10 During the course of an action potential, the potential difference across a neurone membrane changes.

Table 10.1 shows the potential difference across the neurone membrane at three sequential time points, **X**, **Y** and **Z**, just before and during an action potential.

Table 10.1

time point	**potential difference / mV**
X	–70
Y	+40
Z	–90

(a) Describe the events that cause each of the potential differences at points **X**, **Y** and **Z**.

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(b) Suggest how one action potential causes an action potential in an adjacent section of the axon of an unmyelinated neurone.

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(c) Vertebrate animals generally have a myelin sheath around the axons of motor neurones.

Explain why the presence of a myelin sheath around a motor neurone axon is an advantage.

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