

# Report

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*Course* PHSI2X05 - Integrated Physiology A  
*Lesson* Electrophysiology of the Nerve – Pre-Practical  
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## Quiz Questions

1. Increased membrane permeability to which ion is responsible for depolarisation of the membrane?

- ☐ Potassium
- ☒ Sodium
- ☐ Chloride

2. Increased membrane permeability to which ion is responsible for repolarisation of the membrane?

- ☒ Potassium
- ☐ Sodium
- ☐ Chloride

3. What happens during an action potential?

- ☐ Cell sodium concentration is changed substantially
- ☐ Cell potassium concentration is changed substantially
- ☒ There are no substantial changes in any cell ion concentrations

4. Which statement is correct regarding the relative refractory period?

- ☐ It occurs before the absolute refractory period.
- ☒ It represents a time during which a stimulus of greater-than-normal intensity is required to elicit a new action potential.
- ☐ It is a time when the voltage-sensitive sodium channels cannot be reactivated under any conditions.

5. How many individual axons does the [sciatic nerve](#) contain?

- ☒ Thousands
- ☐ One
- ☐ Ten

6. Action potentials (APs) are always the same size for a particular axon in a given environment.

- ☒ True
- ☐ False

7. A nerve is made up of dendrites, axons and soma.

- ☐ True
- ☒ False

8. Action potentials within a neuron always travel in the one direction *in vivo*.

- ☒ True
- ☐ False

9. Which is the true statement regarding [conduction velocity](#) measured in the sciatic nerve?

- ☒ It varies depending upon axon diameter.
- ☐ It is constant for all axons in the nerve.
- ☐ It would not be decreased in the cold.

**10. a)** Referring to the above images, type in the label numbers that best match the terms provided.

Terms	Label numbers (i, ii, iii, iv, v, vi)
Amplitude	iii
Duration	iv
Latency	i
Stimulus artefact	ii
Hyperpolarisation	v
The potential difference between the two electrodes when APs are mainly moving past the second negative electrode	vi

**10. b)** Are the units for the y-axis in the two figures above the same?

- ☒ Yes
- ☐ No

**10. c)** Verify your answer by giving the units.

mV

**11. a)** A compound action potential is a recording of the summation of all electrical activity between two extracellular electrodes.

- ☒ True
- ☐ False

**11. b)** An intracellular recording can be used to measure the transmembrane voltage of a single neuron/axon.

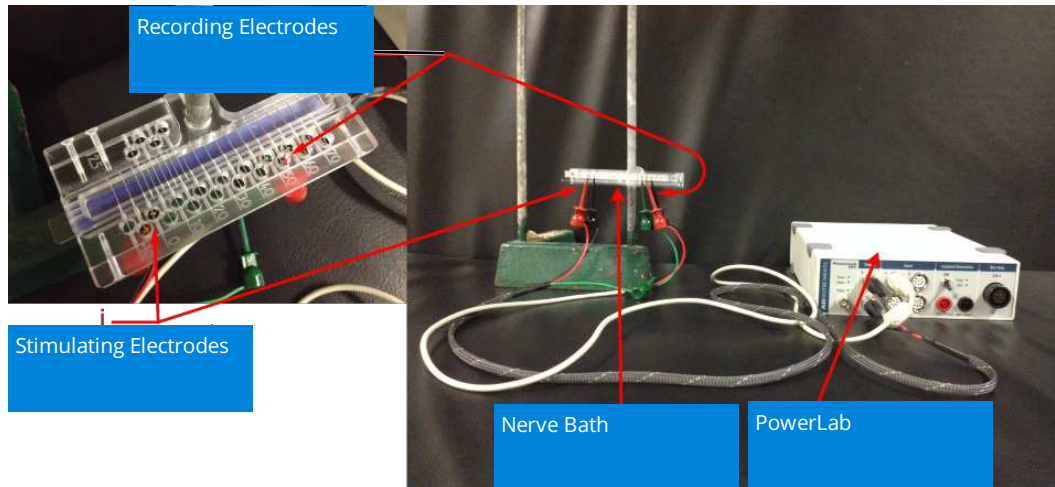
- ☒ True
- ☐ False

11. c) In order to make an extracellular recording from a nerve you need to place one electrode inside the cell and a reference electrode outside.

- ☐ True
- ☒ False

12. Label the practical equipment setup below with the available equipment names.

PowerLab
Nerve Bath
Recording Electrodes
Stimulating Electrodes



## Evaluation

In a few words indicate what you most enjoyed in this Pre-Practical and Quiz:

it was an enlightening experience, you have opened my eyes to a new world.  
was pretty well set out

In a few words indicate what could be improved in this Pre-Practical and Quiz:

more videos less words

