



Mark Scheme (Results)

Summer 2025

Pearson Edexcel GCE
In Psychology (8PS0/02)
Paper 2: Biological Psychology and Learning
Theories

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Summer 2025

Question Paper Log Number P78776

Publications Code 8PS0_02_2506_MS

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

SECTION A

Question Number	Answer	Mark								
1(a)	A01 (3 marks)	(3)								
	Up to three marks for completing Table 1 with the part of the central nervous system (CNS).									
	(3)									
	<table><tr><th>Definition</th><th>Part of the central nervous system (CNS)</th></tr><tr><td>These can be sensory, motor or relay. They transmit signals to different parts of the body.</td><td>Neuron</td></tr><tr><td>The process by which one neuron / nerve cell communicates with another.</td><td>Synaptic transmission</td></tr><tr><td>These are chemical messengers that support communication within the nervous system (NS).</td><td>Neurotransmitter</td></tr></table>		Definition	Part of the central nervous system (CNS)	These can be sensory, motor or relay. They transmit signals to different parts of the body.	Neuron	The process by which one neuron / nerve cell communicates with another.	Synaptic transmission	These are chemical messengers that support communication within the nervous system (NS).	Neurotransmitter
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The process by which one neuron / nerve cell communicates with another.	Synaptic transmission									
These are chemical messengers that support communication within the nervous system (NS).	Neurotransmitter									

Question Number	Answer	Mark
1(b)	AO1 (2 marks), AO3 (2 marks) One mark for identification of each weakness (AO1). One mark for justification of each weakness (AO3). For example: Weakness one - PET scans usually take place in an artificially controlled environment (1) which lacks ecological validity therefore is likely to be an unrealistic measurement of brain activity that takes place in everyday settings (1). Weakness two - Each PET scans involves exposing participants to an injection of a radioactive glucose tracer which could be dangerous (1) therefore practically limiting the number of times that it can be used with the same participant (1). Look for other reasonable marking points.	(4)

Question Number	Answer	Mark
2(a)	AO2 (2 marks) Up to two marks for a description of how Amari could use a volunteer sampling technique to gather her sample. For example: Amari could put up a poster in her college common room asking for volunteers to complete her investigation into emotional wellbeing and the time of year (1). She would provide details for female students to sign up to the investigation such as a QR code link to the questionnaire (1). Look for other reasonable marking points. Answers must relate to the scenario. Generic answers score 0 marks.	(2)

Question Number	Answer	Mark																																																
2(b)	AO2 (4 marks) <table><tr><th>Emotional wellbeing score in the middle of summer (1-10)</th><th>Rank 1</th><th>Emotional wellbeing score in the middle of winter (1-10)</th><th>Rank 2</th><th>d</th><th>d²</th></tr><tr><td>3</td><td>2.5</td><td>7</td><td>4.5</td><td>-2</td><td>4</td></tr><tr><td>3</td><td>2.5</td><td>6</td><td>3</td><td>-0.5</td><td>0.25</td></tr><tr><td>5</td><td>5</td><td>7</td><td>4.5</td><td>0.5</td><td>0.25</td></tr><tr><td>6</td><td>6</td><td>8</td><td>6</td><td>0</td><td>0</td></tr><tr><td>4</td><td>4</td><td>5</td><td>2</td><td>2</td><td>4</td></tr><tr><td>2</td><td>1</td><td>4</td><td>1</td><td>0</td><td>0</td></tr><tr><td colspan="4"></td><td>Total:</td><td>8.5</td></tr></table> One mark for accurate completion of column d (minus signs can be present or not for the mark). One mark for accurate completion of d². One mark for substituting into equation. $1 - \frac{6 \times 8.5}{6 (36 - 1)}$ One mark for 0.8 (to 1 d.p.) Look for other reasonable marking points.	Emotional wellbeing score in the middle of summer (1-10)	Rank 1	Emotional wellbeing score in the middle of winter (1-10)	Rank 2	d	d ²	3	2.5	7	4.5	-2	4	3	2.5	6	3	-0.5	0.25	5	5	7	4.5	0.5	0.25	6	6	8	6	0	0	4	4	5	2	2	4	2	1	4	1	0	0					Total:	8.5	(4)
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5	5	7	4.5	0.5	0.25																																													
6	6	8	6	0	0																																													
4	4	5	2	2	4																																													
2	1	4	1	0	0																																													
				Total:	8.5																																													

