**1.** Membrane proteins are critical components of nerve function.

Which process in nerves does **not** require a membrane protein?

A. Diffusion of neurotransmitter

B. Active transport of sodium

C. Propagation of an action potential

D. Binding of neurotransmitter

(Total 1 mark)

**2.** What substance enters the presynaptic neuron during synaptic transmission and what substance leaves it?

|  |  |  |
| --- | --- | --- |
|  | **Substance entering presynaptic neuron** | **Substance leaving presynaptic neuron** |
| A. | Neurotransmitter | Calcium ions (Ca2+) |
| B. | Neurotransmitter | Sodium ions (Na+) |
| C. | Sodium ions (Na+) | Neurotransmitter |
| D. | Calcium ions (Ca2+) | Neurotransmitter |

(Total 1 mark)

**3.** (a) Identify the labelled parts in the following diagram of two neurons.



(2)

(b) Explain the roles of calcium ions in the following activities:

(i) in the transmission of nerve impulses;

...........................................................................................................................

...........................................................................................................................

...........................................................................................................................

(2)

 (Total 4 marks)

**4.** Explain the principles of synaptic transmission.

(Total 8 marks)

**1.** Membrane proteins are critical components of nerve function.

Which process in nerves does **not** require a membrane protein?

A. Diffusion of neurotransmitter

B. Active transport of sodium

C. Propagation of an action potential

D. Binding of neurotransmitter

(Total 1 mark)

**2.** What substance enters the presynaptic neuron during synaptic transmission and what substance leaves it?

|  |  |  |
| --- | --- | --- |
|  | **Substance entering presynaptic neuron** | **Substance leaving presynaptic neuron** |
| A. | Neurotransmitter | Calcium ions (Ca2+) |
| B. | Neurotransmitter | Sodium ions (Na+) |
| C. | Sodium ions (Na+) | Neurotransmitter |
| D. | Calcium ions (Ca2+) | Neurotransmitter |

(Total 1 mark)

**3.** (a) Identify the labelled parts in the following diagram of two neurons.



(2)

(b) Explain the roles of calcium ions in the following activities:

(i) in the transmission of nerve impulses;

...........................................................................................................................

...........................................................................................................................

...........................................................................................................................

(2)

 (Total 4 marks)

**4.** Explain the principles of synaptic transmission.

(Total 8 marks)