GradeMax



Mark Scheme (Results)

January 2019

Pearson Edexcel GCE
In Psychology (WPS02 01)
Paper 2: Biological Psychology, Learning Theories and Development

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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 (1 mark)** Credit **one** mark for accurate statement. For example: McDermott (2008) • To investigate whether there is a genetic basis for individual differences in the giving of punishment (1). Hoefelmann et al. (2006) • To see if there was any association between behaviours and self-perceived sleep quality (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
1(b)	**AO1 (3 marks)** Credit up to **three** marks for accurate description. For example: McDermott (2008) • Of the participants who had 80% of their earnings taken, 66% of them gave hot sauce as a punishment to their opponent (1). 40% of participants who had 20% of their earnings taken, and were MAOA-L, gave hot sauce to their opponent (1). MAOA-L participants were significantly more likely to give the maximum amount of hot sauce to their opponents (1). Hoefelmann et al. (2006) • Frequent snack and drink activity was associated with poorer sleep quality (1). The more physical activity the participants had the less likely they were to say they got enough sleep (1). Half the participants said they did not have a good quality of sleep and 80% said that they did not get enough sleep (1). **Look for other reasonable marking points.**	**(3)**

Question Number	Answer	**Mark**
1(c)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one improvement. (AO1) Credit **one** mark for justification of improvement. (AO3) For example: McDermott (2008) • The punishment could have been given to someone that they had seen rather than an anonymous person (1), as this is more like real life when punishments are often given to people we know (1). Hoefelmann et al. (2006) • It would improve the study if researchers measured the amount of sleep rather than asked participants how long they slept for (1), as this will give an accurate measurement of sleep duration so making the results more valid (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
2(a)	**AO2 (4 marks)** Credit up to **four** marks for accurate description in relation to scenario. For example: • Vanessa could gain a sample of monozygotic twin pairs and same-sex dizygotic twin pairs, where one of the twins would have been in trouble for aggression (1). Vanessa could check the finger prints and blood type of each twin pair to determine whether they were monozygotic or dizygotic (1). Vanessa would then see how many of the second twins in each pair had also been in trouble for aggression (1). Vanessa could operationalise being in trouble for aggression by the number of times each participant had been arrested for fighting (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
2(b)	**AO1 (1 mark) AO3 (1 mark)** Credit **one** mark for accurate identification of weakness. (AO1) Credit **one** mark for justification / exemplification of weakness. (AO3) For example: • Monozygotic twins tend to be brought up in the same environment and have shared the same pre-natal environment (1), therefore it is hard to determine whether aggression is genetic or due to the same environment (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
3(a)	**AO2 (3 marks)** Credit up to **three** marks for accurate description in relation to scenario. For example: • Kylie may be producing less serotonin which is why she feels more depressed in the winter time (1). Due to the longer nights Kylie is producing more melatonin which makes her more tired (1). Because the nights are longer this could disrupt Kylie's internal body clock meaning she wants to stay in bed for longer (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(3)**

Question Number	Answer	Mark
3(b)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one reason. (AO1) Credit **one** mark for justification / exemplification. (AO3) For example: • Light therapy decreases the level of melatonin by using a light box to increase the amount of light received (1), the decrease in melatonin will reduce the sleepiness felt by the patient so should be effective in helping reduce the symptoms (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
3(c)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one difference. (AO1) Credit **one** mark for justification / exemplification of one difference. (AO3) For example: • Light therapy aims to treat the symptoms of seasonal affective disorder whilst CBT tries to change our thought processes (1), therefore CBT should last long term so is more effective as it does not just try and get rid of the symptoms but addresses the reasons behind the symptoms (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
4(a)	**AO2 (1 mark)** Credit **one** mark for appropriate estimation. For example: • 24.0 (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
4(b)	**AO1 (2 marks)** Credit **one** mark for a partial definition. Credit **two** marks for a full definition. For example: • The probability the results are due to chance is 0.05 (1). • The probability the results are due to chance is equal to or less than five percent (2). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
4 (c)	**AO1 (2 marks)** Credit **one** mark for each accurate difference given. For example: • Primary data is gathered by the person conducting the study, whilst secondary data has been gathered by other researchers (1). • Secondary data may have a larger number of participants as it combines several studies whilst primary data is just one study (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
4(d)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one issue. (AO1) Credit **one** mark for justification/exemplification of one issue. (AO3) For example: • Correlations only look for a relationship between two variables. (1), therefore we cannot determine if one variable causes another or if there is another variable that affects both (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Indicative content	Mark
5	**AO1 (4 marks), AO3 (4 marks)** **AO1** • High levels of testosterone are associated with increased aggression. • Exposure to higher levels of testosterone in the womb affects the developing brain and can lead to an increase in aggression. • Low levels of oxytocin are thought to decrease trustworthiness and so increase levels of aggression. • People with low levels of cortisol have an under aroused autonomic nervous system (ANS) so to increase arousal they become aggressive. **AO3** • Chang et al. (2012) found that that the more testosterone a fish had in its blood the more aggressive it was so showing the that aggression and testosterone are linked. • It may be that aggression increases the levels of testosterone, rather than testosterone increasing aggression so testosterone does not play a role in causing aggression. • Whilst Lane et al. (2014) found more oxytocin did lead to an increase in trustworthiness, they did not study whether lack of the hormone caused aggression so it may not be a factor in aggressive behaviour. • Burnett et al. (2000) found that boys who had lower levels of cortisol in their saliva were three times more aggressive than boys with higher levels of cortisol, so cortisol does seem to play a role in aggressive behaviour. **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 assessment/conclusion in their answer.		
	0	No rewardable material.
Level 1	1–2 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) Generic assertions may be presented. 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 generic or superficial assessment being presented. (AO3)
Level 3	5–6 Marks	Demonstrates accurate knowledge and understanding. (AO1) Arguments developed using mostly coherent chains of reasoning, leading to an assessment being presented which considers a range of factors. Candidates will demonstrate understanding of competing arguments/factors but unlikely to grasp their significance. The assessment leads to a judgement but this may be imbalanced. (AO3)
Level 4	7–8 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Displays a well-developed and logical assessment, containing logical chains of reasoning throughout. Demonstrates an awareness of the significance of competing arguments/factors leading to a balanced judgement being presented. (AO3)

