Mark Scheme (Results)

Summer 2024

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

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General Marking Guidance

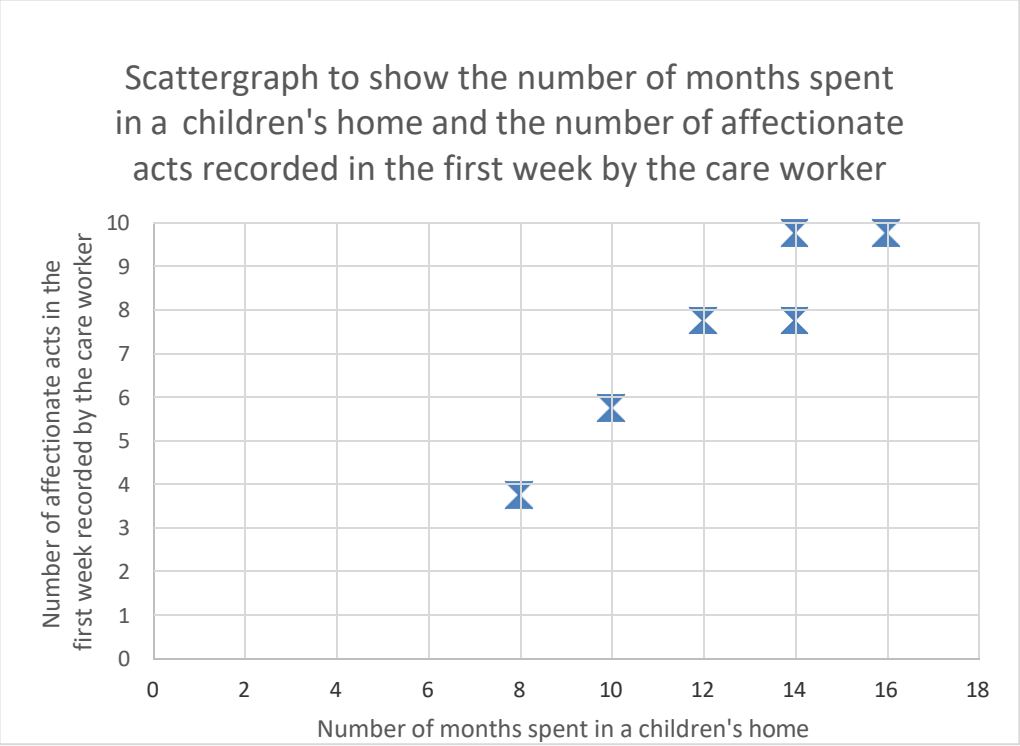
- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should 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)	AO1 (3 marks) Up to three marks for describing how an fMRI scan can be used to investigate the brain. For example: • An fMRI scan measures blood flow in the brain whilst a person is completing a task (1). When a particular area of the brain becomes more active when completing the task there is an increased demand for oxygen (1). The brain responds by increasing blood flow which allows researchers to produce images showing the levels of activity in the brain (1). Look for other reasonable marking points.	(3)

Question Number	Answer	Mark
1(b)	AO1 (2 marks), AO3 (2 marks) One mark for identification of a strength/weakness (AO1). One mark for justification of the strength/weakness (AO3). For example: Strength • fMRI scans are a reliable measurement of blood flow in the brain as they have a good spatial resolution (1) allowing psychologists to understand different brain regions activity with more accuracy than an EEG (1). Weakness • An fMRI does not provide an explanation of actual brain activity as it only measures changes to blood flow in the brain (1) therefore we cannot accurately determine if the blood flow is actually caused by a specific brain function (1). Look for other reasonable marking points.	(4)

Question Number	Answer	Mark
2(a)	AO2 (2 marks) One mark for a partially operationalised hypothesis. Two marks for a fully operationalised hypothesis. For example: • The longer a child stays in a care home the more affectionate acts recorded (1). • The higher the number of months spent in a children's care home (1) the higher the number of affectionate acts recorded in the first week of adoption (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 (3 marks) One mark for correct/appropriate title (see graph below for suitable example) One mark for correct/appropriate labelling of axes (see graph below for suitable example) One mark for correct plots of data points (see graph below for correct plotting  Look for other reasonable marking points.	(3)

Question Number	Answer	Mark
2 (c)	AO2 (1 mark) One mark for stating the type of correlation shown in the graph. For example: • Positive correlation (1). Look for other reasonable marking points.	(1)

Question Number	Answer	Mark
2(d)	AO2 (4 marks)	(4)

Number of months spent in a **children's** care home	Rank 1	Number of affectionate acts recorded in a week	Rank 2	d	d^2
10	2	5	2	0	0
14	4.5	7	3.5	1	1
16	6	9	5.5	0.5	0.25
8	1	3	1	0	0
14	4.5	9	5.5	-1	1
12	3	7	3.5	-0.5	0.25
				Total:	2.5

One mark for accurate completion of column d (minus signs can be present or not for the mark).

One mark for accurate completion of d^2.

