

A & P 2 –Unit 7 Review & Practice Questions

Mary Stangler Center for Academic Success

This review is meant to highlight basic concepts from unit 7. It does not cover all concepts presented by your instructor. Refer back to your notes, unit objectives, labs, handouts, etc. to further prepare for your exam.

1. Matching: Functions of the respiratory system -meanings of respiration
 - i. _____ Bringing air with O₂ into the lungs
 - ii. _____ $C_6H_{12}O_2+6O_2+36ADP+36Pi \rightarrow 36ATP+6H_2O+6CO_2$
 - iii. _____ Expelling air with CO₂ out of the lungs
 - iv. _____ O₂/CO₂ exchange at alveoli of lungs
 - v. _____ O₂/CO₂ exchange at tissues/capillaries
 - a. Inspiration (inhalation)
 - b. Expiration (exhalation)
 - c. External gas exchange
 - d. Internal gas exchange
 - e. Cellular respiration

2. Matching: Functions and locations of the respiratory epithelia.
 - i. _____ Protects against abrasion.
 - ii. _____ Secretes and propels mucous
 - iii. _____ Allows gas exchange
 - iv. _____ found in nasal vestibule, oropharynx, laryngopharynx
 - v. _____ found in nasal cavity, nasopharynx, respiratory tract
 - vi. _____ found as alveoli of the lungs
 - a. Ciliated Pseudostratified Columnar Epithelium w/Goblet Cells
 - b. Simple squamous epithelium
 - c. Stratified squamous epithelium

3. Why is the lining of the nasopharynx different from that of the oropharynx and the laryngopharynx?

4. Air Flow Through Respiratory Structures – use the following terms to trace the route of airflow from the nose to the alveoli. Alveoli, Bronchi, Bronchioles, Glottis, laryngopharynx, Larynx, Nasopharynx, Nose, Oropharynx, Trachea, Vestibule

5. Matching: Respiratory structures and functions.
 - i. _____ Covers glottis while swallowing
 - ii. _____ Keeps food/drink out of trachea, produces sound
 - iii. _____ Opening to trachea; space between vocal cords
 - iv. _____ Reinforces trachea, keeps it from collapsing
 - v. _____ Warms, humidifies, and cleans the air coming in
 - vi. _____ Beginning of nasal cavity, helps keep debris out
 - vii. _____ transports air from the larynx to the primary bronch
 - viii. _____ Contracts/relaxes to adjust air flow; allows for expansion of the esophagus
 - a. Cartilage
 - b. Epiglottis
 - c. Trachea
 - d. Glottis
 - e. Larynx
 - f. Trachealis Muscle
 - g. Nasal conchae and nasal meatuses
 - h. Vestibule

6. True or False: Bronchi (If false, what would make the statement true?)
- The left primary bronchus is wider and more vertical than the right. T/F
 - There are two left secondary bronchi. T/F
 - The Mucociliary Escalator passes debris up and out of the bronchial tree. T/F
7. If food enters the bronchi, is it more likely to lodge in the left or right bronchus? Why?
8. True or False: Lungs (If false, what would make the statement true?)
- The opening where the main bronchus and blood vessels enter lung is the hilum. T/F
 - The main bronchus and blood vessels enter the lung at the costal surface. T/F
 - The parietal pleura is in direct contact with the surface of each lung. T/F
 - The right lung contains three lobes. T/F
 - The pleural membrane produces surfactant to keep the alveoli from sticking together and collapsing. T/F
 - Type I (squamous) Alveolar Cells make up 95% of the alveolar surface. T/F
 - Type II Alveolar Cells act as macrophages which ride the mucociliary escalator up to be swallowed. T/F
 - Type III Alveolar Cells secrete pulmonary surfactant. T/F
 - The respiratory membrane is made up of the alveolar epithelium, a fused basement membrane, and the capillary endothelium. T/F
9. Gas: Pressure & Volume – Circle the correct choice from the word pair.
- During inhalation the lungs expand and the volume increases, thus the pressure will increase/decrease.
 - During exhalation the volume of the lungs decreases, thus the pressure will increase/decrease.
 - What is a partial pressure?
10. Mechanics of breathing:
- Which muscles are involved in inhalation?
 - Which muscles are involved in forced exhalation?
 - T/F – Inhalation is always an active process.
 - T/F – Exhalation is always an active process.
11. Fill in the blank: Transporting gases in the blood
- Most of the oxygen in the blood is bound to _____ in RBC's.
 - Most of the carbon dioxide in the blood is transported as _____.
 - When CO_2 enters the blood from cells it binds with _____ to make H_2CO_3 . This then dissociates into H^+ + HCO_3^- to be carried in the plasma toward the lungs.
 - When the H^+ and HCO_3^- reach the lungs how do we get rid of CO_2 ? _____
12. True or False: Gas Exchange (If false, what would make the statement true?)
- The normal make up of inspired air is roughly 79% O_2 , 21% N_2 , 0.5% water, and 0.04% CO_2 . T/F
 - The normal make up of air in the alveoli is roughly 75% N_2 , 14% O_2 , 6.2% water, and 5.3% CO_2 . T/F
 - Oxygen moves from the alveoli into the capillaries because the partial pressure of oxygen in the air is greater than the partial pressure of oxygen in the blood. T/F
 - Carbon dioxide moves from the blood into the alveoli because the partial pressure of carbon dioxide in the blood is greater than that of the air in the alveoli. T/F
 - Oxygen moves from the blood into body cells because the partial pressure of oxygen in the cells is greater than the partial pressure of oxygen in the blood. T/F
 - Carbon dioxide moves from the body cells into the blood because the partial pressure of carbon dioxide in the cells is greater than the partial pressure of carbon dioxide in the blood. T/F