Section B.

Question Number	Answer	Mark
6 (a)	**AO2 (4 marks)** Credit up to **four** marks for accurate description in relation to scenario. For example: • First the therapist will ask Julio to say what triggers his fear of bread (1). The therapist will then ask Julio to make a hierarchy of fear starting with the least fearful situation, such as seeing a loaf of bread (1). Julio will then be taught how to relax, possibly through deep breathing exercises (1). Julio will then work up his hierarchy of fear, relaxing at each stage until he is able to handle bread without fear (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
6 (b)	**AO1 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of one strength and one weakness. (AO1) Credit **one** mark for justification / exemplification of one strength and one weakness. (AO3) For example; Strength: • Systematic desensitisation is seen as more ethical than flooding, which is another treatment for phobias (1), as the client is not made as anxious during systematic desensitisation so is not as distressed (1). Weakness. • Toozandehjani et al. (2011) found that the effects of systematic desenitisation did not last for more than three months when used for social phobia (1), therefore it is not effective in the long term and other treatments may be better (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
7 (a)	**AO2 (3 marks)** Credit up to **three** marks for accurate description in relation to scenario. For example: • She would create a tally chart with her categories to record her data about who spoke for under 5 minutes and 5 minutes or more (1). Yoko would note down every time she saw someone speak for under 5 minutes, or for 5 minutes or more as she is event sampling (1). After the observation Yoko would total the number of times she saw each behaviour for males and for females (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(3)**

<table>
<tr><th>Question Number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>7 (b)</td><td>
AO2 (4 marks)

Credit one mark for correct completion of O-E column
Credit one mark for accurate completion of (O-E)^2 column two decimal places
Credit one mark for accurate completion of (O-E)^2/E column to two decimal places
Credit one mark for correct chi-squared to two decimal places =

<table>
<tr><th></th><th></th><th>Observed</th><th>Expected</th><th>O-E</th><th>(O-E)^2</th><th>(O-E)^2/E</th></tr>
<tr><td rowspan="2">Condition A males spoke to males</td><td>Under 5 minutes</td><td>3</td><td>5.5</td><td>-2.5</td><td>6.25</td><td>1.14</td></tr>
<tr><td>5 minutes or over</td><td>7</td><td>4.5</td><td>2.5</td><td>6.25</td><td>1.39</td></tr>
<tr><td rowspan="2">Condition B females spoke to females</td><td>Under 5 minutes</td><td>8</td><td>5.5</td><td>2.5</td><td>6.25</td><td>1.14</td></tr>
<tr><td>5 minutes or over</td><td>2</td><td>4.5</td><td>-2.5</td><td>6.25</td><td>1.39</td></tr>
<tr><td colspan="5">Chi squared =</td><td>5.06</td></tr>
</table>

Look for other reasonable answers.
</td><td>(4)</td></tr>
</table>

Question Number	Answer	Mark
7(c)	**AO1 (1 mark)** Credit **one** mark for accurate definition. For example: • Qualitative data is descriptive, often in the form of words (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
8 (a)	**AO2 (4 marks)** Credit up to **four** marks for accurate description in relation to the practical For example: • When totalling our tally chart we found that men are two times more helpful than females (1). The mean number of times men were helpful was 8.2 and the mean number of times that females were helpful was 4.1 (1). Our results were significant as the calculated value for chi-square was higher than the critical value (1). From our thematic analysis we found that the most helpful behaviour was holding doors open for someone else, which occurred a total of 17 times (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to conducting observations to gather qualitative and/or quantitative data.**	**(4)**

Question Number	Answer	Mark
8 (b)	**AO2 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of each strength in relation to the practical. (AO2) Credit **one** mark for justification of each strength (AO3). For example: • We had a large sample size of 53 in our observation so our sample is representative of the target population (1), therefore we can say our results about males and female helping behaviour can be generalised (1). • Before we carried out our observation we created definitions of helping behaviour, such as holding the door open so that we all knew what we were looking for (1), this increases reliability as it reduces the subjectivity of what is meant by helping behaviour (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to conducting observations.**	**(4)**

