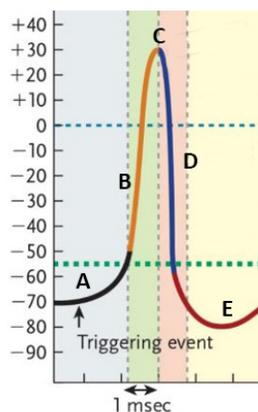


Action Potentials and Graded Potentials

Read Chapter 15.3

Fill in the blanks

- At resting membrane potential, sodium ions are in higher concentration (inside/ outside) _____ of the cell.
- The resting membrane potential charge inside a cell is _____ mV.
- In a resting cell, if a chloride channel opened, the Cl^- ions would move (in/ out) _____.
- Match the definition with the correct process: **depolarization, repolarization, hyperpolarization**
 - When the charge inside the cell is more negative than the resting membrane potential _____
 - When the charge inside the cell becomes more positive _____
 - When the charge inside the cell is positive but then becomes negative _____
- A _____-gated ion channel opens because of a change in the charge of the cell membrane.
- A _____-gated ion channel opens if a neurotransmitter binds to it.
- The (pre/ post) _____ synaptic neuron releases neurotransmitters onto the (pre/ post) _____ synaptic neuron.
- A stimulus must cause the axon hillock membrane to reach a charge of approximately _____ mV to reach threshold level.
- _____ ions are moving (in/ out) _____ during depolarization.
- _____ ions are moving (in/ out) _____ during repolarization.
- In the following diagram, which section is the depolarization phase? _____



12. Action potentials are (faster/ slower) _____ in myelinated axons.
13. The propagation of action potentials in myelinated axons is called _____ conduction.
14. The absolute refractory period occurs because of the _____ gate.
15. Another action potential could occur with a strong stimulus during the _____ refractory period.
16. In the axon terminal, calcium channels are (voltage/ chemically) _____ gated.
17. In the axon terminal, calcium moves (in/ out) _____.
18. Neurotransmitters are released by a process called _____.
19. If the postsynaptic neuron became more negatively charged due to the binding of a neurotransmitter, the postsynaptic cell would be (polarized, hyperpolarized, depolarized) _____.
20. If chloride ions moved into the postsynaptic cell, it would cause an (EPSP/ IPSP) _____.
21. If sodium ions moved into the postsynaptic cell, it would cause an (EPSP/ IPSP) _____.
22. State if the following are true or false.
 - a. Action potentials have a threshold level _____
 - b. Graded potentials do not have refractory periods _____
 - c. Action potentials occur because of chemically-gated ion channels in the axon _____
 - d. Graded potentials can only be excitatory _____
 - e. Action potentials are 'all or nothing' _____