GradeMax



Mark Scheme (Results)

Summer 2019

Pearson Edexcel International Advanced Subsidiary In Psychology (WPS02) Paper 1: 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.

Question Number	Answer	Mark
1(a)	**AO1 (3 marks)** Credit up to **three** marks for an accurate description. For example: • Examined the brains of 41 people (39 males and 2 females) who were charged with murder (or manslaughter) but pleaded Not Guilty by Reason of Insanity (NGRI) (1). All of the participants were injected with a glucose tracer, and then required to work at a continuous performance task (CPT) (1). The participants were compared on the level of activity in right and left hemispheres of the brain using two techniques called 'cortical peel' and 'box'. (1). **Look for other reasonable marking points.**	**(3)**

Question Number	Answer	Mark
1(b)	**AO1 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of strength/weakness. (AO1) Credit **one** mark for justification of strength/weakness. (AO3) For example: Strength • Participants and controls were the same sex, similar age (mean 31.7), did not take medication (1) which means that valid comparisons could be made between the NGRI and control groups (1). Weakness • Raine et al. (1997) used PET scans to examine the brains which lacks ecological validity (1) as the brain activity could have been different if participants did not have to lie still in a brain scanning machine in a laboratory (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
1(c)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of improvement. (AO1) Credit **one** mark for justification of improvement. (AO3) For example: • The study could have been carried out using a more real life task such as watching a violent video to measure the brain activity of the murderers and the controls (1) which could have given the results indicating how murderers' brains function greater validity than using a continuous performance task (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
2(a)(i)	**AO2 (4 marks)**	**(4)**

	Time exposed to the sun in a month (hours)	**Rank 1**	**Self-reported mood**	**Rank 2**	**d**	**d^2**
Participant 1	110	6.5	5	7.5	**-1**	**1**
Participant 2	100	5	4	5.5	**-0.5**	**0.25**
Participant 3	50	1	1	1	**0**	**0**
Participant 4	70	3	3	3.5	**-0.5**	**0.25**
Participant 5	65	2	2	2	**0**	**0**
Participant 6	120	8	5	7.5	**0.5**	**0.25**
Participant 7	110	6.5	4	5.5	**1**	**1**
Participant 8	80	4	3	3.5	**0.5**	**0.25**
					Total:	**3**

One mark for accurate completion of column d

One mark for accurate completion of d^2.

One mark for substituting into equation.

$$1 - \frac{6 \times 3}{8\,(64-1)}$$

One mark for 0.964.

Question Number	Answer	Mark
2(a)(ii)	**AO2 (2 marks)** Credit **one** mark for accurate identification of strength and direction. Credit **one** mark for accurate interpretation of strength and direction. For example: • There is a strong positive correlation showing that as time exposed to the sun increases so does self-reported mood (1). because 0.964 is a positive correlation coefficient that is very close to 1 (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
2(b)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification in relation to scenario (AO2) Credit **one** mark for accurate exemplification (AO3) For example: • Hassan would need to know that P=0.05 would be a five per cent level of significance whereas p=0.01 be a one per cent level of significance (1), so if he used p=0.01 and it was significant there would be a 99% confidence level of the relationship between time exposed to the sun and self-reported mood (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
2(c)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of a weakness in relation to scenario. (AO2) Credit **one** mark for justification of a weakness. (AO3) For example: • Hassan cannot be sure that time exposed to the sun and self-reported mood are related as correlations do not mean causation (1), so other factors such as personal life events could influence self-reported mood regardless of time exposed to the sun (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
3(a)	**AO2 (3 marks)** Credit up to **three** marks for accurate description. For example: • We found a significant correlation between self-rated aggression and height (1). The taller people were the more aggressive they rated themselves on a scale out of 10 (1). The correlation coefficient was 0.666 for a one-tailed test with 10 participants which was more than the critical value (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to the biological practical of a correlational study into aggression or body rhythms.**	**(3)**

Question Number	Answer	Mark
3(b)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of a strength. (AO2) Credit **one** mark for justification of the strength. (AO3) For example: • The practical on aggression and height could be replicated to test for reliability (1) because we used the same questionnaire on aggression and height for all participants (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to the biological practical of a correlational study into aggression or body rhythms.**	**(2)**

Question Number	Answer	Mark
3 (c)	**AO3 (2 marks)** Credit up to **two** marks for accurate justification. (AO3) For example: • When gaining informed consent we told the participants the study was about aggression and asked them if they still wanted to proceed (1) because aggression could be a sensitive topic and so they may not have wanted to have answered questions on how aggressive they were (1). **Look for other reasonable marking points.** **Generic answers score 0 marks** **Answers must relate to the biological practical of a correlational study into aggression or body rhythms.**	**(2)**

