on entering bladder wall are the points of narrowest calibre the ureters. The ureters intersect the tips of the transverse processes of the lumbar vetebrae. (Older texts reported that they lie medially to the lateral processes of the lumbrae vertebrae). They ureters are approximately 25-30cm long. Note: some texts say the ureters are 25cm exactly. Intact innervation of the renal pelvis or ureter is not necessary for the initiation or propagation of peristalsis form the calycael pacemakers

**Question 13**

With regard to the testicles, which of the following statements is correct?

A The testes have a tough fibrous outer surface, the tunica vaginalis

B The pampiniform plexus is a superficial venous plexus surrounding the testicular artery

C Division of the testicular artery results in testicular infarction

D The testicular artery only anastomoses with the cremasteric artery

Explanation B

The testes have a tough fibrous outer surface, the tunica albuginea. The surface of each testicle is covered by the visceral layer of the tunica vaginalis (derived form the peritoneum). Divison of the testicular artery will not necessary result in atrophy because anastomoses exist involving the cremasteric, ductal and testicular arteries

**Question 14**

With respect to the abdominal aorta, which of the following statements is correct?

A The five lumbar arteries leave the aorta opposite the bodies of the coresponding lumbar vertebrae

B The renal arteries originate at right angles from the aorta at the level of T12

C The splenic vein crosses the aorta just below the origin of the superior mesenteric artery (SMA)

D The surface marking is just above the transpyloric plane to a point just below and to the left of the umbilicus

Explanation D

The renal arteries originate at L1. The splenic vein crosses the aorta just above the superior mesenteric artery (SMA). There are 4 paired lumbar arteries.

**Question 15**

Regarding the appendix, which of the following statements is false?

A It is normally 6-9cm long

B The retroileal position is the most common position in the abscence of disease

C The appendicular artery is usually a branch of the ileocolic artery

D It opens into the caecum 2cm below the ileocaecal valve

Explanation B

The appendix may lie in different positions, however the retrocaecal position most commonly occurs in 64% of patients. Pelvic appendix-20%. Retroileal-0.5%

**Question 16**

Which lymph nodes drain the lower (inferior) anal canal?

A Superficial inguinal

B Para-aortic

C External iliac

D Deep inguinal

Explanation A

Superior to the pectinate line (dentate line) of the anal canal, the lymph nodes drain into the internal iliac lymph nodes and through them the into the common iliac and lumbar lymph nodes. Inferior to this line, the lymphatic vessels drain superficially into the superficial inguinal lymph nodes, as does most of the perineum

Note: the question is not asking for the lymph node drainage of the rectum but rather the anus

**Question 17**

Which of the following structures do NOT pass through the transpyloric plane?

A Superior mesenteric artery

B Splenic vein

C Spleen

D Tips of the 9th costal cartilages

Explanation C

The transpyloric plane bisects the body between the jugular notch and the pubic symphysis. This level is approximately midway between the xiphisternum and the umbilicus. It cuts each costal margin at the tip of the ninth costal cartilage, which is at the lateral border of rectus abdominus. Deep to this point on the right side lies the fundus of the gallbladder. The plane passes through the lower border of the first lumbar vertebra, where the spinal cord ends at the conus medullaris. The plane passes through the pylorus and along the head, neck and body of the pancreas just above the attachment of the transverse mesocolon. The supracolic compartment, containing liver, spleen and fundus of the stomach, lies above the plane, and the infracolic compartment, containing the colon and small intestine, lies below it.

Note: In most texts the spleen is included in the plane. Other texts do not. More recent texts point out that the tips of the 8th costal cartilages are bisected. While others say the 9th costal cartilage

Extra: the SMA leaves the aorta, and the splenic vein joins the SMV to form the portal vein at this level. The hilum of each kidney lies at the plane, the right just below and the left just above it.

**Question 18**

Superior pancreaticoduodenal vein drains into which of the following?

A Portal vein

B Splenic vein

C Inferior vena cava (IVC)

D Superior mesenteric vein

Explanation A

The portal vein receives the right and left gastric veins, along with the superior pancreaticoduodenal vein. The inferior pancreaticoduodenal vein drains into the superior mesenteric vein.

The above source comes form older prescribed textbooks.

