1. All of the following hormones are produced primarily in pancreatic islets EXCEPT:
   a. Gastrin
   b. Glucagon
   c. Insulin
   d. Pancreatic polypeptide
   e. Somatostatin

2. Which of the following statements concerning islet cell function is correct?
   a. Insulin is the initial protein product of pancreatic beta cells
   b. Insulin is co-secreted with glucagon
   c. Insulin and C-peptide are produced in equimolar amounts
   d. Alpha cells are the major source of somatostatin in the pancreas
   e. Delta cells produce pancreatic polypeptide and vasoactive intestinal peptide

3. All of the following enzymes are produced in their active forms by the pancreas EXCEPT:
   a. Amylase
   b. Cholesterol esterase
   c. Lipase
   d. Ribonuclease
   e. Trypsin

4. Which of the following statements concerning pancreatic exocrine function is correct?
   a. Amylase is activated in the duodenum by the action of gastric acid and trypsin
   b. Exocrine secretion produces 8-10 liters of pancreatic juice daily
   c. Gastric acid is critical in inactivation of pancreatic enzymes
   d. Pancreatic bicarbonate production is critical to the digestive process
   e. The amount of amylase and lipase in pancreatic secretions is about 100 times plasma levels

5. Which of the following statements concerning hypoglycemia and insulinoma is correct?
   a. Hypoglycemia is most commonly due to insulinoma.
   b. Insulinoma is typically a highly aggressive tumor, with early metastasis to the liver and lungs.
   c. Insulinoma can be distinguished from sulfonylurea ingestion because C-peptide is increased only in the former
   d. Insulin injection is not associated with elevated C-peptide.
   e. Ratio of insulin to glucose > 20 suggests that excess insulin is the cause of hypoglycemia.

6. Which of the following statements concerning islet cell tumors is INCORRECT?
   a. Gastrin production in excess (Zollinger-Ellison syndrome) is usually caused by an islet cell tumor of the pancreas
   b. Glucagonoma usually presents with hyperglycemia, weight loss, and skin rash
   c. PPomas usually present with watery diarrhea and weight loss
   d. Somatostatinomas are usually large, malignat tumors with minimal or non-specific syndromes
   e. VIPomas are associated with watery diarrhea, hypokalemia, and achlorhydria

7. The most efficient marker for the diagnosis of acute pancreatitis is
a. Amylase in serum
b. Amylase in urine
c. Lipase
d. Pancreatic amylase isoenzyme
e. Trypsinogen (immunoreactive trypsin)

8. Which of the following statements concerning tests of acute pancreatic injury is correct?
   a. Amylase and lipase are highly specific for pancreatitis, but not very sensitive
   b. Elevation of both amylase and lipase to more than 5 times upper reference limits with rise and fall over 48 hours is highly suggestive of pancreatitis
   c. Lipase will generally return to normal earlier than amylase because of its shorter half-life
   d. Renal insufficiency is associated with reductions in both amylase and lipase
   e. With optimized lipase assays, lipase activity is typically about 1/4th that of amylase

9. Factors associated with a poor prognosis in acute pancreatitis include all of the following EXCEPT:
   a. Amylase over 10 times the upper reference limit
   b. Calcium decrease to less than 80 mg/L (2 mmol/L) over the first 48 hours
   c. Glucose over 2000 mg/dL at the time of admission
   d. Hematocrit decrease over 10% over the first 48 hours
   e. Partial pressure of oxygen < 50 mm Hg over the first 48 hours

10. Causes of increased salivary amylase include all of the following EXCEPT:
    a. Coronary artery bypass surgery
    b. Diabetic ketoacidosis
    c. Ectopic pregnancy
    d. Intestinal ischemia
    e. Mumps

11. The most sensitive test of pancreatic insufficiency is
    a. Amylase
    b. Bicarbonate level in duodenal fluid after secretin administration (secretin test)
    c. Fecal fat excretion
    d. Immunoreactive trypsin in serum
    e. Trypsin catalytic activity in stool

Answer:
1. a (p. 539)
2. c (p. 538)
3. e (p. 540)
4. d (p. 539)
5. d (p. 541)
6. c (p. 541-542)
7. e (p. 543)
8. b (p. 543)
9. a (p. 544)
10. d (p. 544-545)
11. b (p. 546)