

GI -midterm exam دفعة نبض 2019

1.the application of heat to milk for the purpose of destroying pathogenic microorganism with minimum injury to its substances is called?

- a. Eradication
- b. Disinfection
- c. Elimination
- d. Sterilization
- e. Pasteurization

2. 32 years old man presented with lower abdominal pain. On physical examination there is tendemess to palpation in the right lower quadrant. Laparoscopic appendectomy is performed. On microscopic examination of the resected appendix, all the inflammation is limited to the serosa. What should the pathologist most strongly suspect in this case?

- a. Mid early acute appendicitis
- b. Chronic appendicitis

- c. Peritonitis
- d. inflamed diverticulosis
- e. Normal appendix
- 3. Concerning the blood supply to the gastrointestinal tract, choose a branch of the superior mesenteric artery?
 - a. Right colic artery
 - b. Gastroduodenal artery
 - c. Left gastroepiploic artery
 - d. Left colic artery
 - e. Right gastroepiploic artery
- 4. All following are true about drugs for peptic ulcers EXCEPT?
 - a. Triple therapy PPI, clarithromycin, plus ether amoxicillin or corticosteroids
 - b. Histamine-2 antagonists can be given IV.
 - c. PPIS are superior than H2 antagonists in suppression of acid production
 - d. Misoprostol is used in prevention of NSAID-induced ulcers
 - e. Antacids react with gastric acid to form water and salt
- 5. Reye syndrome, choose the incorrect statement?
 - a. Is extremely rare genetic disease that can affect the brain and liver
 - b. Occurs most commonly in kids between 4 and 14 years old
 - c. There is no cure for Reye syndrome
 - d. involve mitochondrial dysfunction that inhibits oxidative phosphorylation
 - e. Symptoms include persistent vomiting. lethargy or sleepiness in infants, diarrhea and rapid breathing but no fever
- 6. A 30-year-old man has complained of bloody and mucoid diarrhea for 3 months. On physical examination he has no abdominal masses

and mild diffuse lower abdominal tenderness. Colonoscopy reveals an erythematous mucosa extending from the rectum to the splenic flexure Colonic biopsies reveal mucosal ulceration with crypt abscesses Which of the following complications is the most likely to develop?

- a. Bowel perforation and peritonitis
- b. Fistula formation to the skin
- c. Ischemic bowel necrosis
- d. Colonic adenocarcinoma
- e. Primary Hepatic cirrhosis
- 7. The following may be useful to prevent vomiting due to cancer chemotherapy except?
 - a. Benztropine
 - b. Ondansetron
 - c. Metoclopramide
 - d. Nabilone
 - e. Dexamethasone with granisetron
- 8. What are the mean of macroglossia?
 - a. Failure of development of the tongue
 - b. Smail sized tongue
 - c. Failure of fusion of the 2 lingual swellings
 - d. tongue is adherent to the floor of the mouth
 - e. Large sized tongue
- 9. Which one of the following is the CORRECT statement?
 - a. The parotid gland is a seromucous gland
 - b. The striated ducts of the salivary glands are intralobular
 - c. Von-Ebner's glands are major salivary glands

- d. The myoepithelial cells are few around mucous acini
- e. Serous acini have vacuolated cytoplasm

10. Regarding the mucous membrane and duodenal papillae. Select the true one?

- a. The mucous membrane of the duodenum is thick allover
- b. The mucous membrane is thrown into numerous circular folds called the rugae
- c. The major duodenal papilla opens above minor duodenal papilla
- d. The mucous membrane of the duodenum is thin allover
- The accessory pancreatic duct opens into the duodenum as minor duodenal papilla

11. in appendicectomy it is true to look for the followings except?

