

NR507 Advanced Pathophysiology – Sample Exam Questions

Gastrointestinal Pathologies

1. A 45-year-old man reports burning epigastric pain that improves after eating but returns a few hours later. Which of the following best explains the pathophysiology of this condition?

- A. Decreased bicarbonate secretion in the stomach
- B. Increased gastric acid secretion damaging the duodenal mucosa
- C. Autoimmune destruction of gastric parietal cells
- D. Decreased motility of the lower esophageal sphincter

Answer: B

Rationale: Duodenal ulcers result from hypersecretion of gastric acid and pepsin that penetrate the mucosal barrier, producing pain relieved by food.

2. In liver cirrhosis, ascites formation is primarily due to:

- A. Increased aldosterone secretion
- B. Portal hypertension and hypoalbuminemia
- C. Excessive hepatic glycogen storage
- D. Obstruction of bile flow

Answer: B

Rationale: Portal hypertension raises hydrostatic pressure, and reduced albumin decreases oncotic pressure—both contributing to fluid leakage into the peritoneal cavity.

3. Which symptom most clearly indicates **hepatic encephalopathy**?

- A. Severe right upper quadrant pain
- B. Confusion and asterixis
- C. Jaundice and pruritus
- D. Weight loss and dark urine

Answer: B

Rationale: Accumulation of ammonia and other toxins affects brain function, leading to confusion and flapping tremors (asterixis).

Endocrine Pathologies

4. Which lab finding indicates **primary hypothyroidism**?

- A. Low TSH and low T4
- B. High TSH and low T4
- C. Low TSH and high T4
- D. High TSH and high T4

Answer: B

Rationale: In primary hypothyroidism, the thyroid fails to produce T4, stimulating the pituitary to secrete more TSH.

5. A patient with Cushing's syndrome is expected to have which clinical feature?

- A. Hypotension and weight loss
- B. Hyperpigmentation and muscle wasting
- C. Central obesity and hyperglycemia
- D. Bradycardia and cold

intolerance **Answer:** C

Rationale: Excess cortisol causes central fat redistribution, elevated glucose, and muscle catabolism.

6. Which of the following is the primary cause of **Type 1 diabetes mellitus**?

- A. Insulin resistance
- B. Autoimmune destruction of beta cells
- C. Decreased glucagon secretion
- D. Pancreatic duct

obstruction **Answer:** B

Rationale: Type 1 DM results from autoimmune destruction of pancreatic β -cells, leading to insulin deficiency.

CNS Sensory & Motor Pathologies

7. The hallmark finding of **Guillain-Barré syndrome** is:

- A. Symmetrical ascending paralysis
- B. Unilateral facial drooping
- C. Intention tremors
- D. Spastic paralysis

Answer: A

Rationale: GBS causes demyelination of peripheral nerves, starting in the lower limbs and ascending upward.

8. Which neurotransmitter imbalance is most associated with **schizophrenia**?

- A. Decreased serotonin
- B. Increased dopamine
- C. Decreased acetylcholine
- D. Increased GABA

Answer: B

Rationale: Excess dopamine activity in the mesolimbic pathway contributes to positive symptoms of schizophrenia.

9. In Myasthenia Gravis, the underlying mechanism is:

- A. Demyelination of motor neurons
- B. Autoantibodies against acetylcholine receptors
- C. Loss of dopaminergic neurons
- D. Destruction of upper motor neurons

Answer: B

Rationale: MG is caused by autoimmune antibodies that block or destroy acetylcholine receptors at the neuromuscular junction.

Brain Pathologies

10. A patient reports sudden, severe unilateral periorbital pain with lacrimation and nasal congestion lasting about 45 minutes. The most likely diagnosis is:

- A. Migraine headache
- B. Cluster headache
- C. Tension headache
- D. Sinusitis

Answer: B

Rationale: Cluster headaches are characterized by intense, unilateral pain with autonomic symptoms.

11. Transient ischemic attacks (TIAs) differ from strokes in that:

- A. They result in permanent neurological deficits
- B. They are caused by hemorrhage
- C. Symptoms resolve within 24 hours
- D. They only affect sensory function

Answer: C

Rationale: TIAs are temporary ischemic episodes with complete symptom resolution within 24 hours.

12. Which diagnostic test best confirms a seizure disorder?

- A. MRI
- B. EEG
- C. CT scan
- D. Lumbar puncture