BIOLOGY 217
HUMAN ANATOMY & PHYSIOLOGY I

EXAM 3 REVIEW SHEET

Material Covered on Exam: Chapters 9-12

For this exam, you will be expected to . . .

- Define joint or articulation.
- Define the following terms: synarthrotic, diarthrotic, and amphiarthrotic.
- Describe the structural and functional classification of joints.
- Describe the general structure of a fibrous joints.
- Give an example of the three types of fibrous joints and determine their functional classification.
- Describe the general structure of a cartilaginous joint.
- Give an example of the two types of cartilaginous joints and determine their functional classification.
- Name and describe the components associated with the general structure of a synovial joint.
- Describe the importance of synovial fluid and discuss its origins.
- Name and describe the common body movements provided by synovial joints such as flexion, extension, abduction, adductions, protraction, retraction, rotation, circumduction, etc.
- Name and provide specific examples of the six types of synovial joints and give an example of each.
- Describe the 4 types of axial movements and give an example of a joint that exhibits each type.
- Name the most common joint injuries and discuss the symptoms associated with each.
- Be able to list the basic characteristics and functions of muscle tissue.
- Be able to compare and contrast the 3 basic types of muscle tissue.
- Describe the gross structure of a skeletal muscle including its arrangement, connective tissue coverings, vascularization, and innervations.
- Describe the microscopic structure and functional roles of the various components of a muscle fiber (cell).
- Describe the design of a sarcomere with relation to the overlapping of actin and myosin fibers.
- Be able to describe the basic components of an actin and myosin myofilament.
- Describe the activity at the neuromuscular junction and the role of Ca+ and neurotransmitters.
- Describe the stimulation of a muscle cell from the resting membrane potential through depolarization, formation and propagation of an action potential, and repolarization.
- Explain the sliding filament theory being sure to discuss the role of Ca+, ADP+P, and ATP.
- Define a muscle twitch and describe the events occurring during its three phases.
- Differentiate between various types of muscle twitches discussed in class.

- Differentiate between isometric and isotonic contractions.
- Briefly describe three ways in which ATP is regenerated during skeletal muscle contraction.
- Define oxygen debt and muscle fatigue.
- Describe the characteristics of the muscle diseases/disorders described in class.
- Describe the function of a prime mover, antagonist, synergist, and fixator.
- List the criteria used in naming muscles and provide an example to illustrate each.
- Name the common patterns of muscle fascicle arrangement and provide an example to illustrate each.
- Name and describe the components of a lever system.
- Differentiate between a lever designed for speed versus power.
- Differentiate between a first class, second class, and third class lever and give an example of each.
- What 4 muscles make up the quadriceps?
- What 3 muscles make up the hamstring?
- What muscles are involved in chewing?
- What muscles are involved in inspiration? Expiration?
- What muscles flex the elbow? What muscles extend the elbow?
- What is the function of the following forearm muscles; extensor carpi ulnaris, flexor carpi ulnaris, flexor carpi radialis, extensor carpi radialis, pronator teres, & palmaris longus.
- What muscles control the voluntary movement of the eyeball?
- What are the 2 main superficial back muscles?
- What is the anatomical name for the calf muscle?
- What 4 muscles are found in the abdominal wall?
- What muscle is responsible for closing the mouth? Closing the eyelids? Sucking and whistling?
- List the basic functions of the nervous system.
- Explain the structural and functional divisions of the nervous system.
- List the types of neuroglia and cite of their functions.
- Define neuron, describe its structural components, and relate each to a functional role.
- Differentiate between a nerve and a tract as well as a nucleus and a ganglion.
- Explain the importance of the myelin sheath and describe how it is formed in the central and peripheral nervous systems.
- Classify neurons both structurally and functionally.
- Define resting membrane potential, depolarization, action potential, and repolarization and describe how each is achieved. Describe the mV associated with each phase.
- Differentiate between a graded potential and an action potential.
- Differentiate between saltatory propagation and continuous propagation of an action potential.
- Differentiate between passive channels versus gated channels as well as their location or distribution on the surface of a neuron, and their functions.

- Define synapse and distinguish between an electrical and chemical synapse both structurally and functionally.
- Define neurotransmitters, discuss their role in nerve impulses and name several classes of neurotransmitter discussed in class.

This study guide covers the majority of information on the exam, but possibly not all of it. You are still responsible for any information that was covered in the notes but not put on this guide (intentionally or unintentionally). Good Luck and Study Hard!!