- a. The tenia coli of the cecum
- b. The right iliac fossa
- c. McBurney's point
- d. The tip of the appendix in front of or behind the terminal part of the ileum as a very common site
- e. The appendicular artery

12. Each of the following statements concerning hepatitis A virus (HAV) is correct EXCEPT?

- a. The hepatitis A vaccine contains inactivated HAV as the immunogen.
- b. HAV commonly causes asymptomatic infection in children
- c. The diagnosis of hepatitis A is usually made by isolating HAV in cell culture
- d. Proper hygiene is a way for prevention of hepatitis A infection
- e. It is a non-enveloped virus

- 13. which one of these is not the common laboratory tests for the identification of Helicobacter pylori?
 - a. Biopsy test
 - b. Urease breath test
 - c. Stool antigen test
 - d. Urine test
 - e. PCR test
- 14. Which of following is FALSE regarding anti-peptic ulcer drugs?
 - a. Duration of therapy with antimicrobial agents is 2 weeks
 - b. Cimetidine has antiandrogen side effect
 - c. can cause B12 deficiency
 - d. Misoprostol is safe during pregnancy
 - e. Magnesium hydroxide causes diarrhea
- 15. Which type of infection can be severe with life-threatening consequences such as hemolytic uremic syndrome?
 - a. ETEC
 - b. EPEC
 - c. EHEC
 - d. EIEC
 - e. salmonellosis
- 16. Which of the following statements are incorrect according the intestinal herniation?
 - a. The cranial limb of the intestinal loop brings to the right side
 - b. The intestinal loop rotates for 90 in an anti-clockwise
 - c. The hernia passes through gap in the posterior abdominal wall
 - d. The rotation of the intestinal loop around the superior mesenteric artery
 - e. The caudal limb of the intestinal loop brings to the left side

- 17. 58-year-old woman known to have major depressive disorder for the past 10 years was found unresponsive at home after ingestion of 200 tablets of a medication containing acetaminophen around three hours prior to transportation to the emergency department She was intubated due to decreased level of consciousness and difficult respiration Which of the following microscopic findings is most likely to be present in her liver in the upcoming days?
 - a. Normal liver
 - b. Massive necrosis
 - c. Microvesicular Steatosis
 - d. Bridging fibrosis
 - e. Mononuclear portal infiltration
- 18. After digestion of a piece of cake that contains flour, milk and sucrose, the fastest sugar that enters the blood is?
 - a. Glucose
 - b. Fructose
 - c. Galactose
 - d. Mannose
 - e. Isomaltose
- 19. The most common cause of peptic ulcer disease worldwide is?
 - a. H pylori infection
 - b. Use of NSAIDS
 - c. Hepatitis C virus associated
 - d. Gastric malignancy
 - e. Esophageal varices

20. Which of the following statements is INCORRECT?

- a. The bile canaliculi are confined in-between hepatocytes
- b. Centroacinar cells line the limen of acini of parotid glands
- c. Zone 1 (one) of liver acinus is the last to show ischemic necrosis
- d. Islets of Langerhans are numerous at the tail of pancreas
- e. The space of Disse contains blood plasma

21. How many degrees of rotation of stomach?

- a. 90 anticlockwise
- b. 270 clockwise
- c. 90 clockwise
- d. 180 clockwise
- e. 180 anticlockwise
- 22. 32-year-old woman presented with sudden onset of severe abdominal pain. She has been using oral contraceptives for around 5 years on examination, she is afebrile with right upper quadrant tenderness Ultrasound of the abdomen shows a well-circumscribed, 6 cm subcapsular hepatic mass. At laparotomy, a mass in the right hepatic lower lobe, that has ruptured through the capsule, is removed the rest of the parenchyma looks to be unremarkable. Which of the following is the most likely diagnoses?
 - a. Cholangiocarcinoma
 - b. Hepatocellular carcinoma
 - c. Hepatoblastoma
 - d. Choledochal cyst
 - e. Hepatic adenoma
- 23. Which one of the following is useful for prevention motion?
 - a. Prochlorperazine
 - b. Metoclopramide

- c. Granisetron
- d. Scopolamine
- e. Domperidone

24. All following about drugs in liver disease except:

- a. Hypoalbuminemia increases protein binding of drugs
- b. Sedatives should be avoided in patients with advanced liver disease
- c. Codeine may precipitate hepatic encephalopathy
- d. Paracetamol overdose causes hepatocyte necrosis and apoptosis
- e. Elevation of serum transaminase levels greater than three-fold of normal is an indication of drug withdrawal

25. Saliva is responsible for all. EXCEPT?

- a. Helps in deglutition
- b. Prevents dental caries
- c. Is essential for complete digestion of starch
- d. Prevents decalcification of the teeth
- e. Help speech

