

## **Digestion System Review Sheet**

- 1. List the 7 sections of the digestive system in order that food will be passed through them.**

The sections involved in digestion are : oral cavity (mouth), pharynx, esophagus, stomach, small intestine, large intestine, rectum.

- 2. Name 6 organs that are considered accessory organs to digestion because no food actually passes through them?**

The liver, gall bladder, pancreas, salivary glands, teeth, tongue.

- 3. How does the tongue aid digestion?**

The tongue traps food and forces it into the throat. Swallowing.

- 4. Summarize the role of enzymes in digestion.**

Enzymes are important in the chemical breakdown of food. Enzymes are used to break down large molecules that are taken in as food into smaller, more manageable molecules that the body can absorb and use.

- 5. Summarize the role of the mouth in digestion.**

The function of the mouth is to form a receptacle for food, to begin mechanical digestion through chewing and to swallow food.

- 6. Summarize the role of teeth in digestion.**

The teeth are used to chew food and to begin mechanical digestion which increases the surface area of the food.

- 7. What specifically does chewing accomplish?**

Chewing breaks large particles of food into smaller pieces thus increasing the surface allowing for the digestive enzymes to begin operations. Also the mechanical digestion allows food to be swallowed with ease.

- 8. Where is the epiglottis located and what function does it perform?**

The epiglottis is the flap of cartilage lying behind the tongue and in front of the entrance to the larynx. During swallowing, it folds back to cover the entrance to the larynx, preventing food and drink from entering the wind pipe.

- 9. Where is the uvula located and what function does it perform?**

The uvula is the hanging ball at the back of your throat. It plugs your nasal cavity when you swallow so that nothing (particularly liquids) enters that cavity.

- 10. Summarize the role of the esophagus in digestion.**

It is a muscular tube which moves the food and liquid from the mouth to the stomach.

- 11. What is peristalsis?**

Powerful waves of muscle contractions passing through the walls of the esophagus (and the entire GI Tract) that forced food downward to the stomach.

- 12. Describe the 4 major functions of the stomach.**

The stomach is used: as a storage bin, holding a meal in the upper portion and releasing it a little at a time into the lower portion for processing; a food mixer, the strong muscles contract and mash the food into a sticky, slushy mass; a sterilizing system, where there cells in the stomach produce an acid which kills germs; a digestive tub, the stomach produces digestive fluid which splits and cracks the chemicals (mainly proteins) in food to be distributed as fuel for the body.

- 13. What is the pH in the stomach and what chemical maintains the pH?**

The stomach is quite acidic (pH 2 – 3), due to the presence of HCl (hydrochloric acid).

**14. Where is the gall bladder located and what function does it perform?**

The gall bladder is situated just below the liver and is attached to the liver by tissues. It stores bile, concentrates bile, and then releases it when food passes from the stomach to the duodenum to help in the process of digestion. The bile disperses the fats in the food into liquid.

**15. What is an emulsifier?**

An emulsifier breaks up large fat globs into smaller fat droplets.

**16. What do bile salts do?**

Bile salts digest fats by acting as an organic emulsifier.

**17. What are the some of the general functions of the liver (besides “chemical conversions”)?**

The liver: detoxifies blood (alteration of ammonia to urea and detoxifies ethyl alcohol in the blood) and acts as a store house for glycogen, vitamin A, B<sub>12</sub>, and D.

**18. What are the 5 “chemical conversions” the liver regulates?**

“Chemical conversions” of the liver are: converts glucose to a storage form of energy called glycogen; produces glucose from sugars, starches, and proteins; breaks down fatty acids; synthesis of triglycerides and cholesterol; and produces plasma proteins necessary for the clotting of blood.

**19. List and describe the role of each of the 3 sections of the small intestine.**

3 parts of the small intestine are : duodenum- receiving area for chemicals and partially digested food from the stomach. Majority of digestion occurs here; jejunum- most of the nutrients are absorbed into the blood; ileum- remaining nutrients are absorbed before moving into the large intestine.

**20. Why is sodium bicarbonate added to the small intestine and where does it come from?**

The enzymes in the small intestine operate best in an alkaline (basic) environment. Thus the pH of the food must be raised when it exits the stomach and heads into the small intestine. This is accomplished by the sodium bicarbonate secreted by the pancreas.

**21. What are the “villi” and why are they so important in absorption of nutrients by the small intestine?**

The “villi” are small finger-like projections that stick out of the walls of the small intestine. They vastly increase the surface area and thus absorptive capability of the small intestine. They bring fresh oxygenated blood and send out nutrient-enriched blood. They sway constantly to stir up liquefied food and remove the nutrients which can be absorbed and then passed through the membranes of the villi into the blood and lymph vessels.

**22. Briefly describe the function of the first half of the large intestine.**

The first half of the colon absorbs fluids and recycles them into the blood stream.

**23. Briefly describe the function of the second half of the large intestine.**

The second half compacts the wastes into feces, secretes mucus which binds the substances and lubricates it to protect the colon and ease its passage.