13. Fill in the blank: Neural control of breathing:

- i. The areas of the brain that control unconscious breathing are the _____ and the _____.
- ii. The area of the brain that controls voluntary breathing is the _____.
- iii. Normal, quiet breathing is controlled by the _____ Respiratory Group.
- iv. When an increase or decrease in rate and depth of breathing is necessary, the _____ Respiratory Group is employed.

14. Matching: Neural control of breathing

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|---|--|
| <ol style="list-style-type: none">i. _____ In aortic arch/carotid arteries, monitor pH (CO₂) levels of blood, 25% of respiratory rate change.ii. _____ In medulla oblongata, monitor CSF for CO₂ level in blood, 75% of respiratory rate change.iii. _____ In muscles/Joints, when muscles are being worked they send messages to increase respiration rate.iv. _____ In nerve endings amid the epithelial cells of the airways, respond to smoke, dust, fumes, cold air, etc. | <ol style="list-style-type: none">v. _____ In smooth muscles of bronchi and bronchioles, respond to inflation of lungs.

a. Central chemoreceptors
b. Irritant receptors
c. Peripheral chemoreceptors
d. Proprioceptors
e. Stretch receptors |
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15. Matching: Respiratory disorders

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|--|---|
| <ol style="list-style-type: none">i. _____ Blood pH higher than 7.45ii. _____ Blood pH lower than 7.35iii. _____ Lack of pulmonary surfactant produced by fetal alveolar cells.iv. _____ Obstructive disease, alveolar walls break down, loss of respiratory membrane surface area and decrease in gas exchange.v. _____ Obstructive disease, bronchostriction due to airborne irritant that releases histamine.vi. _____ Obstructive disease, inflammation of bronchi, excess mucus.vii. _____ Thickened respiratory membrane caused by bacterial, viral, or fungal infections, decreases gas exchange. | <ol style="list-style-type: none">viii. _____ Thickened respiratory membrane caused by high blood pressure, decreases gas exchange.

a. Acidosis
b. Alkalosis
c. Asthma
d. Bronchitis
e. Hypertension
f. Infant Respiratory Distress Syndrome (Hyaline Membrane Disease)
g. Pneumonia |
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16. Fill in the Blank: Spirometry

- i. Air that always remains in the lungs so the alveoli don't collapse is the _____.
- ii. Air that is exhaled with maximum effort in excess of the tidal volume is the _____.
- iii. Air that is inhaled with maximum effort in excess of the tidal volume is the _____.
- iv. Air that remains in the lungs after maximal expiration is the _____.
- v. Maximum amount of air the lungs can contain is the _____.

- vi. The amount of air that be inhaled and then exhaled with maximum effort is the _____ and is used to measure pulmonary health.
- vii. The maximum amount of air that can be inhaled after a normal tidal expiration is the _____.
- viii. The volume of air inhaled and exhaled in one cycle during quiet breathing is the _____.

17. Fill in the blank: Mechanical vs. chemical digestion: name the stage of digestion.

- i. _____ digestion – physically breaks food down into smaller pieces, ex. teeth chewing, stomach grinding. What is the greater purpose of this?
- ii. _____ digestion – chemical breakdown into to simpler molecules

