**The oral cavity**

1. How are the tongue and teeth used in prehension of food in various species?
2. What are the differences between hypsodont and brachydont teeth?

**Salivary secretions**

1. How is saliva secretion and composition controlled by the parasympathetic system and the hormone secretin?

**Deglutition (swallowing)**

1. The pathway for food and air cross each other. Describe the steps taken to insure that food does not enter the trachea or the nasopharynx.

**The enteric nervous system**

1. Describe the location of the myenteric and submucosal plexuses.
2. What kinds of neurotransmitters are made by neurons of the enteric nervous system?
3. Describe how stretch of a segment of intestine can result in a localized segmental contraction without any input from nerves outside the intestine.

**Autonomic nervous system and the gastrointestinal tract**

1. Describe the location of the presynaptic parasympathetic neurons that affect the intestinal tract.
2. How does the parasympathetic nervous system interact with the enteric nervous system to effect coordinated actions within the intestinal tract?
3. What are the major actions of the sympathetic nervous system on the intestinal tract?

**Smooth muscles of the gastrointestinal tract**

1. How do gap junctions facilitate coordinated contraction of intestinal smooth muscle?
2. Describe the location and function of the three smooth muscles in the gastrointestinal tract.
3. How does parasympathetic stimulation alter slow wave depolarization of smooth muscle Cajal cells so they are more likely to result in an action potential that results in smooth muscle contraction?

**Movement of the bolus down the esophagus**

1. What forces allow a bolus of food to move down the esophagus even if you are standing on your head?
2. Which factors are responsible for opening and closing the lower esophageal sphincter?

**Movement of the bolus through the stomach**

1. Where does contraction of the stomach begin?
2. Why does only a small amount of chyme enter the duodenum with each contraction of the stomach?
3. Describe the neuronal and hormonal factors controlling stomach emptying.

**Erbustion contractions of the stomach and esophagus in monogastric species**

1. What is the role of the conscious brain in an eructation reflex, i.e., how much of the reflex is voluntarily controlled?
### Vomition

1. What is the relationship between the chemoreceptor trigger zone and the vomiting center?
2. Why does the animal preparing to vomit exhibit tachycardia and increased salivation?
3. Why are abdominal muscles involved in the vomition reflex?

### Movement of the bolus through the small intestine

1. What is the difference between a segmental and a peristaltic contraction of the intestine?

### Movement of the bolus through the large intestine

1. Which segments of the colon are innervated by sacral spinal parasympathetic fibers?
2. What is the path of a bolus of food through the horse cecum and colon? Determine the sites most likely to suffer impaction causing colic.

### Defecation

1. Describe the interplay between involuntary control of the internal anal sphincter and voluntary control of the external anal sphincter in allowing an animal to delay defecation.