**ATTENTION STUDENT**: If you are found to have plagiarized any part of your PsychSim assignment, you will receive a 0 for the assignment and may be formally reported to KPU. If you wish to quote the source provided or any other webpage, you MUST cite the source using APA formatting. To avoid plagiarism, write all answers **in your own words**.

For more information on plagiarism and cheating, please visit <https://libguides.kpu.ca/academicintegrity/plagiarism> to study the videos and tutorials available.

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**Name this file using the following format:**

**LastnameFirstname\_Section\_AssignmentName**

For example: SmithJohn\_A54\_AuditorySystem

**PsychSim Online: Neural Messages**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student ID: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Course/Section: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Instructor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Neuron Anatomy**

Watch this video: <https://www.khanacademy.org/science/biology/human-biology/neuron-nervous-system/v/anatomy-of-a-neuron>

Match the part of the neuron identified with its description:

* \_\_\_ Axon A. Contains the nucleus, which controls the

function of the entire cell

* \_\_\_ Axon terminals B. Make up the myelin sheath in the peripheral nervous

system

* \_\_\_ Cell body (soma) C. Receive signals from other nerve cells
* \_\_\_ Dendrites D. Spaces between myelin sheath on the axon
* \_\_\_ Schwann cells E. Carry signals towards other nerve cells
* \_\_\_ Nodes of Ranvier F. Make connections to target cells

**Action Potentials**

Watch this video: <https://www.youtube.com/watch?v=OZG8M_ldA1M>

Underline or highlight the correct answer for each of the bolded options:

* Sodium is **positive/negative** and is on the **inside/outside** of the resting cell
* Potassium is **positive/negative** and is on the **inside/outside** of the resting cell

Match the number to the activity at each stage of the membrane potential:

1

2

3

4

5

6

7

1. \_\_\_\_\_ A. Hyperpolarization; potassium continues to leave the cell
2. \_\_\_\_\_ B. Sodium channels open and sodium enters the cell
3. \_\_\_\_\_ C. Refractory period; Sodium-potassium pump resets the sodium

 and potassium levels

1. \_\_\_\_\_ D. Resting potential
2. \_\_\_\_\_ E. Repolarization; potassium channels are open, potassium leaves

 the cell

1. \_\_\_\_\_ F. Resting potential
2. \_\_\_\_\_ G. Depolarization; sodium stops entering the cell

***In your own words***, describe what happens when an axon is coated in a myelin sheath?

**Membrane Permeability**

Watch this video: <https://www.youtube.com/watch?v=dPKvHrD1eS4>

**True or False**

For each of the following questions, indicate whether they are true or false. If they are false, rewrite the statement below it to make it correct.

1. A cell’s membrane is selectively permeable, which means they do not allow ANY materials to enter the cell.
2. Active transport does not require any energy because things are actively moving through the membrane, whereas passive transport does require energy.
3. “Hypertonic” means the concentration inside the cell is greater than the concentration outside the cell, and “hypotonic” means concentration outside the cell is greater than the concentration inside cell.
4. Aquaporins are channels that use active transport.

When the concentration of a solvent is the same inside the cell as it is outside the cell, it is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Provide an example of active transport including a description of how it works (**in your own words**).

Provide an example of passive transport, including a description of how it works (**in your own words**).

Briefly describe the is the structure and function of a vesicle (**in your own words**).