Prior Unit Exam Multiple-Choice Questions

**Note:** Please REFRAIN from printing this off to save paper!

The Circulatory System

1. The blood supply to the muscle tissue of the heart is provided by
   1. Systemic Circulation
   2. Pulmonary Circulation
   3. Coronary Circulation
   4. the Coronary Portal System
2. The serous membrane(s) forming a sac around the heart is/are the
   1. Parietal pericardium
   2. Visceral pericardium
   3. Epicardium
   4. All of the above
3. Blood leaves the left ventricle, moving through a valve to enter the
   1. Pulmonary artery
   2. Pulmonary vein
   3. Superior vena cava
   4. Aorta
4. During the cardiac cycle, the amount of blood remaining in the ventricles when the valves close is the
   1. Stroke Volume (SV)
   2. End-Diastolic Volume (EDV)
   3. End-Systolic Volume (ESV)
   4. Cardiac Output
5. The exchange of substances between body tissues and the blood occurs at
   1. Venules
   2. Arteries
   3. Arterioles
   4. Capillaries
6. The most influential factor on vascular resistance (whether an increase or a decrease) is
   1. blood viscosity
   2. friction between blood cells and vessel walls
   3. blood vessel length
   4. blood vessel diameter

The Lymphatic System and Body Defenses

1. Perforins and protectins are proteins associated with the activity of
   1. T Cells
   2. NK Cells
   3. B Cells
   4. Plasma Cells
2. Inflammation
   1. aids in temporary repair at an injury site
   2. slows the spread of pathogens
   3. facilitates permanent repair
   4. All of the above
3. Which of the following collecting lymph vessels are responsible for returning lymph to the veins of the circulatory system?
   1. Right Thoracic Lymphatic Duct
   2. Left Thoracic Lymphatic Duct
   3. Right Lymphatic Duct
   4. A and C
   5. B and C
4. Compared with non-specific defenses, specific defenses
   1. do not discriminate between one threat and another
   2. are always present at birth
   3. provide protection against threats on an individual basis
   4. deny entrance of pathogens to the body
5. T cells and B cells can be activated only by
   1. pathogenic organisms
   2. interleukins, interferons and colony-stimulating factors
   3. cells infected with viruses, bacterial cells or cancer cells
   4. exposure to a specific antigen at a specific site on a cell membrane
6. Which of the following cells is the most abundant in number?
   1. Eosinophils
   2. Basophils
   3. Neutrophils
   4. Monocytes
   5. Macrophages
7. Which of the following is NOT a lymphocyte?
   1. Helper T Cells
   2. Memory B Cells
   3. Natural Killer Cells
   4. Dendritic Cells
8. Which of the following structures is a PRIMARY lymphatic organ?
   1. Bone Marrow
   2. Thyroid
   3. Spleen
   4. Lymph Nodes
9. Which of the following is NOT considered part of the non-specific defenses?
   1. Immunological Surveillance
   2. Phagocytosis
   3. Interferons
   4. Complement
   5. Humoral Immunity
10. Which of the following cells produces antibodies?
    1. Memory B Cells
    2. Sensitized B Cells
    3. Plasma Cells
    4. Cytokines
11. Receiving a vaccine is an example of what kind of immunity?
    1. Naturally acquired, active immunity
    2. Artificially acquired, active immunity
    3. Naturally acquired, passive immunity
    4. Artificially acquired, passive immunity
12. All of the following are actions of antibodies EXCEPT:
    1. Neutralization of viruses and bacteria
    2. Opsonization
    3. Stimulation of inflammation
    4. Complement protein activation
    5. All of the above are actions of antibodies