Web sources report drainage into the portal vein as well

Note: The current textbook seems to reflect drainage into the superior mesenteric vein. This is noted in one of the diagrams. However the wording of pancreatic venous drainage is obtuse: "superior mesenteric parts of the hepatic portal vein"

**Question 19**

All of the following are veins which drain the stomach, with the exception of?

A Gastroepiploic

B Left gastric

C Gastroduodenal

D Right gastric

Explanation C

Veins of the same name accompany the arteries and drain into the portal vein itself, or its splenic and superior mesenteric tributaries. The prepyloric vein, unaccompanied by an artery, drains into the right gastric vein. The arterial blood supply of the stomach is the left and right gastric arteries, the six short gastric arteries and the left and right gastroepiploic arteries

**Question 20**

In relation to the stomach, which of the following statements is false?

A The cardia is situated at T12

B It is supplied by branches of the coeliac trunk

C It is completely invested by peritoneum

D The pyloric opening is at L1

Explanation A

The gastro-oesophageal junction is the cardia, which is the most fixed part of the organ, and lies 2.5cm to the left of the midline at the level of the T11 (older books say T10) vertebra. It is 40cm from the incisor teeth.

Note: older textbooks say that the stomach is completely invested by peritoneum. The current one says that the stomach is covered by visceral peritoneum, except where the blood vessels run along its curvature and in a small area posterior to the cardiac surface.

This is an old question so I will leave it as such. Be aware of the changes.

**Question 21**

Which of the following statements is correct in relation to the appendix?

A Opens into the caecum 2 cm below the ileocaecal valve

B Usually lies in a retroileal position

C Has no mesentry

D Drains to inguinal nodes

Explanation A

The apendix usually lies in the retrocecal position (64%) in the healthy person, draining to the ileocolic and superior mesenteric lymph nodes. Other appendix positions- Pelvic appendix-20%. Retroileal-0.5%. It has its own mesentery - the mesoappendix - through which the appendicular artery runs

**Question 22**

Which of the following staements is correct regarding the duodenum?

A In its 4th part, it lies to the right of the aorta

B Is a retro-peritoneal structure

C Lies between the levels of L2-L4

D Is 25cm in length

Explanation D

Only the first 2cm of the superior part is covered by peritoneum (mobile). The distal 3cm of the first part witht the rest of the perironeum is retroperitoneal (immobile). The duodenum lies between L1-L3 and the 4th part is to the left of the aorta.

**Question 23**

Which of the following is the highest branch of the abdominal aorta?

A Left gonadal artery

B Right suprarenal artery

C Left renal artery

D Inferior phrenic artery

Explanation D

The inferior phrenic arteries are the first branches of the abdominal aorta, and may rise by a common stem just above the coeliac trunk. They give off small suprarenal branches

**Question 24**

Which of the following is the main vessel supplying the body of the pancreas?

A Left gastroepiploic artery

B Superior pancreaticoduodenal artery

C Left gastric artery

D Splenic artery

Explanation D

The superior pancreaticoduodenal supplies the head of the pancreas

**Question 25**

Regarding the ureters, which of the following statements is correct?

A They are crossed by the genitofemoral nerve

B They are crossed over by the gonadal vessels

C They cross over the vas deferens

D They pass under the cover of the psoas muscle

Explanation B

The ureters are crossed over by the vas deferens and they cross over the genitofemoral nerve. They pass on top of the psoas muscle

The ureters are crossed over by: vas deferens/gonadal vessels/ductus deferens/testicular or ovarian vessels

The ureters cross over: genitofemoral nerve - the sacroiliac joint at the bifurcation of the iliac vessels

The ureters pass on top of the psoas muscle.

**Question 26**

Superficial inguinal lymph nodes drain all of the following areas except?

A Foot

B Testis

C Anterior thigh

D Skin of penis

Explanation B

The para aortic nodes (lumbar group) drain the testes and the ovaries. NOTE: In the current textbook Lymphatic drainage of the testis follows the testicular artery and vein to the right and left lumbar (caval/aortic) and preaortic lymph nodes.

Inguinal lymph nodes-

Superficial nodes: lower limb, superficial drainage of the inferolateral quadrant of the trunk, including anterior abdominal wall inferior to the umbilicus, gluteal region and superficial perineal structures.

Deep nodes: glans of clitoris or penis, superficial inguinal nodes

**Question 27**

The abdominal-pelvic lymphnode drainage. Which is INCORRECT?

