# 5.6 The Biological Approach: Genes, Neurochemistry and Evolutionary Explanations: 10-minute Pack

AQA 7182 · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions.**

**1** Definition of natural selection and example behaviour

**(Total for Question 1 is 4 marks)**

**2** Neuron structure parts and functions

**(Total for Question 2 is 3 marks)**

**3** Definition and basic sequence of synaptic transmission

**(Total for Question 3 is 2 marks)**


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# Mark scheme · 5.6 The Biological Approach: Genes, Neurochemistry and Evolutionary Explanations: 10-minute Pack

## Question 1

| | |
|---|---|
| defines natural selection as the process by which heritable traits that increase survival and reproductive success become more common in a population over generations oe | **M1** |
| states that this operates through differential survival and reproduction of individuals with advantageous traits oe | **A1** |
| gives a clear behavioural example, e.g. fear of snakes aiding survival by avoiding danger oe | **A1** |
| links example to survival or reproduction in a sentence oe | **A1** |

**Answer: Natural selection is the process where heritable traits that improve survival and reproductive success become more common across generations because individuals with those traits leave more offspring. For example, a fear of snakes could have aided survival by reducing dangerous encounters, increasing the chance of living to reproduce.**

## Question 2

| | |
|---|---|
| identifies and states function of one part, e.g. dendrites receive signals from other neurons oe | **B1** |
| identifies and states function of a second part, e.g. cell body / soma contains nucleus and integrates incoming signals oe | **B1** |
| identifies and states function of a third part, e.g. axon/axon terminal conducts impulses away from the cell body and transmits to the next neuron oe | **B1** |

**Answer: Dendrites receive incoming signals; the cell body or soma contains the nucleus and integrates inputs; the axon conducts impulses away from the cell body and axon terminals release neurotransmitter to the next neuron.**

## Question 3

| | |
|---|---|
| defines synaptic transmission as the process by which a signal is passed from one neuron to another across a synapse oe | **B1** |
| states sequence: action potential arrives, neurotransmitter released from presynaptic vesicles, diffuses across cleft, binds to postsynaptic receptors oe | **B1** |

**Answer: Synaptic transmission is the process where an electrical impulse triggers release of neurotransmitter from the presynaptic neuron; the chemical crosses the synaptic cleft and binds to receptors on the postsynaptic neuron, causing a response.**


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