**Review Worksheet: Action Potentials Name: ……………………………………………………………..**

*Do these questions, using your learning resources. Look at the “marks” to give you an idea of the level of detail required in the response (formative only – does not count towards your grade). At the end, mark your work, correct it, and fill in the reflection section. Questions marked \* require you to use reasoning, inferring and application of knowledge, or perhaps extra research to get the answer. It won’t be right there in the text.*

1: What is the role of the Na+/K+ pump in the neuron cell membrane?

(4.5 marks)

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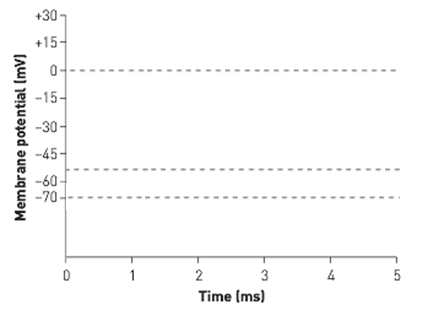
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2: What is the resting membrane potential of the neuron cell membrane?

(1 mark)

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3: On the graph, show what the change in membrane potential would look like if the threshold was not reached.\*

 (1 mark)

4: What is the depolarisation threshold at which an AP will be triggered?

(1 mark)

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5: If each individual neuron is an “all or nothing” response, why does it hurt more when we drop a hammer on our foot compared to a slice of bread?

(5 marks)

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6: At the end of repolarisation, the membrane potential is briefly at -70mV, the same as the resting membrane potential. What is different about the distribution of ions at this point compared to when the membrane is at rest?

(4 marks)

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7: What happens to return the neuron to resting membrane potential (RMP) after hyperpolarisation?

(4 marks)

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8: Fill in the following table showing what is happening to membrane channels, ion movement and the membrane potential at each stage of an AP.

(14 marks)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Membrane channel activity** | **Ion movement** | **Membrane potential** |
| **Resting Membrane Potential (RMP)** |  |  |  |
| **Depolarisation** |  |  |  |
| **Repolarisation** |  |  |  |
| **Hyperpolarisation** |  |  |  |
| **Return to RMP** |  |  |  |

9: Explain how an AP is propagated and moves along and unmyelinated axon.

(5 marks)

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10: Explain how an AP is propagated and moves down a myelinated axon.

(5 marks)

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11: List two advantages of an axon being myelinated.

(2 marks)

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12: Explain why an AP can travel only in one direction along a nerve cell membrane.

(7 marks)

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13: What effect does axon diameter have on the speed of nerve transmission?

(1 mark)

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Go back and mark your work using the marking key provided. What score did you get? /54.5

*I included enough detail in my answers.*



*I was able to find information in the text/powerpoint presentation.*

*I was able to reason and infer where the information wasn’t directly in the text (questions with \*).*

*I marked my work and wrote down any answers where I missed marks.*