(HSC 206: CA2: *Select the ONE lettered answer and Mark an X in the Answer Sheet:* Wed, 30th June 2010)

Questions 1-4: (A) Saliva (B) Gastric Secretions (C) Pancreatic secretions (D) Bile (E) Faeces : Match each numbered description with the correct gastrointestinal (GI) secretory products.

(1) Has a component that is required for the intestinal absorption of Vit B_{12}.
(2) Is hypotonic, has a high [HCO_3^-], and its production is inhibited by vagotomy.
(3) Stimulated by secretin and contains the enzymes necessary for fat digestion
(4) Inhibited when the pH of the stomach contents is 1.0.
(5) Slow wave is small intestinal smooth muscle cells are: (A) Action Potentials (B) Phasic contractions (C) Tonic Contractions (D) Oscillating resting membrane potential (E) Oscillating release of Cholecystokinin (CCK)
(6) When parietal Cells are stimulated, they secrete: (A) HCl and intrinsic factors (B) HCl and pepsinogen (C) HCl and HCO_3^- (D) HCO_3^-, and intrinsic factors (E) Mucus and pepsinogen.
(7) Secretion of HCl by gastric parietal cells is needed for: (A) Activation of pancreatic lipase (B) Activation of salivary lipase (C) Activation of intrinsic factors (D) Activation of pepsinogen to pepsin (E) the formation of micelles.
(8) *Vibrio cholerae* causes diarrhoea because it: (A) increases HCO_3^-, secretory channels in the intestinal epithelial cells (B) increases Cl^- secretory channels in crypt cells (C) prevents the absorption of glucose and causes water to be retained in the intestinal lumen isoosmotically (D) inhibits cyclic adenosine monophosphate (cAMP) production in the intestinal epithelial cells (E) inhibits inositol 1,4,5-triphosphate (IP_3) production in intestinal epithelial cells.
(9) Cholecystokinin (CCK) has some gastric-like properties because both CCK and gastrin: (A) are released from G cells in the stomach (B) are released from I cells in the duodenum (C) are members of the secretin-homologous family (D) have five identical C-terminal amino acids (E) have 90% homology of their amino acids.
(10) A patient with severe Crohn's disease has been unresponsive to drug therapy and undergoes ileal resection. After the surgery, he will have steatorrhoea because: (A) the liver bile acid pool increases (B) chylomicrons do not form in the intestinal lumen (C) dietary triglycerides cannot be digested (E) the pancreas does not secrete lipase
(11) Cholecystokinin (CCK) inhibits (A) gastric emptying (B) pancreatic HCO_3^-, secretion (C) pancreatic enzyme secretion (D) contraction of gallbladder (E)relaxation of the sphincter of Oddi
(12) Which of the following abolishes the receptive relaxation of the stomach? (A) Parasympathetic stimulation (B) Sympathetic stimulation (C) Vagotomy (D) Administration of gastrin (E) Administration of vasoactive intestinal peptide (VIP)
(13) Peristalsis of the small intestine: (A) mixes the food bolus (B) is coordinated by the central nervous system (CNS) (C) involves contraction of smooth muscle behind and in front of the food bolus (D)involves contraction of smooth muscle behind the food bolus and relaxation of smooth muscle in front of the bolus (E) involves relaxation of smooth muscle throughout the small intestine.
(14) Which of the following is characteristic of saliva? (A) Hypotonicity relative to plasma (B) A lower HCO_3^-, concentration than plasma (C) the secretion rate that is increased by vagotomy (D) The presence of proteases (E) Modification by the salivary ductal cells involves reabsorption of K^+ and HCO_3^-,
(15) A patient with duodenal ulcer is treated successfully with the drug cimetidine. The basis for cimetidine's inhibition of gastric H^+ secretion is that it (A) blocks muscarinic receptors on parietal cells (B) blocks H_2 receptors on parietal cells (C) increases intracellular cyclic adenosine monophosphate (cAMP) levels (D) Blocks H+, H^+-adenosine triphosphate (ATPase) (E) enhances the action of acetylcholine (ACh) on parietal cells.
(16) Which of the following is true about the secretion from the exocrine pancreas? (A) It has a higher Cl^- concentration than does the duodenum (B) It is stimulated by the presence of HCO_3^-, in the duodenum (C) Pancreatic HCO_3^-, secretion is increased by gastrin (D) Pancreatic enzyme secretion is increased by cholecystokinin (CCK) (E) It is hpotonic

Questions 17-20: (A) Secretin (B) Gastrin (C) Cholecystokinin (CCK) (D) Vasoactive Intestinal Peptide (VIP) (E) Gastric inhibitory peptide (GIP) : Match each numbered characteristic with the appropriate gastrointestinal (GI) hormone.

(17) Released from neurons in the GI tract and produces smooth muscle relaxation
(18) Low pH inhibits it release
(19) Low pH stimulates its release
(20) Secreted in response an oral glucose load

Questions 21-23: (A) Gastric antrum (B) Gastric fundus (C) Duodenum (D) Ileum (E) Colon: Match each numbered phenomenon with the correct portion of the gastrointestinal (GI) tract.

(21) Secretion of instrinsic factor
(22) Secretion of K^+
(23) Secretion of gastrin
(24) Which factor below does not slow down gastric activities? (A) enterogastric reflex. (B) entergastrones. (C) secretin. (D) gastrin. (E) cholecystokinin.
(25) Stomach acid (A) is neutralized in the duodenum. (B) Is neutralized with biocarbonate. (C) Is neutralized by solutions secreted by the pancreas. (D) Both (a) and (b) above. (E) All of these answers.
(26) Intrinsic factor is (A) secreted by the parietal cells in the stomach. (B) necessary for absorption of vitamin B12. (C) abundant in pernicious anemia. (D) Two of these answers. (E) All of these answers.
(27) Pernicious anemia can occur when (A) the stomach has been removed. (B) the terminal ileum has been removed. (C) there is a deficiency of intrinsic factor. (D) Both the stomach has been removed and there is a deficiency of intrinsic factor. (E) All of these answers.
(28) As food leaves the stomach, gastric secretion is reduced. Which of the following factors does not contribute to this reduction? (A) fat in the duodenum (B) low gastric pH (C) distention of the duodenum (D) high concentration of acid in the stomach or duodenum (E) pepsinogen in the duodenum
(29) Peptic ulcers (A) are usually caused by excessive neural stimulation. (B) are usually caused by bacterial infection. (C) compromise the mucosal barrier and stomach wall. (D) Both (a) and (b) above (E) Both (b) and (c) above.
(30) Which of the following accurately describes chymotrypsinogen? (A) chymotrypsinogen is activated by enterokinase. (B) once activated, chymotrypsinogen is involved in protein digestion. (C) chymotrypsinogen is secreted by the endocrine pancreas. (D) All of these answers. (E) None of these answers.

Good Luck: Dr. Salah