26. Dietary fibers choose the wrong answer?

- a. They consists principally of oligosaccharides and polysaccharide derivatives and lignan
- b. They are resistant to digestion by human digestive enzymes
- c. Water insoluble fiber includes cellulose. Lignin and hemicellulose
- d. Pectins slow the rate of absorption of simple sugars
- e. Pectins may lower blood cholesterol levels by binding bile acids

27. Fat digestion, choose the wrong statement?

- a. Lingual lipase hydrolyze short- and medium-chain tatty acids in triacylglycerols
- b. The pancreas produces esterases that remove fatty acids from compounds like cholesterol esters
- c. Chylomicrons are synthesized in the liver and transport lipids in blood to adipose tissue, heart, and skeletal muscles
- d. Pancreatic lipase is the major enzyme that digests dietary triacylglycerols
- e. The essential fatty acids alpha-linolenic and alpha linolenic acid are supplied by dietary plant oils

28. According to the oral cavity, which is incorrect?

- a. It is divided by gums and teeth into two parts
- b. Mouth proper inside the teeth and gums
- c. The gums and lips are attached together in the midline by frenulum of the lip
- d. The vestibule and mouth proper are separated from each other
- e. Vestibule of the mouth is outside the gums and teeth

29. During pharyngeal phase of Deglutition there is?

- a. Opening of nasal cavity
- b. Opening of glottis
- c. Opening of larynx
- d. Inhibition of respiration
- e. Contraction of pharyngeal esophageal sphincter

30. The vagus nerves pass in the diaphragm through?

- a. Through the vena caval hiatus
- b. Through the aortic hiatus
- c. Between the slips of origin of the diaphragm from the ribs
- d. Through the esophageal hiatus
- e. Through the perforation is the crura

- 31. According to the parotid gland, which is incorrect?
 - a. The largest salivary glands
 - b. It is lies below the external ear
 - c. It is triangular in transverse cross section
 - d. It presents behind the master muscle
 - e. it is related to the posterior border of the sternomastoid muscle
- 32. Which of the following statements is true about the weight of the human liver?
 - a. 3 Kg
 - b. 1.4 kg
 - c. 1.6 kg
 - d. 1.86 kg
 - e. 4.1kg
- 33. A patient with upper gastrointestinal symptoms tests positive for Helicobacter pylori following a urea breath test. Which one of the following conditions is most strongly associated Helicobacter infection?
 - a. Gastric adenocarcinoma
 - b. Gastro-oesophageal reflux disease
 - c. Esophageal cancer
 - d. Duodenal ulceration
 - e. Atrophic gastritis
- 34. Which is responsible of exit of gas of abdominal Flatulence during rest state?
 - a. Relaxation of puborectalis portion of levator ani muscles
 - b. Anteroposterior flexures of the rectum
 - c. Houstons valve
 - d. Lateral flexures of the rectum

- e. Contraction of puborectalis portion of levator ani muscles
- 35. All the following structures having mesentery except?
 - a. The transverse colon
 - b. The cecum
 - c. The small intestine
 - d. The appendix
 - e. The sigmoid colon
- 36. Regarding Kupffer cells, choose the CORRECT statement?
 - a. Their cytoplasm is rich in lysosomes
 - b. They store vitamin A
 - c. Present in the space of Disse
 - d. Originate from undifferentiated mesenchymal cells (UMC)
 - e. They are flat cells with many fenestrae
- 37. Regarding LAXATIVES, removal of helminthes and parasites can be achieved by the following?
 - a. Bulk-Forming
 - b. Stimulant.
 - c. Saline
 - d. Hyperosmotic
 - e. Emollients
- 38. Complications of vomiting include all of the following except?
 - a. Dehydration
 - b. Tetany
 - c. Acidemia
 - d. K+ loss
 - e. Decreased Ca++
- 39. Rectal prolapse is common in infection with?

