

Gastrointestinal System – Very Hard Exam (50 Questions)

1. The primary reason food must be digested before absorption is that:

- A. Digestive enzymes require acidic conditions
- B. Food molecules are too large to cross cell membranes
- C. The GI tract lacks transport proteins
- D. Water absorption requires enzymatic digestion

2. The GI tract contributes to homeostasis mainly by:

- A. Producing digestive enzymes only
- B. Eliminating wastes without absorption
- C. Breaking down food and absorbing essential substances
- D. Regulating blood pressure through digestion

3. Which structure is NOT part of the gastrointestinal tract itself?

- A. Stomach
- B. Esophagus
- C. Pancreas
- D. Small intestine

4. The enteric nervous system differs from the autonomic nervous system because it:

- A. Cannot function independently
- B. Is composed only of sensory neurons
- C. Directly controls GI secretions and motility
- D. Innervates only the stomach

5. Damage to the myenteric plexus would MOST directly affect:

- A. Mucus secretion
- B. Hormone release
- C. Frequency and strength of GI contractions
- D. Enzyme activation in the lumen

6. The submucosal plexus primarily regulates:

- A. Longitudinal muscle contraction
- B. GI tract motility
- C. Secretory activity of mucosal cells
- D. Peristaltic wave propagation

7. Chemoreceptors in the GI wall respond mainly to:

- A. Stretch of smooth muscle
- B. Changes in lumen chemical composition
- C. Blood pH variations
- D. Hormonal stimulation only

8. Parasympathetic stimulation of the GI tract generally results in:

- A. Decreased motility and secretion
- B. Increased ENS inhibition
- C. Increased motility and secretion
- D. Closure of sphincters

9. Emotional stress slows digestion primarily by:

- A. Activating parasympathetic nerves
- B. Increasing gastrin release
- C. Stimulating sympathetic inhibition of ENS

D. Blocking enterokinase activity

10. The extrinsic muscles of the tongue are mainly responsible for:

- A. Altering tongue shape for speech
- B. Initiating enzyme secretion
- C. Moving and positioning food during mastication
- D. Producing saliva

11. The intrinsic muscles of the tongue function primarily in:

- A. Chewing efficiency
- B. Swallowing reflex initiation
- C. Changing tongue shape and size
- D. Holding the tongue in place

12. Mechanical digestion in the mouth directly produces:

- A. Chyme
- B. Bolus
- C. Maltose
- D. Monosaccharides

13. Salivary amylase activity is ultimately limited in the stomach because:

- A. It is digested by pepsin
- B. It is inhibited by bile salts
- C. Gastric acidity inactivates it
- D. It requires alkaline intestinal juice

14. Lingual lipase becomes active mainly in the:

- A. Mouth
- B. Pharynx
- C. Esophagus
- D. Stomach

15. Which part of the pharynx has both respiratory and digestive functions?

- A. Nasopharynx only
- B. Oropharynx and laryngopharynx
- C. Nasopharynx and oropharynx
- D. Laryngopharynx only

16. The esophagus does NOT:

- A. Transport food
- B. Secrete mucus
- C. Carry out absorption
- D. Perform peristalsis

17. Peristalsis is best described as:

- A. Random smooth muscle contractions
- B. Alternating contractions of circular and longitudinal layers
- C. Segmental mixing movements only
- D. Reflex relaxation of sphincters

18. The stomach serves as a holding reservoir mainly because:

- A. Intestinal digestion and absorption are slower
- B. Gastric enzymes require long exposure
- C. Absorption occurs in stomach
- D. Peristalsis is absent

19. Gastric emptying occurs when:

- A. Gastrin decreases
- B. Particles are small enough
- C. Stomach is empty
- D. pH increases

20. Retropulsion in the stomach enhances:

- A. Absorption
- B. Mixing and particle breakdown
- C. Rapid emptying
- D. Hormone secretion

