

HSS 307: Human Physiology

Quiz 1 ANSWER KEY: CORRECT ANSWERS IN RED, EXPLANATIONS IN PARENTHESES)

NOTE: THERE ARE THREE VERSIONS OF THIS QUIZ. EACH DIFFERS ONLY BY ORDER OF ITEMS AND/OR RESPONSES.

Name _____

Please circle the correct response(s). There may be 0-4 correct responses for each item.

1. Regarding total body water:
 - a. The human body contains more intracellular fluid than extracellular fluid (FIG.1.5f; 28 L IC FLUID VS. 14 L EC FLUID)
 - b. Interstitial fluid accounts for about $\frac{1}{4}$ of one's total body weight (P.8 AND FIG. 1.5f; ISF ACCOUNTS FOR THE ABOUT $\frac{1}{4}$ OF TOTAL BODY WATER, NOT TOTAL BODY WEIGHT)
 - c. 100% of it is contained only in the internal environment (FIG.1.5a; THAT'S THE DEFINITION OF TOTAL BODY WATER)
 - d. Water in the kidney tubules is considered interstitial fluid (FIG.1.5e; IT IS PART OF THE EXTERNAL ENVIRONMENT AND, THEREFORE, CANNOT BE INTERSTITIAL)

2. A neuron at rest:
 - a. Is at equilibrium potential for both sodium and potassium (P.178; NEVER REACHES THE EQUILIBRIUM POTENTIAL FOR EITHER)
 - b. Is in steady state for sodium/potassium exchange (FIG.7.8d; ALMOST VERBATIM)
 - c. Has a much stronger electrochemical force for sodium than potassium (P.178; ALMOST VERBATIM, DUE TO THE CHEMICAL AND ELECTRICAL FORCES FAVORING MOVING INSIDE THE CELL)
 - d. Or in either of its refractory periods, has certain sodium and potassium channels that are always open (TABLE 7.3; THESE ARE THROUGH LEAK CHANNELS, WHICH ARE ALWAYS OPEN, NO MATTER WHAT)

3. EPSP'S:
 - a. Unlike action potentials, can depolarize the membrane potential (FIG.8.8 AND 7.13; BOTH DEPolarize)
 - b. Are produced primarily via leak channels (TABLE 7.2; EPSP'S ARE GRADED POTENTIALS WHICH ARE LIGAND-GATED OR MECHANICALLY GATED CHANNELS)
 - c. Unlike IPSP's, are always preceded by action potentials from the pre-synaptic neurons (FIG.8.2b AND P.200; BOTH REQUIRE AN ACTION POTENTIAL IN THE PRESYNAPTIC NEURON)
 - d. Can occur in the postsynaptic neuron as a result of neurotransmitters from the presynaptic neuron of an axoaxonic synapse (P.206; THERE ARE NO ELECTRICAL SIGNALS, EPSP'S OR ANY OTHER TYPE OF GRADED POTENTIAL, GENERATED UNDER THESE CONDITIONS)