A The sigmoid colon drains to the inferior mesenteric lymph nodes

B Ovaries, uterine tubes and most of the uterine fundus follow the ovarian veins as they ascend to the external iliac lymph nodes

C The lymphatic drainage of the testis follows the testicular artery and vein to the right and left lumbar and preaortic lymph nodes.

D The Inferior half of the rectum drains directly to sacral lymph nodes

Explanation B

The inferior half of the rectum drains directly to sacral lymph nodes or, especially form the distal ampulla, follow the middle rectal vessels to drain into the internal iliac lymph nodes. The lymphatic drainage of the testis follows the testicular artery and vein to the right and left lumbar and preaortic lymph nodes. The sigmoid colon drains to the inferior mesenteric lymph nodes. The Ovaries, tubes and most of the uterine fundus follow the ovarian veins as they ascend to the right and left lumbar (caval/aortic) lymph nodes

**Question 28**

Regarding the relationship of the 4 parts of the duodenum, which is correct?

A The first part runs to the right, upwards and forwards form the pylorus

B The fourth part lies on the left psoas muscle and left sympathetic trunk, to reach the lower border of the spleen

C The second part is covered in front by peritoneum and crossed by the attachment of the transverse mesocolon

D The third part lies at the hilum of the right kidney

Explanation C

The first part of the duodenum runs to the right, upwards and backwards form the pylorus. The second part is covered in front by peritoneum and crossed by the attachment of the transverse mesocolon. The second part curves downwards over the hilum of the right kidney. The third part curves forward from the right paravertebral gutter over the slope of the right psoas muscle and passes over the forwardly projecting inferior vena cava and aorta to reach the left posas muscle. The fourth part ascends to the left of the aorta to lie on the left psoas muscle and left sympathetic trunk, to reach the lower border of the pancreas

In the old text, it stated that the hilum of each kidney lie at the plane, the right just below it and the left just above. The third part of the duodenum (transverse part) runs at L3 level, below the hilum of the right kidney. Some newer sources report that the TL runs through the hilum of the left kidney

**Question 29**

Which of the following arteries to not supply the duodenum?

A Left gastric artery

B Inferior pancreaticoduodenal artery

C Hepatic artery

D Right gastroepiploic artery

Explanation A

The answer is taken form Last's anatomy

The duodenum is supplied by the superior and inferior pancreaticoduodenal arteries, but the first 2cm of the duodenum-the usual site of ulceration, receives blood from the hepatic, gastroduodenal, supraduodenal, right gastric and right gastroepiploic arteries. Venous drainage is to tributaries of the superior mesenteric and portal veins

**Question 30**

Which statement regarding the ureter is true?

A The ureters are approximately 40cm long

B Nerve innervation includes sympathetic fibres from T11-L3 and parasympathetic splanchnic nerves

C The ureters lie anterior to the ductus deferens

D The ureters in females pass close to the lateral part of the fornix of the vagina

Explanation D

They ureters are approximately 25-30cm long. Note: some texts say the ureters are 25cm exactly. In males the ureter lies posteriolateral to the ductus deferensand enters the posterior superior angle of the bladder. In females it passes close to the lateral part of the fornix of the vagina and enters the posterior superior angle of the bladder. Nerve innervation includes sympathetic fibres from T10 (some sources T11)-L2 and parasympathetic splanchnic nerves. Intact innervation of the renal pelvis or ureter is not necessary for the initiation or propogation of peristalsis form the calycael pacemakers

Note: Nerve innervation can be a bit confusing. Different sources have different opinions:

CM: Receives pain fibers from sympathetic T11 to L2. “visceral afferent fibres conveying pain sensation follow the sympathetic fibres retrograde to the spinal ganglia and cord segments T11-L2”.

Web: preganglionic sympathetic neurons that supply the ureters are located in segments of T10-L1 of the spinal cord

**Question 31**

The lumbar plexus, whichis INCORRECT?

A Ilioinguinal and iliohypogastric are branches of the lumbar plexus

B Lies medial to the lumbar transverse processes

C Is formed within the proximal attachment of the psoas major

D Comprises of nerves from L1-L4

Explanation B

The lumbar plexus of nerves is formed anterior to the lumbar transverse processes, within the proximal attachment of psoas major. The nerve network is composed of the anterior rami of L1 to L4. The plexus innervates part of the lower abdominal wall, but is mainly concerned in supplying skin and muscle in the lower limb. It reinforces the sacral plexus, which is the true plexus of the lower limb. Last's anatomy does not include the lumbosacral trunk as part of the lumbar plexus.