- a. Schistosoma mansoni.
- b. Ascaris lumbricoides.
- c. Trichuris trichiura.
- d. Balantidium coli.
- e. Ancylostoma duodenale

40. Which of the following will inhibit stomach contractions?

- a. Acetylcholine
- b. Motilin.
- c. Gastrin
- d. Secretin
- e. Thyroxine

41. Food poisoning (food intoxication) is caused by?

- a. Hepatitis type A
- b. Amoebiasis
- c. Staphylococcus aureus
- d. Cholera s
- e. Ascariasis

42. Regarding Giardia lamblia all are correct EXCEPT?

- Man is the definitive host.
- b. Mature cyst is the infective stage
- c. Causing malabsorption syndrome and malnutrition
- d. Causing bloody diarrhea with excess mucus
- e. Causing travelers diarrhea

43. Which of the following statements is not correct?

a. Glucoamylase is an exoglucosidase

- b. Glucose is an essential sugar and must be present in our food
- c. Trehalase has one catalytic site
- d. B-glycosidase has two catalytic sites
- e. a-amylase hydrolyzes a-1,4 bonds between glucose residues

44. The single most valuable sign in acute appendicitis is?

- a. Localized right iliac fossa tenderness
- b. Rebound tenderness
- c. Psoas sign
- d. Rovsing sign
- e. Obturator sign

45. Choose the INCORRECT match?

- a. Columns of Morgagni non-keratinized stratified squamous epithelium
- b. Internal anal sphincter -ring of smooth muscles
- c. Foliate papillae Von-Ebner's glands in lamina propria
- d. Lip margin rich sensory innervation
- e. Esophageal musclosa upper 1/3 is striated muscles

46. 25-year-old female complains of a low volume but chronic, foul-smelling diarrhea for the past year. He has no nausea or vomiting on physical examination there is no abdominal pain or masses, and bowel sounds are present .His stool is negative for occult blood .Laboratory studies include a positive for TTG igA antibody. Upper Gl endoscopy is performed with biopsies taken of the duodenum, and on microscopic examination show absence of villi, increased surface intraepithelial lymphocytes, and hyperplastic appearing Which of the

following therapies s most likely to be useful for this man?

- a. Antibiotics
- b. Gluten-free diet
- c. Selective vagotomy
- d. Corticosteroids
- e. Segmental duodenal resection
- 47. Which of the following can cause infection through inhalation?
 - Schistosoma mansoni
 - b. Ascaris lumbricoides
 - c. Balantidium coli.
 - d. G.lamblia
 - e. C.parvum
- 48. Each of the following statements regarding rotaviruses is correct EXCEPT?
 - a. Rotaviruses are a leading cause of diarrhea in young children
 - b. Rota Teq vaccine is a live reassortant vaccine, which contains the single most common rotavirus serotype
 - c. Rotavirus is resistant to stomach acid
 - d. Rotaviruses are transmitted primally by the fecal-oral route
 - e. Rotaviruses belong to the reovirus family.
- 49. A mother has noted marked abdominal enlargement of her twoyear-old son and passing reddish to dark stool On physical examination his abdomen is distended What pathologic finding is most likely to be present in this infant?
 - a. Aganglionic colon segment
 - b. Congenital bowel malrotation
 - c. Cecal volvulus

- d. Intussusception
- e. Necrotizing ischemic colitis.

50. A 38-year-old male with a previous history of total colectomy for inflammatory bowel disease. Presented with worsening fatigue. pruritis, and jaundice for three months duration Cholangiography reveals the widespread strictures in the intrahepatic bile ducts. Liver biopsy showed periductular onion skin fibrosis with a moderate lymphocytic infiltrate. Which of the following underlying diseases is he most likely to have?

- a. Wilson disease
- b. Acute viral hepatitis
- c. Steatohepatitis
- d. Primary sclerosing cholangitis
- e. Primary biliary cholangitis

51. Intestinal secretion is increased by?

- a. Local enteric reflexes
- b. Adrenaline
- c. Histamine
- d. GIP
- e. Somatostatin

52. The hepatorenal recess Select the wrong statement?

- a. Is similar to the lesser sac on the left side of peritoneal cavity
- b. Communicates anteriorly with the right subphrenic recess
- c. is a gravity-dependent part of the peritoneal cavity in the supine position
- d. Called also the right posterior subphrenic space

- e. Lying between the left part of the visceral surface of the liver and the left kidney and suprarenal gland
- 53. Which of the following markers is usually the first viral marker detected after hepatitis B infection?
 - a. HBeAg
 - b. HBsAg
 - c. HBcAg
 - d. Anti-HBc
 - e. HEeAg
- 54. Which of the following statements IS incorrect according to development of the mouth?
 - a. The maxillary process forms the upper jaw
 - b. Stomodeum is endodermal in origin
 - c. Each primitive gum is divided by a horse-shoe groove
 - d. The mandibular process gives the lower jaw
 - e. Cranial part of the foregut is endodermal in origin
- 55. HCL secretion is increased by?
 - a. Histamine
 - b. Adrenaline
 - c. Secretin
 - d. Prostaglandin
 - e. CCK
- 56. Which glands open into the sublingual papilla?
 - a. Parotid gland
 - b. Sublingual glands
 - c. Submandibular glands
 - d. Thyroid glands
 - e. Parathyroid glands
- 57. Which of the following is the CORRECT statement?

