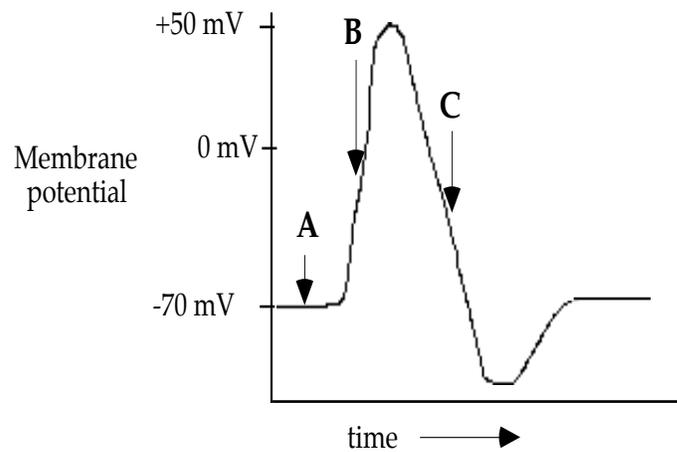


Solutions to: 7.012 Neurobiology Section Problem

Shown below is a plot of an action potential at a single point on an axon.

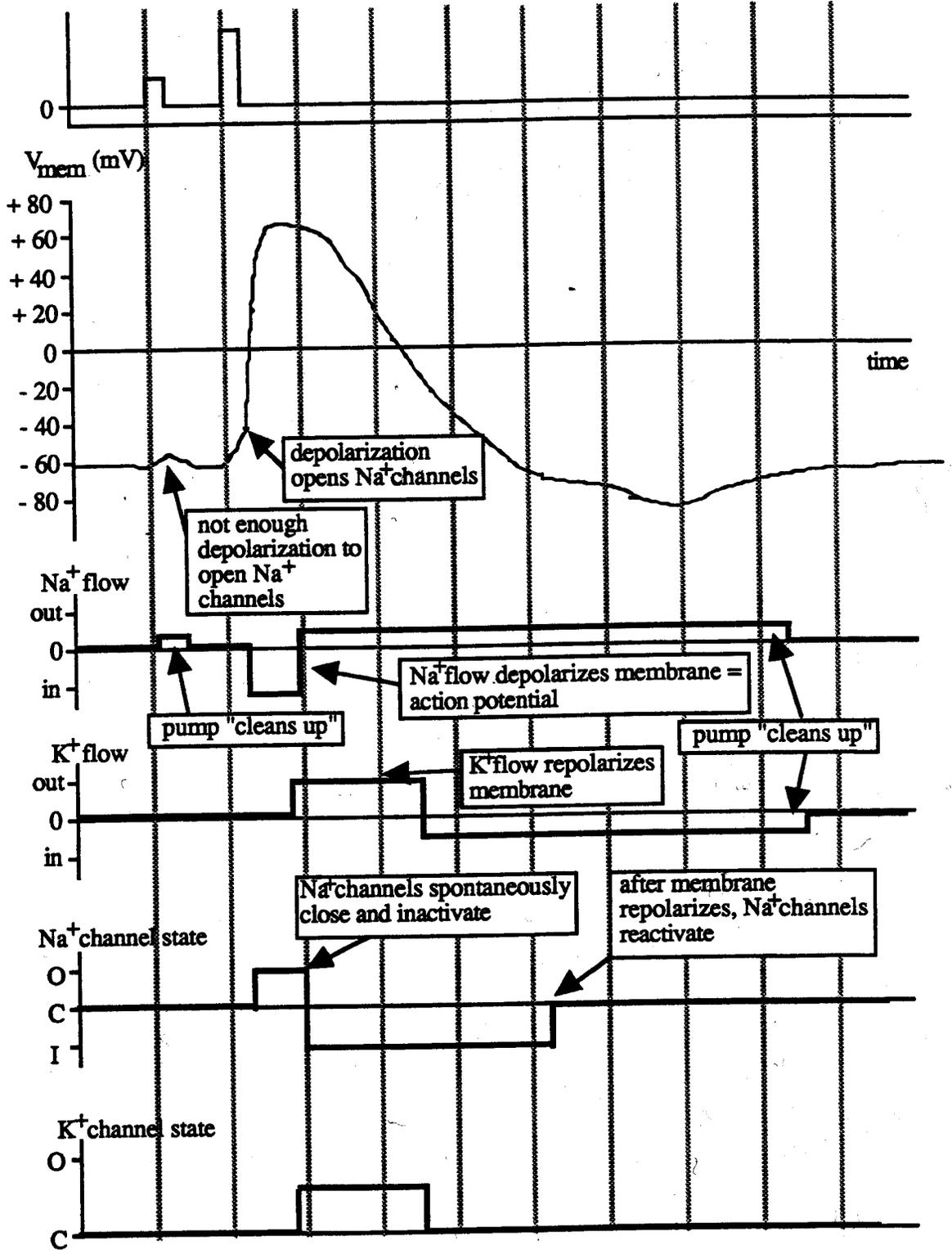


Fill in the table below, for each of the three timepoints (A, B and C) indicated by the arrows in the diagram above.