Branches of the lumbar plexus: (the first three are the largest)

* Femoral nerve (L2-L4)
* Obturator nerve (L2-L4)
* Lumbosacral trunk (L4 L5)
* Ilioinguinal and iliohypogastric nerves (L1)
* Genitofemoral nerve (L1 L2)
* Lateral cutaneous nerve of the thigh (L2 L3)
* Accessory obtrator nerve (L3 L4)

Note: a cute (but inappropriate) mnemonic "Interested In Getting Laid On Friday Larry"

**Question 32**

Running superior to inferior, branches of the aorta include

A Coeliac, superior mesenteric, supra-renal, renal

B Coeliac, superior mesenteric, renal, gonadal

C Coeliac, supra-renal, gonadal, superior mesenteric

D Coeliac, gonadal, renal, inferior mesenteric

Explanation B

Branches of the aorta:

Single ventral arteries to the gut: coeliac, superior mesenteric and inferior mesenteric

Paired arteries to other viscera: supra-renal, renal and gonadal

Paired branches to the abdominal wall: inferior phrenic and lumbar

A small branch, the median sacral artery leaves the aorta a little above its bifurcation and runs in the midline over the sacral promotory into a hollow of the sacrum

Order: Inferior phrenic, coeliac, suprarenal, SMA, renal, gonadal, IMA, median sacral. Lumbar arteries run down the side starting below the SMA

Great mnemonic: Its Cold Some Snow Really Getting Irritated Man!

**Question 33**

Regarding the relations of the abdominal aorta, which is true?

A The thoracic duct runs to the left of the aorta

B The abdominal aorta descends anterior to the vertebral bodies T12-L5

C The abdominal aorta extends the transpyloric plane to a point inferior and to the left of the umbilicus at the level of the supracristal plane

D The 3rd part of the duodenum passes anterior

Explanation D

The abdominal aorta is approximately 13cm in length. Begins at the aortic hiatus of the diaphragm (T12 vertebral level) and ends at vertebral level L4 and divides into the left and right common iliac arteries. The abdominal aorta extends from 2.5cm superior to the transpyloric plane to a point inferior and to the left of the umbilicus at the level of the supracristal plane (plane of the highest point of the iliac crests). The abdominal aorta descends anterior to the vertebral bodies of T12-L4. The left lumbar veins pass posterior to the aorta to reach the IVC. On the right, the aorta is related to the azygous vein, cisternal chyi, thoracic duct, right crus of the diaphragm and right celiac ganglion. On the left, the aorta is related to the left curs of the diaphragm and the left celiac ganglion. From superior to inferior, the important anterior relations of the abdominal aorta are: celiac plexus and ganglion, body of pancreas and splenic vein, left renal vein, horizontal part (3rd) of the duodenum and coils of small intestine.

**Question 34**

Which of the following structures do not pass through the transpyloric plane?

A Gastro-oesophageal junction

B Origin of the superior mesenteric artery

C Hila of the kidneys

D L1-L2 lumbar disc

Explanation A

The transpyloric plane bisects the body between the jugular notch and the pubic symphysis. This level is approximately midway between the xiphisternum and the umbilicus. It cuts each costal margin at the tip of the ninth costal cartilage, which is at the lateral border of rectus abdominus. Deep to this point on the right side lies the fundus of the gallbladder. The plane passes through the lower border of the first lumbar vertebra (L1), where the spinal cord ends at the conus medullaris. The plane passes through the pylorus and along the head, neck and body of the pancreas just above the attachment of the transverse mesocolon. The supracolic compartment, containing liver, spleen and fundus of the stomach, lies above the plane, and the infracolic compartment, containing the colon and small intestine, lies below it.

Note: In most texts the spleen is included in the plane. Other texts do not. More recent texts point out that the tips of the 8th costal cartilages are bisected. While others say the 9th costal cartilage

Extra: the SMA leaves the aorta, and the splenic vein joins the SMV to form the portal vein at this level. The hilum of each kidney lies at the plane, the right just below and the left just above it.