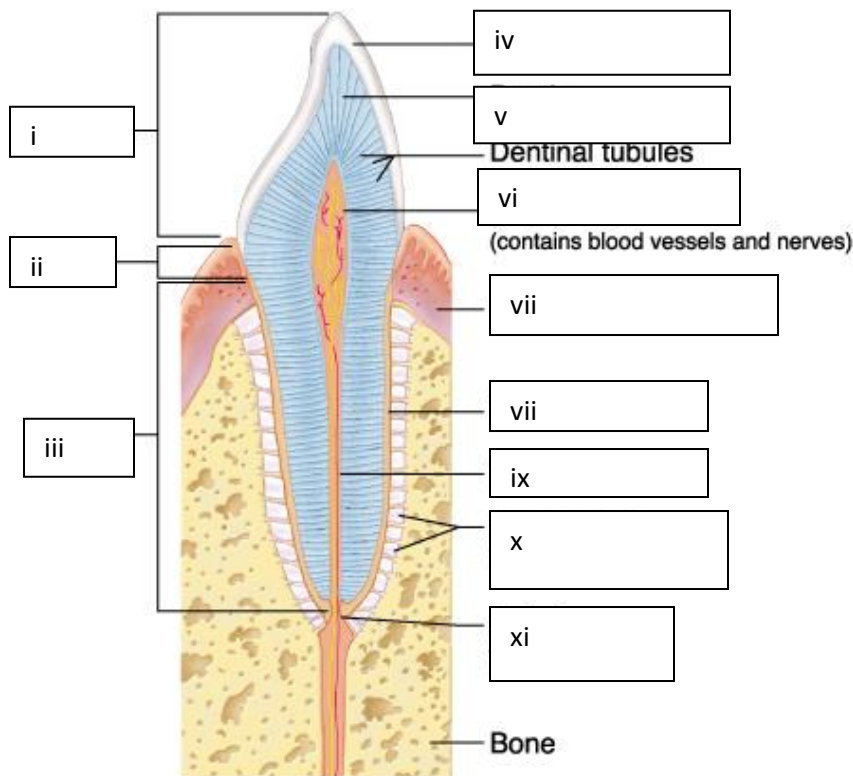
18. Fill in the blanks: Chemical Digestion: reactants and products. Give the product.

- i. Polysaccharides are chemically broken down into _____
- ii. Proteins are chemically broken down into _____
- iii. Fats are chemically broken down into _____

19. Fill in the Blank/Short answer: Structures of the oral cavity.

- i. _____ – projection visible in rear of the mouth, closes off nasal passages during swallowing
- ii. _____ – posterior portion of the mouth, closes off nasal passages during swallowing
- iii. _____ – anterior portion of the mouth, separates mouth from nasal cavity
- iv. _____ - used to manipulate food, contains the taste buds
what type of epithelium lines the oral cavity?
- v. When the soft palate and larynx elevate and the glottis closes what is happening?

20. Label the parts of the tooth:



21. Matching: Types of teeth

- | | |
|--|--------------|
| i. _____ Broad surface for crushing and grinding | a. Canine |
| ii. _____ Broadest surface for crushing and grinding | b. Incisors |
| iii. _____ Chisel-like for biting | c. Molars |
| iv. Pointed for puncturing | d. Premolars |

22. Fill in the blank: Saliva

- Salivary amylase is an enzyme that begins the digestion of _____ before you even finish chewing.
- Lingual lipase is an enzyme that while released in the mouth must be activated by hydrochloric acid in the stomach so that it can start the digestion of _____.
- Mucus binds the food into a _____ and lubricates it for easier swallowing.

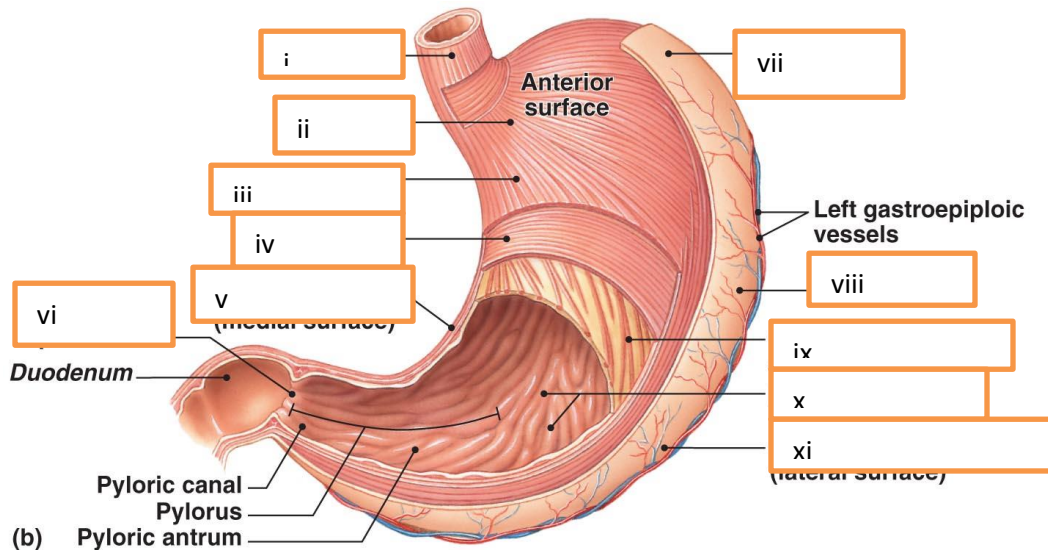
23. Fill in the blank: Structures of Deglutition

- _____ is the muscular funnel that connects the oral cavity to the esophagus.
- _____ is the area where the esophagus pushes through the diaphragm.
- The _____ protects the esophagus from stomach contents backing up into it.