	Time Point		
	A	B	C
Na⁺ voltage-sensitive channel status (Inactivated, Closed, or Open)	Closed	Open	Inactivated
K⁺ voltage-sensitive channel status (Inactivated, Closed, or Open)	Closed	Closed	Open
Na⁺ flow through Na⁺ voltage-sensitive channels (In, None, or Out)	None	In	None
K⁺ flow through K⁺ voltage-sensitive channels (In, None, or Out)	None	None	Out

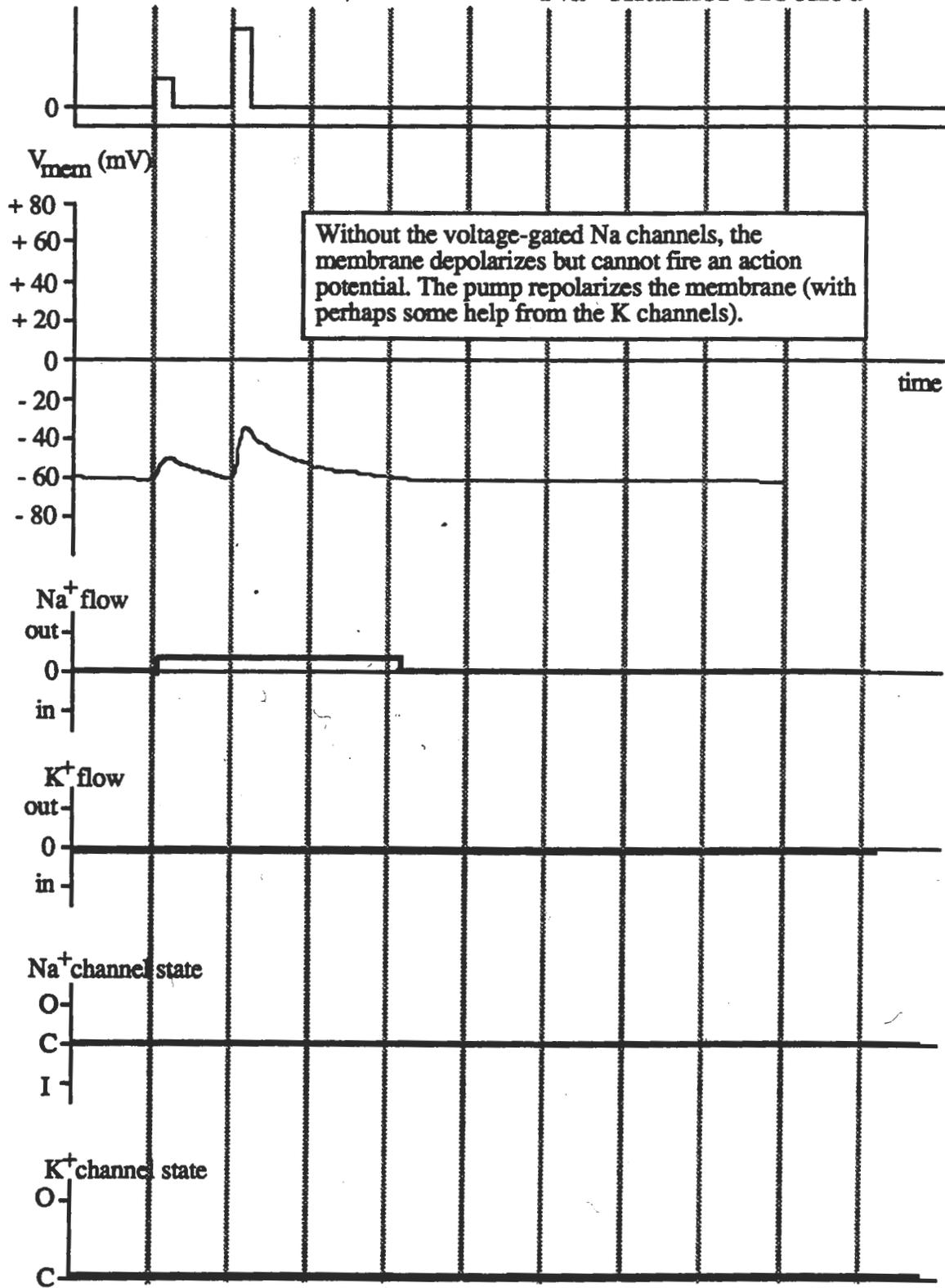
Solutions:

a) Na^+ injection into neuron



b) Na⁺ injection into neuron

Na⁺ channel blocked



c) Na^+ injection into neuron

K^+ channel blocked