Question Number	Answer	Mark
2(c)	AO2 (2 marks), AO3 (2 marks) One mark for identification of each strength in relation to the scenario (AO2). One mark for justification of each strength (AO3). For example: Strength one - One strength of Amari's investigation is that she used the same emotional wellbeing questionnaire with the same questions with all female participants (1) which would enable Amari to repeat her investigation measuring the relationship between the time of year and emotional wellbeing to test for reliability (1). Strength two - One strength of Amari's investigation is that she gathered quantitative data about emotional wellbeing from the self-report questionnaire which is practically easier to analyse than qualitative data (1) therefore allowing Amari to analyse the data more easily and quickly to see if the time of year did affect emotional wellbeing in her participants (1). Look for other reasonable marking points. Answers must relate to the scenario. Generic answers score 0 marks.	(4)

Question Number	Answer	Mark
2(d)	AO2 (2 marks), AO3 (2 marks) One mark for identification of each improvement in relation to the scenario (AO2). One mark for justification of each improvement (AO3). For example: Improvement one - Amari could have improved her investigation by diversifying her sample to include females from other colleges (1) therefore increasing the representativeness of her findings about the influence of time of year on emotion levels to her target population of females attending college (1). Improvement two - Amari could have improved her investigation by asking whether the participants' friends agree with the emotion ratings they reported (1) which would increase the objectivity of the overall findings as the emotion levels reported are less likely to be biased (1). Look for other reasonable marking points. Answers must relate to the scenario. Generic answers score 0 marks.	(4)

Question Number	Indicative Content	Mark
3	AO1 (4 marks), AO3 (4 marks) For example: Gottesman and Shields (1966) AO1 • 57 sets of twins seen at the Maudsley and Bethlem Royal Joint hospital between 1948-1964 made up the final sample. • There was a higher concordance rate for MZ twins for schizophrenia compared to DZ twins suggesting there may be a genetic link. • The twins zygosity was determined by using blood testing, fingerprint testing and physical resemblance. • A range of methods were used such as hospital records, case histories and semi-structured interviews to establish the mental health of the twins. AO3 • Twin studies such as Gottesman and Shields' (1966) study usually have small sample sizes as twins are not common in the population therefore the findings about schizophrenia may not have been representative of a wider population. • The results can be applied to families with a likelihood of a predisposition to developing schizophrenia and take medical advice to avoid any typical triggers such as drug abuse, high stress professions. • DNA testing is the most accurate way of determining zygosity which was not available in 1966 therefore Gottesman and Shields(1966) may have placed twin participants into the wrong category undermining the reliability of the results. • By using multiple methods to gather data on the mental health of the twins such as the MMPI (Minnesota Multiphasic Personality Inventory) reliability was established as comparisons could be made. Look for other reasonable marking points.	(8)

Level	Mark	Descriptor
A01 (4 marks), A03 (4 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation/conclusion in their answer.		
	0	No rewardable material.
Level 1	1-2 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) A conclusion may be presented, but will be generic and the supporting evidence will be limited. Limited attempt to address the question. (AO3)
Level 2	3-4 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Candidates will produce statements with some development in the form of mostly accurate and relevant factual material, leading to a superficial conclusion being made. (AO3)
Level 3	5-6 Marks	Demonstrates accurate knowledge and understanding. (AO1) Arguments developed using mostly coherent chains of reasoning, leading to a conclusion being presented. Candidates will demonstrate a grasp of competing arguments but evaluation may be imbalanced. (AO3)
Level 4	7-8 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Displays a well-developed and logical evaluation, containing logical chains of reasoning throughout. Demonstrates an awareness of competing arguments, presenting a balanced conclusion. (AO3)

SECTION B

Question Number	Answer	Mark
4(a)	AO1 (3 marks) Up to three marks for a description of the procedure. For example: • Little Albert was initially tested using a variety of objects including a white rat and dog to ensure he was not scared of them (1). From the age of 11 months and three days a white rat was presented to Little Albert whilst at the same time a hammer was struck on a metal bar (1) Little Albert underwent seven pairings of the rat and noise in two sessions, one week apart (1). Look for other reasonable marking points.	(3)