The Respiratory System

1. During inhalation/inspiration, the lungs expand and the intrapulmonary pressure
   1. rises to about 761 mmHg.
   2. remains at 760 mmHg.
   3. drops to about 759 mmHg.
   4. does not change.
2. According to Henry's law, if the partial pressure of a gas increases
   1. gas molecules will come out of solution.
   2. more gas molecules will enter solution.
   3. the solubility of the gas will decrease.
   4. the volume of the gas will decrease.
3. Approximately 23% of the carbon dioxide absorbed by the blood will be transported
   1. as bicarbonate ions.
   2. bound to hemoglobin.
   3. in the form of dissolved gas molecules in the plasma.
   4. bound to oxygen molecules.
4. Gas exchange at the respiratory membrane is efficient because
   1. the differences in partial pressure are substantial.
   2. the gases are lipid-soluble.
   3. the total surface area of the alveoli is large.
   4. All of the above
5. For any partial pressure of oxygen, if the concentration of 2,3-disphosphoglycerate (DPG) increases,
   1. the amount of oxygen released by hemoglobin will decrease.
   2. the oxygen levels in hemoglobin will be unaffected.
   3. the amount of oxygen released by hemoglobin will increase.
   4. the amount of carbon dioxide carried by hemoglobin will increase.
6. Which of the following pieces of anatomy does not belong with the conducting system?
   1. Bronchi
   2. Trachea
   3. Nasal Cavity
   4. Bronchioles
7. Which of the following equations calculates vital capacity?
   1. ERV + IRV
   2. Tidal Volume + IRV
   3. Tidal Volume + RV
   4. ERV + Tidal Volume + IRV
8. Surfactant does all of the following EXCEPT:
   1. Increases surface tension of the fluid in the alveoli
   2. Decreases surface tension of the fluid in the alveoli
   3. Helps to facilitate diffusion of lipid-soluble gasses
   4. Allows the lungs to expand during inhalation
   5. A and C
   6. B and D
9. Which of the following words means "not breathing"?
   1. Eupnea
   2. Dyspnea
   3. Hyperpnea
   4. Apnea
   5. Hypoxia

The Digestive System and Metabolism

1. The enzymatic breakdown of large molecules into their basic components is an example of
   1. physical digestion.
   2. chemical secretion.
   3. mechanical digestion.
   4. chemical digestion.
2. The inner most layer (closest to the lumen) for the gastrointestinal tract is the
   1. mucosa
   2. submucosa
   3. serosa
   4. muscularis
   5. mesentery
3. Pepsinogen is secreted in the \_\_\_\_\_\_\_\_\_\_\_ where it is converted to pepsin.
   1. stomach
   2. small intestine
   3. mouth
   4. large intestine
4. Functions of liver include
   1. metabolic regulation
   2. hematological regulation
   3. bile production
   4. A and B
   5. A and C
   6. All of the above
5. The part of the colon that empties into the rectum is the
   1. ascending colon
   2. descending colon
   3. sigmoid colon
   4. transverse colon
6. The formation of glucose from non-carbohydrate substances/substrates is the process of
   1. glycolysis
   2. gluconeogenesis
   3. cellular respiration
   4. oxidative phosphorylation
   5. None of the above
7. Which of the following is the second section of the small intestine?
   1. Ileum
   2. Ilium
   3. Jejunum
   4. Duodenum
8. Glycolysis, the KREB cycle and the electron transport chain together produce \_\_\_\_\_\_\_ ATP.

(HINT: Consider the net ATP produced by each system...then add!)

* 1. 32
  2. 34
  3. 35
  4. 36
  5. 38

1. Which of the following enzymes breaks down triglycerides.
   1. Salivary amylase
   2. Protease
   3. Lingual lipase
   4. Pancreatic amylase

The Urinary System

1. The point of entry for the renal artery and exit for the renal vein and ureter is a medial indentation called the
   1. renal column
   2. medulla
   3. hilus
   4. renal cortex
2. The glomerulus is located within the
   1. renal corpuscle
   2. renal tubule
   3. renal pelvis
   4. renal column
3. Large cells with complex processes, or "feet", that wrap around the glomerular capillaries are
   1. vasa recta
   2. podocytes
   3. astrocytes
   4. mesangial cells
4. After the filtrate leaves the glomerulus, it empties into the
   1. distal convoluted tubule
   2. loop of Henle
   3. proximal convoluted tubule
   4. collecting duct
5. The distal convoluted tubule is an important site for
   1. active secretion of ions
   2. active secretion of acids and other materials
   3. selective reabsorption of sodium ions from the tubular fluid
   4. all of the above
6. The endocrine structure that secretes renin and erythropoietin is the
   1. juxtaglomerular apparatus
   2. vasa recta
   3. Bowman's capsule
   4. adrenal gland
7. The primary purpose of the collecting system is to
   1. transport urine from the bladder to the urethra
   2. selectively reabsorb sodium ions from tubular fluid
   3. transport urine from the renal pelvis to the ureters
   4. make final adjustments to the osmotic concentration and volume of urine
8. The most abundant organic waste in urine is
   1. uric acid
   2. creatinine
   3. urea
   4. creatine phosphate
9. The removal of water and solute molecules from the filtrate after it enters the renal tubules is
   1. filtration
   2. secretion
   3. reabsorption
   4. excretion
10. The force that tends to drive water and solutes into the interstitial fluid is the
    1. glomerular hydrostatic pressure
    2. net hydrostatic pressure
    3. capsular hydrostatic pressure
    4. net colloid osmotic pressure
11. The urinary system regulates blood volume and pressure by
    1. adjusting the volume of water lost in the urine
    2. releasing erythropoietin
    3. releasing renin
    4. all of the above