Anatomy and Physiology Unit Exam: Chapter 37 - 41

**Review Sheet**

**The following review sheet includes most, but not all, of the material that you will see on the Unit Exam. Use your Biology Book, Class Notes, Workbook Pages, previous Review Sheets, and previous Quizzes as primary study tools.**

### Nervous System: Chapter 37
- Know the structure of a neuron, and the path that an impulse travels
  - Dendrites – Cell body – Axon – Axon Terminals - synapse, etc.
  - How do impulses travel from one neuron to the next?
- What occurs at the synapse? (be sure to mention neurotransmitters)
- What’s the difference between sensory and motor neurons?
- What causes a neuron to become depolarized? Repolarized?
- The breakdown of the NS (starting points: Central and Peripheral Nervous System)
- Review the parts of the brain and their functions
- Describe the Reflex Arc.

### Skeletal/Muscular System: Chapter 38
- Identify main functions of the skeletal system?
- What are the three classes of joints in the body?
  - Immovable, slightly movable, and all the freely movable joints (know exact names for freely movables)
- What are the three types of muscle and how are they similar/different? (See Table- In Notes)
  - Nuclei, Striations, Voluntary/Involuntary
- What are osteoclasts? Osteoblasts?
- What is the name of the theory that describes muscle contraction?
- Muscle Contraction. Draw an individual muscle fiber that includes: actin, myosin, and cross bridges. Be able to explain what happens during contraction.
- Be able to distinguish between ligaments and tendons
Integumentary: Chapter 38

- What are the main components of the integumentary system?
- What are some of the main functions of the integumentary system?
- List the three layers of the skin and a brief description of each layer.
- 5 Senses
  - What are the sense organs associated with each? Which are chemical senses?

Nutrition & Digestion: Chapter 39

- What are the six necessary nutrients for the body to function properly?
- What are proteins composed of?
- Define Calorie, and explain the difference between calories and kilocalories.
- How much energy (per gram) is found in protein, carbohydrates, and fat?
- List the organs of the GI tract and their function (see table).
- Location of digestive substances (enzymes/chemicals) and how they aid in digestion.
- Where are most digestive activities completed?
- Location of production/storage of Bile

Respiratory: Chapter 40

- Identify the path that air takes from the external environment, through all of the different passageways of the respiratory system into the circulatory system.
- Trachea is composed of what connective tissue?
- During inhalation/exhalation: know which directions diaphragm moves, volume increase or decrease, and the direction of movement for $O_2$ and $CO_2$.
- At the meeting of the alveoli and the capillaries (blood) which direction does $O_2$ and $CO_2$ diffuse towards, and why?
- Where are the sensory neurons that check the level of gases in blood located?
**Circulatory: Chapter 41**

- Know the path that blood takes
  - From body to Heart
  - Heart to Lungs to Heart
  - Heart to Body

- What are the 3 types of blood vessels?
- What is the protective sac of the Heart?
- What initiates the wave of contraction that spreads over the heart?
- What are the two pathways of circulation?
- What are 2 main structures of the systemic circulation (starting and ending point)?
- How is the pulmonary artery unlike all other arteries?

**Major Functions of Blood**

- What is the importance of capillaries?
- Which blood vessels have valves?
- What component makes up 55% of blood?
- What are RBC/WBC/Platelets
- What is the importance of the Lymphatic System?

**Excretory: Chapter 41**

- The major functional unit of the kidney: Nephron
  - Describe filtration and reabsorption, and locations

- As blood enters the nephron where does it flow?

- How is 99% of the water that is filtered into the Bowman’s Capsules returned to the blood? What is the process called?

- What happens to the rate of water reabsorption in the kidneys when the amount of water in the blood increases?

- Where is urine stored before it leaves the body?
Labeling Practice

- The Human Brain

- The Neuron

- The typical bone
- The Digestive System

- The Respiratory System
• The Human Heart. Identify the components of the heart. Be able to color the deoxygenated blood blue, and oxygenated blood red.

• The Nephron