One mark for substituting into equation.

$$1 - \frac{6 \times 2.5}{6\,(36 - 1)}$$

One mark for 0.929 (to 3 d.p.) / 0.93 (to 2 d.p.)

Look for other reasonable marking points.

Question Number	Answer	Mark
2(e)	AO2 (1 mark), AO3 (1 mark) One mark for identification of one weakness of using quantitative data (AO2). One mark for justification of the weakness (AO3). For example: • One weakness of using quantitative data on affectionate acts recorded by the care worker is that it has low validity as the data only tells us how many affectionate acts the children had (1) but does not consider what the acts actually were therefore providing an unclear picture of the impact of time the children spent in a children's care home (1). Look for other reasonable marking points. Answers must relate to the scenario. Generic answers score 0 marks.	(2)

Question Number	Answer	Mark
2(f)	AO2 (1 mark), AO3 (1 mark) One mark for identification of an improvement to the sample gathered in relation to the scenario (AO2). One mark for justification of the improvement (AO3). For example: • One improvement that Margaret could make to the sample in her study would be to increase generalisability through using case files of children from other social workers (1) this would ensure examples of children's affectionate acts from different children's care homes to Margaret's can be included making the results representative of all children's care homes (1). Look for other reasonable marking points. Answers must relate to the scenario. Generic answers score 0 marks.	(2)

Question Number	Indicative Content	Mark
3	AO1 (4 marks), AO3 (4 marks) AO1 • Raine et al.'s (1997) study examined the brains of 41 people who pleaded Not Guilty by Reason of Insanity (NGRI) and compared these to 41 controls. • The participants in Raine et al.'s (1997) study were matched for sex, had a mean age of 31.7 years for the control and 34.3 years for the NGRI group who also did not take their medication for a period before the PET scan. • A PET scan was used to measure the brain activity in the four cortical and sub-cortical regions of the participants in Raine's et al.'s (1997) study when completing the continuous performance task (CPT). • Raine et al. (1997) found that those pleading NGRI had less activity in their prefrontal and parietal brain regions compared to the control group. AO3 • The sample of participants charged with murder in Raine's et al.'s (1997) study was a unique representation of the target population, which is only generalisable to those pleading NGRI. • The matched controls used in terms of sex, age, medication indicate that Raine's et al.'s (1997) study was not influenced by these participant variables therefore increasing the validity of the results. • The PET scans in Raine's et al.'s (1997) study measured the brains of participants whilst completing a continuous performance task (CPT) which is unrealistic compared to committing a real-life event such as murder therefore reducing the validity of the scan results to real life. • The findings could be applied to society and used to screen the population in order to identify those who match the NGRI groups brain activity which is seen as a sensitive issue and could be used as a form of negative social control. Look for other reasonable marking points.	(8)

Level	Mark	Descriptor
AO1 (4 marks), AO3 (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	AO1 (2 marks) Up to two marks for a description of behaviour shaping. For example: • Behaviour shaping involves reinforcing behaviours through successive approximations that would not usually occur (1). This happens through step-by- step reinforcement of different behaviours until the desired one is achieved (1). Look for other reasonable marking points.	(2)

Question Number	Answer	Mark
5 (a)	AO2 (4 marks) Up to four marks for description of classical conditioning in relation to Winston's phobia of flying. For example: • The turbulence on the aeroplane produces an unconditioned fear response (1) to the naturally occurring unconditioned stimulus of the storm (1). This has been paired with the neutral stimulus of the aeroplane (1), creating a conditioned stimulus of the aeroplane being associated with a conditioned response of fear (1). Look for other reasonable marking points. Answers must relate to the scenario. Generic answers score 0 marks.	(4)

Question Number	Answer	Mark
5 (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 • Classical conditioning is an incomplete explanation of learning as it can only explain behaviour resulting from a conditioned stimulus-response (1) whereas social learning theory would suggest that learning behaviour involves observing and imitating others and not through a conditioned stimulus-response (1). Weakness two • Classical conditioning suggests that behaviour can only be determined by the environment directly influencing our behavioural outcomes which is reductionist (1) and does not consider that human personalities can be unique in that they have the potential for free will in directing how they behave in different situations (1). Look for other reasonable marking points.	(4)

Question Number	Answer	Mark
6	AO2 (4 marks) Up to four marks for a description of social learning theory in relation to the scenario. For example: • The children observe Mr Peel picking up the litter, who may be their role model as he would have power as their Headteacher (1). The children had the ability to reproduce the litter-picking behaviour as there would have been litter in the playground where they play (1). After observing Mr Peel pick up the litter, the children retained his behaviour, reproducing it on the third day (1). As the caretaker thanks Mr Peel, the children began to pick up litter due to vicarious reinforcement as they wanted to be thanked too (1). Look for other reasonable marking points. Answers must relate to the scenario. Generic answers score 0 marks.	(4)