Question Number	Answer	Mark
8 (c)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one improvement in relation to the practical. (AO2) Credit **one** mark for justification / exemplification of improvement (AO3). For example: • We should have carried out the observation on helping at different times rather than just in lunch time (1), as people who are around at other times of the day may have more time and so may be more helpful (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to conducting observations.**	**(2)**

Question Number	Indicative content	Mark
9	**AO1 (4 marks), AO3 (4 marks)** **AO1** • Freud would see his clients individually and would seat himself behind the client. • Freud used free association where the clients would talk about whatever they wanted in the hope something from the unconscious would reveal itself. • Freud would use dream analysis to find the unconscious meaning behind symbols in the client's dreams. • Slips of the tongue are when the client said something that they did not mean, and they reveal the unconscious. **AO3** • As each study was on one individual it is hard to generalise the results to everyone due to each person being unique. • A lot of detailed, in depth data would be gathered from free association giving greater understanding of the client's issues. • Different analysts may find a different meaning behind the dreams, so the method is subjective. • By using all these methods to reveal the root cause of a client's issues the issues can be resolved so the client be cured, unlike other therapies that deal with the behaviour not the cause of the behaviour. **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 C

Question Number	Indicative content	Mark
10	**AO1 (6 marks), AO3 (6 marks)** **AO1** • Operant conditioning states that if a voluntary behaviour is rewarded it is more likely to be repeated. • Behaviours can be learnt through positive reinforcement which is when a behaviour is rewarded with something desired. • Negative reinforcement is when a behaviour is rewarded by something unpleasant being avoided. • Punishment can be used to stop an undesired behaviour, but it does not teach a new behaviour. • People may be rewarded every time they carry out a behaviour, or may receive rewards at a fixed ratio, after a set number of times carrying out the desired behaviour. • Operant conditioning can be used in stages, where a behaviour is broken down into smaller parts. **AO3** • It is a better explanation than classical conditioning as it focuses on learning new voluntary behaviours rather than just reflexive behaviour. • Ramesh et al. (2011) found that when positive and negative reinforcement was used in a neonatal intensive care unit noise levels were reduced by the staff showing it does work on humans. • Researchers found that those who received more negative down votes on social media posted more comments in the future compared to commentators who received positive up votes, which operant conditioning cannot explain. • Vaughan et al. (2014) found that calves could learn to associate a stall with urinating through the use of rewards, showing it can teach calves a specific behaviour. • Vaughan et al. (2014) carried out their study on calves, so operant conditioning may not be as effective on humans as there are problems generalising the results. • Operant conditioning may not be a complete explanation of human behaviour as it ignores the influence of hormones on our behaviour, such as testosterone and aggression. **Look for other reasonable marking points.**	**(12)**

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 a balanced judgement/decision. (AO3)

Question Number	Indicative content	Mark
11	**AO1 (6 marks), AO2 (4 marks), AO3 (6 marks)** **AO1** • Social learning theory explains aggression due to imitating the aggressive behaviour of our role models. • We are more likely to imitate the aggressive behaviour if the role models are relevant to us. • If a role model is reinforced, such as gaining something, for their aggression then the behaviour is more likely to be imitated. • If the amygdala is damaged it cannot regulate emotions as effectively as normal, so may lead to an increase in aggression. • A damaged amygdala may lead to someone processing a situation as dangerous, so leading to the flight or fight response, when it is not dangerous. • If the prefrontal cortex is damaged it is not as effective at controlling the amygdala, so leading to more aggression. **AO2** • Hugo may imitate the aggressive behaviour of his father as his father is a role model for Hugo. • Hugo is more likely to imitate the aggression shown by his father than his mother as his father is the same sex as Hugo. • Hugo's amygdala may have been damaged due to the contact sports he played so increasing his aggression. • Hugo may process the arguments he gets into as dangerous situations, so responds to the situation by punching people due to damage to his amygdala. **AO3** • Anderson and Dill (2000) found that boys who played more violent video games were also more aggressive. • It could be that those who spend more time on violent video games are naturally more aggressive, that may be why they prefer the violent video games. • Bandura conducted many studies which all found that children will imitate the aggressive actions of role models. • Raine et al. (1997) found that convicted murderers had lower brain activity in the amygdala amongst other areas of the brain. • Brain functioning as an explanation of aggression ignores environmental factors that may cause aggression, so may not be a complete explanation. • One problem with studying humans who have damaged areas of the brain is that usually the damage is not located to one specific area making it hard to determine exactly what areas may be responsible for aggression. **Look for other reasonable marking points.**	**(16)**

Level	Mark	Descriptor
AO1 (6 marks), AO2 (4 marks), AO3 (6 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation/conclusion in their answer. Application to the context is capped at maximum 4 marks.		
	0	No rewardable material.
Level 1	1-4 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	5-8 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	9-12 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	13-16 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)

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