**24. Where is the rectum located and what functions does it perform?**

The rectum is a short, muscular tube that forms the lowest portion of the large intestine and connects it to the anus. Feces collects here until pressure on the rectal walls cause nerve impulses to pass to the brain, which then send messages to the voluntary muscles in the anus to relax, permitting expulsion.

**25. Give 3 examples of pancreatic secretions describing the role each play in digestion.**

3 pancreatic fluids are: sodium bicarbonate- neutralizes the acidity of the fluids arriving from the stomach raising the pH to about 8; pancreatic amylase- enzyme that breaks down the starch into a mixture of maltose and glucose; pancreatic lipase- enzyme that breaks down ingested fats into a mixture of fatty acids and monoglycerides (enhanced by the detergent effect of bile).

**26. For each of the following indicate where the chemical digestion begins and which enzyme breaks it down.**

**i) carbohydrates**

Chemical digestion begins in the mouth via amylase.

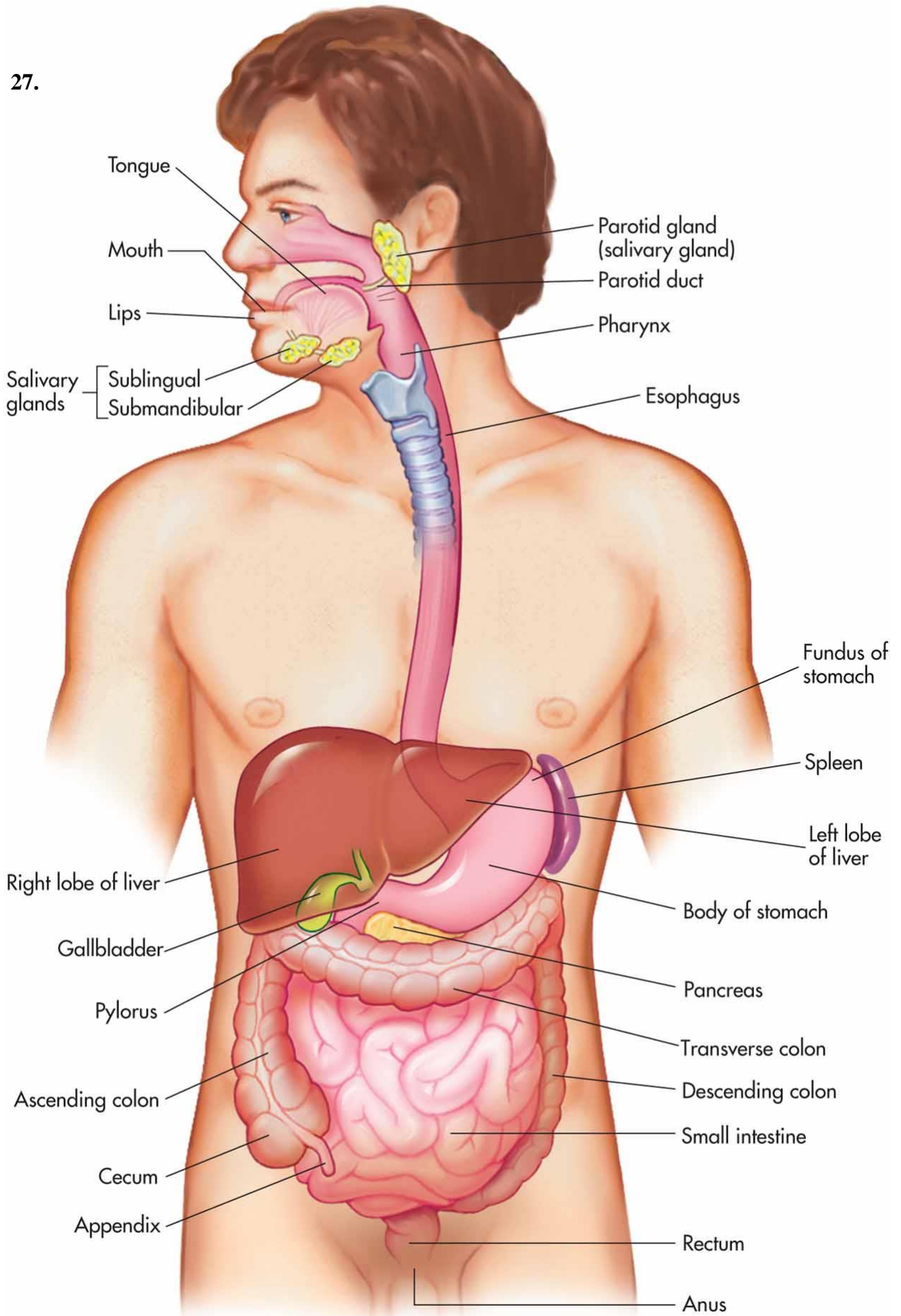
**ii) proteins**

Chemical digestion begins in the stomach via pepsin.

**iii) fat**

Chemical digestion begins in the small intestine via lipase.

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