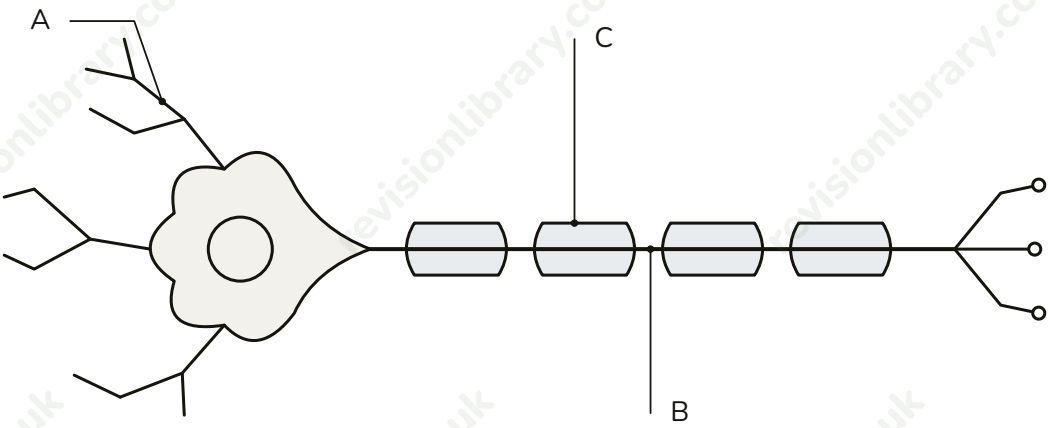
6.3 Neurons and Synaptic Transmission: 10-minute Pack

AQA 7182 · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.



1 Label the neuron diagram: name A, B and C with one-word labels.

(Total for Question 1 is 3 marks)

2 State the function of terminal buttons at the end of an axon in chemical synaptic transmission, in one sentence and in the context of neurotransmitter release.

(Total for Question 2 is 2 marks)

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3 Identify the type of neuron that typically has its cell body located in a dorsal root ganglion and carries information from peripheral receptors to the CNS, naming the neuron type and giving one structural feature that distinguishes it.

(Total for Question 3 is 2 marks)

4 Explain the process of receptor binding on the postsynaptic membrane and how this can produce either excitation or inhibition in the postsynaptic neuron.

(Total for Question 4 is 2 marks)

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Mark scheme · 6.3 Neurons and Synaptic Transmission: 10-minute Pack

Question 1

A labelled as dendrites cao	**B1**
B labelled as axon cao	**B1**
C labelled as myelin sheath cao	**B1**

Answer: A = dendrites. B = axon. C = myelin sheath.

Question 2

states that terminal buttons release neurotransmitter into the synaptic cleft when an action potential arrives cao	**B1**
or states that terminal buttons contain synaptic vesicles which fuse with the membrane to release chemical messengers cao	**B1**

Answer: Terminal buttons contain synaptic vesicles and release neurotransmitter into the synaptic cleft when an action potential arrives.

Question 3

identifies the neuron as a sensory (afferent) neuron cao	**B1**
gives a distinguishing structural feature, e.g. a unipolar/pseudo-unipolar shape or having a peripheral process and a central process with the cell body off to one side oe	**B1**

Answer: Sensory (afferent) neuron. Distinguishing feature: often pseudo-unipolar with a peripheral process from the receptor and a central process into the CNS, with the cell body in a dorsal root ganglion.

Question 4

explains that neurotransmitter molecules bind to specific receptor sites causing ion channels to open or close oe	**M1**
explains that opening channels that admit Na+ causes depolarisation (EPSP) whereas opening channels that admit Cl- or K+ causes hyperpolarisation (IPSP) oe	**A1**

Answer: Neurotransmitter binds to specific postsynaptic receptors, causing ion channels to open or close; if channels open for Na+ this depolarises the membrane producing an EPSP, whereas opening channels for Cl- or K+ hyperpolarises the membrane producing an IPSP.

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