Question Number	Answer	Mark
4 (b)	AO1 (2 marks), AO3 (2 marks) One mark for identification of each weakness (AO1). One mark for justification of each weakness (AO3). For example: Weakness one • Watson and Rayner (1920) Little Albert study lacks generalisability as they used only one infant aged around 11 months, reported to be healthy (1) which is not representative of adults who may be more difficult to condition to fear therefore decreasing population validity (1). Weakness two • Little Albert's response of crying when being presented with the rat whilst a bar was struck behind him may be an artificial measurement of fear (1) as the study was conducted in an unnatural laboratory setting for an 11 month old child therefore ecological validity would be reduced as his behaviour may not have been natural (1). Look for other reasonable marking points.	(4)

Question Number	Answer	Mark
5	AO1 (2 marks), AO3 (2 marks) One mark for identification of each strength (AO1). One mark for justification of each strength (AO3). For example: Strength one • Watson and Rayner (1920) claimed they classically conditioned a phobic response in a boy named Albert which resulted in him fearing various objects (1) therefore supporting classical conditioning theory as a way of explaining a new learned responses (UCS) such as the loud noise being paired with the rat (CS) to create a fear response(CR) which is what the theory suggests (1). Strength two • Classical conditioning theory has led to the development of treatments like systematic desensitisation to treat phobias by pairing the learned response with a non-fearful relaxation technique (1) which is supported by Gilroy et al. (2003) who used systematic desensitisation to treat patients with spider phobias giving the theory credibility (1). Look for other reasonable marking points.	(4)

Question Number	Answer	Mark
6 (a)	AO2 (4 marks) Up to four marks for description of the quantitative and qualitative results of their practical investigation in learning theories. For example: When totalling my tally chart, I found that women were on average 3 times as helpful as males (1). The mean number of times men were helpful was 2.2 compared to 6.6 helpful actions observed women doing (1). From our thematic analysis we found that the most helpful physical behaviour shown by both genders was "door opening" (1). In addition, "thank you" was the most common polite verbal comment made by both males and females when someone opened the door for them (1). Look for other reasonable marking points. Answers must relate to their learning practical investigation. Generic answers score 0 marks.	(4)

Question Number	Answer	Mark
6(b)	AO2 (1 mark), AO3 (1 mark) One mark for an identification of a weakness of their practical investigation (AO2). One mark for justification of the weakness (AO3). For example: One weakness is that I used opportunity sampling and only gathered students who were in the canteen at morning break which lacks generalisability (1) because not all students would have been in the canteen so my results about helpfulness are not representative of all students in the school (1). Look for other reasonable marking points. Answers must relate to their learning practical investigation. Generic answers score 0 marks.	(2)

Question Number	Answer	Mark
6(c)	AO2 (2 marks), AO3 (2 marks) One mark for identification of each strength in relation to their practical investigation (AO2). One mark for justification of each strength (AO3). For example: Strength one • Four of us watched the helpful behaviour of other students in our school canteen at lunch time which has ecological validity (1) as the students were in a realistic setting and so were more likely to behave naturally in performing helpful acts (1). Strength two • Our observations measured different helpful acts such as saying, "thank you" and opening doors which are valid acts the students would do on a daily basis (1) therefore ensuring that the acts being measured have face validity as they are realistic of the normal helpful behaviour that students would do when in the canteen (1). Look for other reasonable marking points. Answers must relate to their learning practical investigation. Generic answers score 0 marks.	(4)

Question Number	Indicative content	Mark
7	AO1 (4 marks), AO2 (4 marks) AO1 • Social learning theory involves an individual admiring a role model and copying the behaviour they display. • Social learning theory involves paying attention to the role model by taking an interest in their behaviour. • Social learning theory suggests that if a person is rewarded, they are more likely to reproduce the learned behaviour and continue to do it in the future as they feel motivated. • Intrinsic self-reinforcement may occur when the learned behaviour makes the individual feel proud or good about what they have done. AO2 • The triplets saw their older sister Brittany as a role model and wanted to imitate her behaviour of putting away the dolls. • Mia had noticed and taken an interest in how her dad put away the toys in the toy cupboard. • Brittany rewarded Mia by saying “well done” when she put her doll into the toy cupboard which externally motivated her to put the rest of her toys away. • Mia smiled when she was told by her older sister that she had done well when she put her doll in the toy cupboard suggesting she was proud with what she had done. Look for other reasonable marking points.	(8)