21. Parietal cells secrete:

- A. Pepsin
- B. Gastric lipase
- C. HCl and intrinsic factor
- D. Mucus only

22. Chief cells avoid autodigestion by:

- A. Alkaline mucus
- B. Inactive enzyme secretion
- C. Neutral pH
- D. Inhibiting parietal cells

23. Histamine increases HCl secretion by:

- A. Acting alone
- B. Blocking gastrin
- C. Synergistic action
- D. Reducing ACh

24. Pepsin is inactive when:

- A. pH rises
- B. Temperature drops
- C. Bile present
- D. Trypsin active

25. The pancreas prevents self-digestion mainly by:

- A. Acid secretion
- B. Trypsin inhibitor
- C. Immediate activation
- D. Bile salts

26. Enterokinase activates:

- A. Pepsin
- B. Trypsinogen
- C. Amylase
- D. Lipase

27. Liver metastasis from GI cancers is common due to:

- A. Bile secretion
- B. Vitamin storage
- C. Portal circulation
- D. Detoxification

28. The brown color of feces is due to:

- A. Bilirubin
- B. Stercobilin
- C. Bile salts

D. Hemoglobin

29. Bile salts function primarily in:

- A. Hydrolysis
- B. Emulsification
- C. Absorption of glucose
- D. Neutralization

30. Between meals bile is stored because:

- A. Gastrin rises
- B. Sphincter closes
- C. Motility stops
- D. Pancreas inactive

31. Small intestine absorption is efficient due to:

- A. Low pH
- B. Enzymes
- C. Surface area
- D. Peristalsis

32. Brush-border enzymes are:

- A. Luminal
- B. Pancreatic
- C. Membrane-bound
- D. Hormonal

33. Segmentations mainly:

- A. Propel chyme
- B. Mix chyme
- C. Empty stomach
- D. Initiate defecation

34. Migrating motility complexes occur mainly:

- A. During meals
- B. During fasting
- C. In colon
- D. In rectum

35. The ileocecal sphincter prevents:

- A. Forward flow
- B. Backflow
- C. Peristalsis
- D. Absorption

36. Haustral churning mainly:

- A. Rapid propulsion
- B. Slow mixing
- C. Mass peristalsis
- D. Water loss

37. Mass peristalsis occurs:

- A. Fasting
- B. Before sleep
- C. During/after meals
- D. Only constipation

38. Large intestine lacks digestive enzymes because:

- A. Digestion complete
- B. Bacteria act
- C. pH acidic
- D. Mucus blocks

39. Diarrhea is caused by:

- A. ↑ absorption
- B. ↓ motility
- C. ↑ motility & ↓ absorption
- D. ↓ bacteria

40. Defecation reflex begins with:

- A. Hormones
- B. Chemicals
- C. Rectal stretch receptors
- D. Voluntary control

True / False Questions

1. The enteric nervous system cannot function independently without autonomic input. (True / False)
2. Damage to the submucosal plexus primarily affects motility. (True / False)
3. Stress slows digestion by direct parasympathetic inhibition of parietal cells. (True / False)
4. Lingual lipase is maximally active in acidic gastric conditions. (True / False)
5. Salivary amylase remains active in fundus until acid mixing occurs. (True / False)
6. Retropulsion compensates for incomplete pyloric closure. (True / False)
7. Histamine alone maximally stimulates HCl secretion. (True / False)
8. Pancreatic enzymes are secreted only in active form. (True / False)
9. Segmentations enhance absorption more than propulsion. (True / False)
10. Mass peristalsis is initiated mainly by rectal distension. (True / False)

Answer Key

MCQs:

1-B,2-C,3-C,4-C,5-C,6-C,7-B,8-C,9-C,10-C,
11-C,12-B,13-C,14-D,15-B,16-C,17-B,18-A,19-B,20-B,
21-C,22-B,23-C,24-A,25-B,26-B,27-C,28-B,29-B,30-B,
31-C,32-C,33-B,34-B,35-B,36-B,37-C,38-B,39-C,40-C

True / False:

1-F,2-F,3-F,4-T,5-T,6-T,7-F,8-F,9-T,10-F