5.6 The Biological Approach: Genes, Neurochemistry and Evolutionary Explanations: Test Pack

AQA 7182 · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions.

1 Definition of the biological approach assumption that behaviour has a physiological basis

(Total for Question 1 is 2 marks)

2 Role of dopamine in behaviour

(Total for Question 2 is 4 marks)

3 Explain how evolutionary natural selection accounts for preference for energy-dense foods

(Total for Question 3 is 6 marks)

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Mark scheme · 5.6 The Biological Approach: Genes, Neurochemistry and Evolutionary Explanations: Test Pack

Question 1

names the assumption, e.g. behaviour has a physiological or biological basis oe	**B1**
explains that behaviour is influenced by biological processes such as genes, neurotransmitters or brain structures rather than only by environment oe	**B1**

Answer: The biological approach assumes behaviour has a physiological basis: behaviour is influenced by biological processes such as genes, neurotransmitters and brain structures rather than only by environmental learning.

Question 2

states that dopamine is a neurotransmitter associated with reward, motivation and motor control oe	**M1**
links high or dysregulated dopamine to behaviours such as addictive behaviour or schizophrenia symptoms oe	**A1**
provides an example, e.g. excess dopamine activity in some brain pathways is associated with positive symptoms of schizophrenia oe	**A1**
or alternative example: dopamine-related reward pathways are implicated in addictive behaviours oe	**A1**

Answer: Dopamine is involved in reward, motivation and motor control. Dysregulated dopamine function is linked to behaviours and conditions such as addiction, where reward pathways are overactive, and to schizophrenia, where excess dopamine activity in certain pathways is associated with positive symptoms.

Question 3

identifies that behaviours that aided survival and reproduction tend to become more common via natural selection oe	**M1**
applies this to energy-dense food preference: such preference would promote survival during food scarcity by providing calories oe	**A1**
explains survival advantage: individuals preferring energy-dense foods would be more likely to survive famines and support offspring oe	**A1**
explains reproductive advantage: better nutrition increases chances of reaching reproductive age and successful offspring rearing oe	**A1**
mentions that advantageous behavioural tendencies are passed on genetically or via interactions with environment, increasing population frequency over generations oe	**A1**
may acknowledge modern mismatch: in current obesogenic environments the same preference can be maladaptive, showing how environment interacts with evolved tendencies oe	**A1**

Answer: Natural selection favours behaviours that improved survival and reproduction. A preference for energy-dense foods would have helped ancestors survive periods of scarcity by encouraging calorie intake, improving chances of surviving to reproductive age and caring for offspring. Over generations, genes associated with such preferences would become more common. In modern environments with abundant high-calorie food the same evolved preference can become maladaptive, showing an interaction with current environment.

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