Biology 48 - Human Physiology
Lecture Summary Sheet - Norris

Nervous System: Organization / Autonomic NS

I. Definitions
   A. Afferent (sensory)
   B. Efferent (motor)
      1. Somatic
      2. Autonomic
   C. Integration

II. Divisions of the Nervous System
   A. Central Nervous System (CNS)
   B. Periperal Nervous System (PNS)

III. Functional Neuronal Circuitry (neuronal pools)
   A. Linear
      - monosynaptic reflex (i.e. patellar tendon reflex)
   B. Convergent / Divergent
      - polysynaptic reflex (i.e. crossed extensor reflex)
   C. Inhibitory
   D. Parallel
      - lateral inhibition
   E. Reverberating

IV. Divisions of the Peripheral Nervous System (PNS)
   A. Afferent (Sensory)
      1. General
         a. Cutaneous
         b. Visceral
         c. Proprioceptive
      2. Special Senses
   B. Efferent (Motor)
      1. Somatic
      2. Autonomic (ANS)
         a. Sympathetic (SNS)
         b. Parasympathetic (PNS)

V. Autonomic Nervous System (ANS)
   A. Characteristics
   B. Structure
   C. Divisions
      1. Sympathetic (SNS)
         a. Structure (thoracolumbar division)
         b. Actions - "Fight-or-Flight" response
      2. Parasympathetic (PNS)
         a. Structure (craniosacral division)
         b. Actions - energy conservation
VII. Additional Key Terms

Adrenergic agonist antagonist catacholamine cholinergic ganglia
lytic mimetic muscarinic nucleus postsynaptic
presynaptic tone tract
Study Questions – Nervous System: Organization/ANS:

1. Describe the different divisions of the peripheral nervous system (aka afferent & efferent).
2. Define “integration”.
3. Where does integration occur (in terms of gross anatomy and in terms of cellular neuroanatomy)?
4. Describe the different ways neurons can be interconnected to produce simple neural circuits.
5. Draw and label an illustration of a simple monosynaptic reflex arc identifying all of the neuron types.
6. Draw and label an illustration of a polysynaptic reflex arc identifying all of the neuron types.
7. Draw and label a schematic illustration representing the divisions of the peripheral nervous system identifying the CNS origins/termination, number of neurons, types of neurons and presence of myelination.
8. Describe the structural and functional characteristics of the somatic division of the nervous system.
9. Describe the structural and functional characteristics of the autonomic division of the nervous system.
10. Compare and contrast the somatic and autonomic divisions of the nervous system.
11. Compare and contrast the sympathetic and parasympathetic divisions of the autonomic nervous system.
12. Draw and label a schematic illustration representing the divisions of the autonomic nervous system identifying the CNS origins, number and type of neurons, presence of myelination, peripheral ganglia, and neurotransmitter and receptor types associated with each synapse.
13. Define the following terms: adrenergic, catecholamine, catecholaminergic, cholinergic, lytic, mimetic, muscarinic, nicotinic