Level	Mark	Descriptor
A01 (4 marks), A02 (4 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs application in their answer.		
	0	No rewardable material.
Level 1	1-2 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) Provides little or no reference to relevant evidence from the context (scientific ideas, processes, techniques and procedures). (AO2)
Level 2	3-4 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Discussion is partially developed but is imbalanced or superficial occasionally supported through the application of relevant evidence from the context (scientific ideas, processes, techniques and procedures). (AO2)
Level 3	5-6 Marks	Demonstrates accurate knowledge and understanding. (AO1) Arguments developed using mostly coherent chains of reasoning. Candidates will demonstrate a grasp of competing arguments, but discussion may be imbalanced or contain superficial material supported by applying relevant evidence from the context (scientific ideas, processes, techniques and procedures) (AO2)
Level 4	7-8 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Displays a well-developed and logical balanced discussion, containing logical chains of reasoning. Demonstrates a thorough awareness of competing arguments supported throughout by sustained application of relevant evidence from the context (scientific ideas, processes, techniques or procedures). (AO2)

Question Number	Indicative content	Mark
8	AO1 (4 marks), AO2 (4 marks), AO3 (4 marks) AO1 • "Survival of the fittest" means that an organism that is suited to its environment is more likely to survive and reproduce. • Evolution is the impact of how inherited characteristics change throughout generations to aid survival. • Operant conditioning refers to processes of learning through consequences which can involve positive rewards being offered. • Operant conditioning also involves being punished by providing a negative stimulus so unacceptable behaviour is likely to stop. AO2 • To avoid endangering their survival 32 of the visitor's immediately paid attention to the "Danger – footpath closed" sign and followed the alternative safer footpath. • Six visitors, after putting themselves in danger, by attempting to walk on the dangerous footpath were asked to leave the park. • 32 visitors read and followed the instructions given to follow a safer footpath which resulted in a reward at the end. • Six visitors ignored the danger sign and therefore were given a punishment by being asked to leave the park. AO3 • Evolutionary theory is reductionist as it does not consider situational factors such as imitation in explaining human behaviour as found in research suggested by social learning theory. • Kettlewell (1952-1972) suggested support for inherited traits in peppered moths who had evolved to survive in their environment by developing the trait of camouflage to avoid detection from danger. • Skinner (1948) found that if pigeons were positively reinforced with a food reward, they would be more likely to repeat a behaviour, giving operant conditioning credibility as a theory.	(12)

	• Operant conditioning is not the only explanation for learning, classical conditioning suggests people also learn through an association between stimulus and response suggesting operant conditioning cannot explain all behaviour. Look for other reasonable marking points.	
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Level	Mark	Descriptor
AO1 (4 marks), AO2 (4 marks), AO3 (4 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs application vs evaluation/conclusion in their answer.		
	0	No rewardable material.
Level 1	1-3 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) Provides little or no reference to relevant evidence from the context (scientific ideas, processes, techniques & procedures). (AO2) A conclusion may be presented, but will be generic and the supporting evidence will be limited. Limited attempt to address the question. (AO3)
Level 2	4-6 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Line(s) of argument occasionally supported through the application of relevant evidence from the context (scientific ideas, processes, techniques & procedures). (AO2) Candidates will produce statements with some development in the form of mostly accurate and relevant factual material, leading to a superficial conclusion being made. (AO3)
Level 3	7-9 Marks	Demonstrates accurate knowledge and understanding. (AO1) Line(s) of argument supported by applying relevant evidence from the context (scientific ideas, processes, techniques & procedures). Might demonstrate the ability to integrate and synthesise relevant knowledge. (AO2) Arguments developed using mostly coherent chains of reasoning leading to a conclusion being presented. Candidates will demonstrate a grasp of competing arguments but evaluation may be imbalanced. (AO3)
Level 4	10-12 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Line(s) of argument supported throughout by sustained application of relevant evidence from the context (scientific ideas, processes, techniques or procedures). Demonstrates the ability to integrate and synthesise relevant knowledge. (AO2) Displays a well-developed and logical evaluation, containing logical chains of reasoning throughout. Demonstrates an awareness of competing arguments, presenting a balanced conclusion. (AO3)