**STUDY BLOCK QUIZ #3 KEY**

1. **C – Maltase is the enzyme produced by duodenal glands that runs a hydrolysis on Maltose to produce two glucose molecules. These glucose can then be absorbed into the capillary bed of a villus.**
2. **D – The gallbladder only stores and releases Bile. It does not make bile.**
3. **A – Trypsin is a protease (breaks proteins into shorter peptide chains) produced and released from the pancreas.**
4. **C- Whether it be Pancreatic amylase or Salivary Amylase, amylase will break starch into maltose molecules only. These maltose (disaccharides) are too large to be absorbed. They must be broken down into glucose by the enzyme maltase in order to be absorbed into the capillary bed of a villus.**
5. **D – Insulin is produced and released from the endocrine glands of the pancreas when blood sugar levels are getting too high. The insulin will direct muscle cells and liver cells to take up excess glucose and bind them together to build the polysaccharide GLYCOGEN.**
6. **C – Amino Acids are the final product of protein digestion. This question was already asked on Quiz #2 – Question #16.**
7. **A – When protein hits the stomach it triggers the gastric endocrine glands to secreted Gastrin Hormone into the bloodstream. This Gastrin will target the Gastric Exocrine glands to produce and release gastric juices into the stomach. In the gastric juice will be Pepsinogen and HCl, this combination will form Pepsin Enzyme to help break down proteins into shorter peptide chains. When the stomach releases acidic chime into the duodenum, the hormone Secretin will trigger the Pancreas to release pancreatic juice. Within the pancreatic juice there is an alkali substance that will neutralize the acidic chyme brining it up to a pH around 8. This will create a pH that will be optimal for all the enzymes found in the pancreatic juice as well as the enzymes coming from the duodenal glands.**
8. **A- The chewing of food in the mouth would be a good example of Physical/Mechanical digestion. No new molecules are formed during Physical digestion.**
9. **D – This is Cellulose. You can tell by its linkage. Plants make this polysaccharide as a structural molecule that is used to build the plant cell wall.**
10. **A – Umbilical arteries are carrying blood AWAY from the babies heart. This blood is heading toward the placenta. This blood would be very low in nutrients and oxygen. This blood will pick up oxygen at the placenta and bring oxygen rich blood back to the baby via the umbilical vein.**
11. **C – The valve that prevents blood from coming back into the Left Ventricle from the aorta is the "Aortic Semi-Lunar" valve.**
12. **D- The chordae tendineae work to prevent the atrioventricular valves from collapsing and accidentally letting blood flow back up into the atria.**
13. **C – The chambers on the right side of the heart receive and pump deoxygenated blood out to the lungs. After blood is oxygenated at the lungs it comes back to the heart via the pulmonary vein. This oxygen-rich blood will then enter the left atrium and then into the left ventricle.**
14. **B – Action potential in the SA node initiates the cardiac cycle by triggering the atria to go into Systole (contraction). This action potential then triggers the AV node to fire an impulse down the Bundles of His and into the Purkinje fibers to trigger the Ventricles to go into Systole (contraction).**
15. **A – Veins will have the lowest blood pressure. Blood pressure continuously drops from the heart back to the heart during its cycle.**
16. **A – Blood leaving these pulmonary capillaries (found around the alveoli) will be fully oxygenated and ready to head back to the left atrium of the heart.**
17. **D – The medulla oblongata measures the blood chemistry levels of H+ and CO2 (in the form of HCO3- ions)**
18. **A – X (arterial duct) is the link between the pulmonary trunk (artery) and the aorta (artery). It allows blood leaving the right ventricle to by-pass the lungs, as the blood is quite rich in oxygen and the lungs are not taking in air (oxygen) when the fetus is in the womb (uterus).**
19. **D – Osmotic pressure (20 mm Hg) is higher than is blood pressure (15 mm Hg), so more fluid move into capillary than is moving out at that location.**
20. **The structure shown but not indicated properly is the Alveoli with the Pulmonary Capillaries shown in Question #16.**

**A – As the diagram illustrates the location of External Respiration. During External Respiration, hemoglobin will take on the perfect shape to grab oxygen to form oxyhemoglobin. The cooler temperature and higher pH will also cause Reduced Hemoglobin (HHb) to drop its H+ ion.**

1. **D – Internal respiration is gas exchange that takes place between tissue fluid and systemic system capillaries.**
2. **B – External occurs between alveoli and pulmonary capillaries.**
3. **A – Larynx at the top of the trachea houses the vocal cords.**