Question Number	Answer	Mark
7	AO1 (1 mark), AO3 (1 mark) One mark for identification of a strength of systematic desensitisation as a treatment for phobias (AO1) One mark for justification of the strength (AO3) For example: • One strength is that systematic desensitisation has been shown to be an effective therapy in the reduction of fear responses (1) as supported by Capafóns et al (1998), who found that 90% of participants reported a reduction in their fear of flying (1). Look for other reasonable marking points.	(2)

Question Number	Answer	Mark
8(a)	AO2 (1 mark) One mark for identification of the type of observation used by Theresa. For example: • Covert observation of observing the children from out of sight (1). Look for other reasonable marking points.	(1)

Question Number	Answer	Mark
8(b)	AO2 (2 marks), AO3 (2 marks) One mark for identification of each strength/weakness in relation to the scenario (AO2). One mark for justification of each strength/weakness (AO3). For example: Strength • Teresa positioned herself out of sight of the children entering the beach as a covert observer to avoid demand characteristics (1) as her presence beside the different coloured beach sets may have caused the children to select differently or not at all therefore reducing the validity of the results (1). Weakness • One weakness of Teresa's study is that there may be extraneous variables such as the children being colour blind that she could not control (1) resulting in reduced reliability as some children may not select because of colour preference but pick the beach set that is nearest to them (1). Look for other reasonable marking points. Answers must relate to the scenario. Generic answers score 0 marks.	(4)

Question Number	Indicative content	Mark
9	AO1 (4 marks), AO3 (4 marks) AO1 • Bandura (1965) used a sample of 66 children, 33 boys and 33 girls, with a mean age of 51 months, recruited from Stanford University Nursery School. • Once selected the children were randomly assigned to one of three equal groups with 11 in each. • The children watched a 5-minute film of four aggressive responses to a bobo doll which ended in the model receiving a reward, punishment or no consequence. • After watching television, the children were taken into a different room and observed by two observers playing for 10 minutes with a behaviour recorded every five seconds. AO3 • Using both male and female children in his sample Bandura (1965) ensured that the results of the different vicarious reinforcement conditions is representative of both genders. • By randomly assigning the children Bandura's (1965) groups may have been biased with more aggressive children all being placed into one group therefore affecting the results. • By allowing children to observe aggressive acts Bandura (1965) may have caused distress which would be considered unethical under current BPS guidelines. • By using two observers to record the behaviour of the children in the playroom inter-observer reliability was maintained. Look for other reasonable marking points.	(8)

Level	Mark	Descriptor
AO1 (4 marks), AO3 (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)

Question Number	Indicative content	Mark
10	AO1 (6 marks), AO3 (6 marks) AO1 • Operant conditioning refers to the process of learning through consequences such as positive punishment. • Thorndike suggested that if people are rewarded as a consequence for a particular behaviour, then they are more likely to continue the behaviour. • Positive reinforcement results in people being rewarded for a desirable behaviour which they are more likely to repeat. • Testosterone is a male sex hormone that can influence areas of the brain such as the frontal cortex, amygdala and hypothalamus associated with aggression. • Females usually have higher levels of the hormone oestrogen and lower levels of testosterone, however changes to female testosterone levels may result in aggression. • The body's endocrine glands secrete hormones such as cortisol directly into the blood stream targeting key organs when our fight-or-fight response is activated. AO3 • Skinner's (1948) animal studies showed that rats would stop pressing a lever when it produced an electric shock, suggesting how human behaviour could also be learned through consequences. • Thorndike (1911) provides support for positive reinforcement; however cats were used in many of the experiments which may limit the generalisability of the results to explaining human behaviour. • Mestel and Concar (1994) found a token economy programme to be successful in treating the human behaviour of cocaine addicts who were given shopping vouchers as rewards for staying "clean". • Research into hormones as an explanation of human aggressive behaviour is reductionist and does consider nurture factors influencing human behaviour. • Dabbs and Hargrove (1997) found a positive correlation between the hormone testosterone and the degree of violent crime in 87 female prisoners,	(12)

	suggesting that the hormone may be involved in explaining human aggressive behaviour. • Many studies provide incomplete explanations of human behaviour, for example Lidberg et al. (1985) show that the influence of hormones on the body's responses is correlational so we cannot be certain which hormone if any is responsible for human aggressive behaviour. Look for other reasonable marking points.	

Level	Mark	Descriptor
AO1 (6 marks), AO3 (6 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs judgement/conclusion in their answer.		
	0	No rewardable material.
Level 1	1-3 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) A judgement/decision 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) Candidates will produce statements with some development in the form of mostly accurate and relevant factual material leading to a judgement/decision being presented. Candidates will demonstrate a grasp of competing arguments but response may be imbalanced. (AO3)
Level 3	7-9 Marks	Demonstrates accurate knowledge and understanding. (AO1) Displays a mostly developed and logical argument, containing mostly coherent chains of reasoning. Demonstrates an awareness of competing arguments, presenting a judgement/decision which may be imbalanced. (AO3)
Level 4	10-12 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Displays a well-developed and logical argument, containing logical chains of reasoning throughout. Demonstrates an awareness of competing arguments and presents a balanced response, leading to an effective nuanced and balanced judgement/decision. (AO3)