Name the phases of deglutition:

- _____ phase – involuntary, tongue blocks oral cavity, epiglottis protects glottis, pharyngeal constrictors push bolus down to esophagus
- _____ phase –voluntary, tongue is used to push bolus against palate and back toward laryngopharynx
- _____ phase – involuntary, peristalsis pushes bolus down to stomach

24. Gross anatomy of the stomach: Label the parts.



25. Fill in the blank: Microscopic anatomy of the stomach and gastric glands.

- The _____ lines the stomach and is made up of simple columnar glandular epithelium.
- The _____ are depressions in the lining of the stomach containing many glands.

- iii. G cells produce _____ which is a hormone that stimulates parietal cells to produce HCl.
 - iv. In addition to HCl, parietal cells also secrete _____.
 - v. _____ secrete HCl, gastric lipase, and pepsinogen.
 - vi. _____ is needed to convert pepsinogen into pepsin for the digestion of proteins.
 - vii. _____ is needed to convert lingual lipase into gastric lipase for the digestion of lipids.
 - viii. _____ is needed for the absorption of vitamin B12.
26. True or False: Accessory organs to digestion (If false, what would make the statement true?)
- i. The gallbladder produced bile. T/F
 - ii. The function of bile is to chemically digest fats. T/F
 - iii. The gallbladder concentrates and stores excess bile. T/F
 - iv. Pancreatic juice contains sodium bicarbonate to buffer HCl present in the chyme coming from the stomach. T/F
27. Fill in the blank: Pancreatic enzymes
- i. _____ - digests starch to glucose
 - ii. _____ - digests fats to glycerol and fatty acids
 - iii. _____ - is a proenzyme that gets converted to trypsin in the small intestine to digest proteins.
28. True/False: Hormonal control of the pancreas (If false, what would make the statement true?)
- i. High-fat foods raise the level of cholecystokinin. T/F
 - ii. Secretin is secreted by the duodenum if there is acid in chyme. T/F
 - iii. If the small intestines did not produce secretin, the pH of the intestinal contents would be higher than normal. T/F
29. Fill in the blank: Gross Anatomy of the small intestine
- i. _____ - is the first 10 inches of the small intestine, glands produce bicarbonate to neutralize stomach acid, receives chyme, bile, pancreatic juice with enzymes
 - ii. _____ - is the middle 40% of the small intestine, where most digestion and nutrient absorption takes place
 - iii. _____ - is the last 60% of the small intestine, some digestion and nutrient absorption still occurs here, is the site of Peyer's patches (lymphatic nodules)
 - iv. _____ - valve between the small intestine and large intestine.
30. True or False: Microscopic anatomy of the small intestine (If false, what would make the statement true?)
- i. Villi are the only structure that increase the surface area of the small intestine. T/F
 - ii. Each villus contains a blood capillary for the absorption of lipids. T/F
 - iii. Each villus contains a lacteal for the absorption of amino acids and glucose. T/F
 - iv. Lipids can't easily travel in the blood stream because they are not water soluble. T/F
31. Fill in the blank: Gross anatomy of the large intestine
- i. The _____ is the first portion of the large intestine.
 - ii. The _____ part of the large intestine is called the colon.
 - iii. _____ are pouches along the colon that allow for expansion and elongation.
 - iv. The right colic (hepatic) flexure divides the _____ colon from the _____ colon.
 - v. The left colic (splenic) flexure divides the _____ colon from the _____ colon.
 - vi. The _____ is the last section of the large intestine, it stores feces for defecation.
 - vii. The anus contains two sphincter muscles, the _____ is involuntary, the _____ is voluntary.

32. True or False: Large Intestine Functions (If false, what would make the statement true?)

- i. The large intestine absorbs much of the water still in the chyme to produce a more solid feces. T/F
- ii. Bacteria present in the large intestine indicate illness and should be treated with antibiotics. T/F

33. Fill in the blank: Digestive system disorders

- i. _____ - HCl and pepsin erode the gastric mucosa
- ii. _____ - inflammation of the gastric mucosa
- iii. _____ - feces pass through large intestine too quickly when irritated
- iv. _____ - caused by overstretching stomach/duodenum, chemical irritants such as alcohol and toxins, intense pain
- v. _____ - fecal movement is too slow, feces become hardened and compacted as water is reabsorbed