- a. The peptic cells of the gastric glands contain intracellular canaliculi
- b. Paneth cells secrete intestinal hormones
- c. Goblet cells secrete mucus to protect the gastric mucosa
- d. M-cells are antigen presenting cells
- The enteroendocrine cells are characterized by apical secretory granules
- 58. 25-year-old healthy man who has a family history of colon cancer with onset at a young age. There are no abnormal physical examination findings He undergoes endoscopy and there are multiple small bowel polyps and microscopic examination of biopsies revealed dilated glands filled with mucin and inflammatory debris within these polyps Which of the following genetic diseases is he likely to have?
 - a. Transforming growth factor-B (TGF-B) mutation
 - b. LKB1/STK11 gene mutation
 - c. Mutation in APC gene
 - d. Inherited germ line mutations in DNA mismatch repair genes
 - e. TP53 gene mutation
- 59. Which of the following is INCORRECT regarding schistosomiasis?
 - a. The disease undergoes through four stages
 - b. The tail of the cercaria is important for invasion
 - c. Local dermatitis and irritation due to penetration
 - d. Hepatomegaly due to migration
 - e. Patients start to suffer from anorexia when the parasite starts to deposit eggs
- 60. The following are causes of chronic diarrhea EXCEPT?
 - a. Tumors
 - b. Diabetes
 - c. Nutritional syndrome.
 - d. Addison disease
 - e. Irritable bowel

- 61. Which of the followings muscle passes between superior and middle constrictors muscles of pharynx?
 - a. Stylopharyngeus muscle
 - b. Palatoglossus muscle
 - c. Palatopharyngeus muscle
 - d. Tensor palati muscle
 - e. Salpingopharyngeus muscle
- 62. One of the following is incorrect about gallstones?
 - a. Oral contraceptive and pregnancy increase the risk for their development
 - b. Cholesterol nucleation is enhanced by gallbladder hypermobility
 - c. They are quite common
 - d. Cholesterol super-saturation is enhanced by mucus secretion
 - e. the vast majority crystalline cholesterol monohydrate is the main component
- 63. The proper specimen for testing for diagnosis of C. difficile disease is?
 - a. watery stool
 - b. urine output
 - c. Swab of the colon
 - d. Endoscopy
 - e. Saliva
- 64. Campylobacter jejuni is one of the most common causes of food poisoning, which also can be associated with a complication as?
 - a. Toxic shock syndrome
 - b. Guillain-Barre syndrome
 - c. Short bowel syndrome
 - d. Rett syndrome

e. heart problems

65. Concerning ANTICHOLINERGICS, all the following are side effects EXCEPT?

- a. Urinary retention.
- b. impotence
- c. Decreased intraocular pressure
- d. Blurred vision.
- e. Dry skin.

66. Regarding Pepsinogen?

- a. Still active in duodenum.
- b. Secreted from parietal cell
- c. Activated by Hcl
- d. Pepsinogen is not linked with Hcl secretion.
- e. Activated by Gastrin hormone
- 67. 50-year-old man has a 2 year history of gastric pain He undergoes upper GI endoscopy, and a small area of gastric fundal mucosa has loss of rugal folds Biopsies are taken and microscopically reveal well-differentiated adenocarcinoma confined to the mucosa. While the previous biopsy (5 years ago) showed chronic gastritis. Which of the following is the most likely risk factor for his neoplasm?
 - a. Inherited APC gene mutation
 - b. Helicobacter pylori infection
 - c. Chronic alcohol abuse
 - d. Use of non-steroidal anti-inflammatory drugs
 - e. Vitamin B12 deficiency
- 68. All of the following muscles are attached to the superior surface of palatine aponeurosis except?

- a. Musculus uvulae
- b. Palatopharyngeus muscle
- c. Palatoglossus muscle
- d. Tensor palati muscle
- e. Levator palati muscle
- 69. Which of the following is the function of the human liver?
 - a. Production of bile
 - b. Storing the bile
 - c. Producing an insulin
 - d. A and B
 - e. A And C

- 70. 43-year-old man who presented with epigastric pain and recurrent attacks of diarrhea for the past 7months on physical examination he has no abnormal findings. On upper Gl endoscopy a solitary sharply demarcated 2-mm shallow gastric antral ulcer is seen and the microscopic examination revealed submucosal well-defined mass covered superficially by area of ulceration. Which of the following laboratory test findings is most likely to be present in this man?
 - a. Gastric achlorhydria
 - b. Positive serology for Partial cell antibody
 - c. Positive urea breathe test
 - d. Increased plasma substance P
 - e. Elevated serum gastrin
- 71. House-hold treatment of water includes all the following EXCEPT?
 - a. Chlorination
 - b. Evaporation

- c. Filtration
- d. Aeration
- e. Boiling

72. Cytochrome and CYP450, choose the incorrect statement?

- a. It uses iron to oxidize molecules to make them water-soluble
- b. They are found associated with the membrane of the smooth endoplasmic reticulum particularly in the liver
- c. Molecular oxygen is split so that one atom is used to form water and the other is reduced and binds with porphyrin ring
- d. In the electron transport chain, they are involved as carriers of electrons
- e. Cytochromes may lead to making some drugs ineffective while activating others
- 73. A 25-year-old man has noted cramping abdominal pain for the past two days associated with diarrhea on physical examination, there is right lower quadrant tenderness with absence of bowel sounds Which of the following microscopic findings is most likely be present in biopsies from his colon?
 - a. Crypt abscesses
 - b. Entameba histolytica organisms
 - c. Adenocarcinoma.
 - d. ischemic colitis.
 - e. Non-caseating granulomas

74. Each of the following statements concerning HCV is correct EXCEPT?

- a. HCV is transmitted by blood
- b. Recombinant Immunoblot assay is used to confirm the diagnosis of HCV infection

- c. HCV genome integration is considered a factor for HCC development
- d. People infected with HCV commonly become chronic carriers of HCV and are predisposed to hepatocellular carcinoma
- e. The highest degree of sequence variability within the HCV genome found in hypervariable region in the envelope glycoprotein

75. A 16-year-old boy who is receiving chemotherapy for leukemia sees the physician because he has had pain for 1 week when he swallows food, Physical examination shows no abnormal findings Upper gastrointestinal endoscopy shows 0.5 to 0.8-cm mucosal punched out ulcers in the region of the mid to lower esophagus Which of the following is most likely to produce these findings?

- a. CMV esophagitis
- b. Herpes simplex esophagitis
- c. Gastroesophageal reflux disease
- d. Candida esophagitis
- e. Mallory -Weiss syndrome

76. In chronic liver injury resulting from various insults these cells are activated and gain myofibroblastic features then they cause collagen deposition and hepatic fibrosis. Which of the following are these cells?

a. Bile duct cells

- b. Endothelial cells
- c. Hepatocyte
- d. Stellate cell
- e. Kupffer cells
- 77. Which of the following is not involved in swallowing?
 - a. Contraction of the upper esophageal sphincter.
 - b. Coordination by the swallowing center in the medulla oblongata
 - c. The approximation of the vocal cords to close the glottis
 - d. The raising of the larynx to close its entrance
 - e. Continuation of respiration

- 78. Secretin hormone causes?
 - a. increase HCL passage to the duodenum
 - b. Decrease intestinal mucus
 - c. Decrease insulin hormone
 - d. Increase Na Hco3 secretion
 - e. Decrease Gastric functions
- 79. 41-year-old man has a history of numerous episodes of nausea and vomiting, followed by massive hematemesis. On physical examination, there is no abdominal tenderness or distension, and bowel sounds are present. His stool is negative for occult blood. Which of the following is the most likely diagnosis?
 - a. Esophageal stricture
 - b. Esophageal laceration
 - c. Esophageal fistula
 - d. Barrett esophagus
 - e. Esophageal squamous cell carcinoma

- 80. Which of the following does NOT regulate gastric acid secretion?
 - a. Vagus nerve stimulation (Ach)
 - b. Cholecystokinin
 - c. Histamine
 - d. Gastrin
 - e. Prostaglandins

The End