Question Number	Indicative content	Mark
4	**AO1 (4 marks), AO2 (4 marks)** **AO1** • Damage in the ventromedial pre-frontal cortex (vmPFC) has been linked with aggression. • A reduction in volume of gray matter in the pre-frontal cortex has been found in people with antisocial personality disorder. • Lower serotonin in the pre-frontal cortex has been linked to higher levels of aggression. • The limbic system includes the amygdala which is said to be responsible for emotional reactions so if this is over active it could cause aggression. **AO2** • Grei may have damaged his ventromedial pre-frontal cortex (vmPFC) which lead to him fighting and being arrested. • Grei may have a lower volume of gray matter in his pre-frontal cortex which could have caused him to swear aggressively at his mother. • Grei could have lower levels of serotonin in his pre-frontal cortex which could have been the reason for him pushing his father and being aggressive. • Grei's brain injury could have caused an over active amygdala which meant he was aggressive to other children and shouted at his teachers at school. **Look for other reasonable marking points.**	**(8)**

Level	Mark	Descriptor
AO1 (4 marks), AO2 (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)

Section B.

Question Number	Answer	Mark
5 (a)	**AO1 (3 marks)** Credit up to **three** marks for accurate description of the results and/or conclusions. For example: • One pigeon turned anticlockwise and made two or three turns between the food reinforcement (1). Two other pigeons displayed a pendulum motion with their bodies in response to the random food reward (1). Skinner concluded that pigeons learned superstitious behaviour as they behaved as if there was an association between the behaviour and food reward (1). **Look for other reasonable marking points.**	**(3)**

Question Number	Answer	Mark
5 (b)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of a weakness. (AO1) Credit **one** mark for justification of the weakness (AO3) For example: • Skinner used pigeons in his study to investigate how humans learn through reinforcement (1). Humans and pigeons have differences in terms of genes and their brain structure so the results of his study lack generalisability to humans (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
6 (a)	**AO1 (1 mark), AO2 (1 mark)** Credit **one** mark for an accurate description (AO1) Credit **one** mark for application to the scenario (AO2) For example: • Positive reinforcement is when a positive stimulus is provided for desirable behaviour to encourage repeated behaviour (1). Sandy was given a sticker for answering a question correctly which is a reward so this is likely to encourage her to answer more questions (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
6 (b)	**AO1 (1 mark), AO2 (1 mark)** Credit **one** mark for an accurate description (AO1) Credit **one** mark for application to the scenario (AO2) For example: • Negative reinforcement is when a negative stimulus is removed for desirable behaviour to encourage repeated behaviour (1). Sandy was allowed to miss the class test for submitting all her homework so this is going to encourage her to continue submitting her homework on time (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
7 (a)	**AO2 (4 marks)** Credit up to **four** marks for an accurate description in relation to the scenario. For example: • Priya would choose a lesson to carry out her observation such as her psychology class (1). During her psychology lesson Priya would tally how many times males and females answered questions (1). Priya could use event sampling and note down each time a question is answered, rather than time sampling which would involve waiting for certain time intervals (1). She could then write down qualitative descriptions of the types of questions answered by the males and females (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
7 (b)	**AO1 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of each weakness. (AO1) Credit **one** mark for justification of each weakness (AO3) For example: • There is a lack of control in naturalistic observations (1). This is because they are in an everyday setting so there is a greater chance than extraneous variables will influence the findings (1). • Naturalistic observations can be difficult to replicate (1). This is because the setting will not be the same each time so the conditions for the participants would vary if it was repeated (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
7 (c)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for an accurate identification of an improvement. (AO1) Credit **one** mark for justification of the improvement. (AO3) For example: • Two different observers could watch the behaviour of the participants independently (1). This would enable them to compare their findings and agree on the results to establish inter-observer reliability (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
8 (a)	**AO2 (1 mark)** Credit **one** mark for accurate identification of the level of measurement. For example: • Ordinal data. **Look for other reasonable ways of expressing the level of measurement.**	**(1)**

Question Number	Answer	Mark
8 (b)	**AO2 (2 marks)** Credit **one** mark for correct calculation of the mode. Credit **one** mark for correct calculation of the range. Mode • 4 Range • 5 **Reject all other answers.**	**(2)**

Question Number	Answer	Mark
8 (c)	**AO2 (1 mark)** Credit **one** mark for correct calculation. Before therapy • 33%. • 33.3%• 33.33%• 33.33r%• 33.33% accept dot notation over last recurring number• 33.333% (3's continued indefinitely can be credited) put on clerical marking	**(2)**

Question Number	Answer	Mark
8 (d)	**AO2 (1 mark)** Credit **one** mark for correct answer. • 2:1 • Ratio MUST be in the format of 2:1, do not accept 1:2 in clerical answer sheet put on clerical marking **Reject all other answers.**	**(2)**

Question Number	Answer	Mark
8 (e)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate use of the data (AO2) Credit **one** mark a conclusion (AO3) For example: • The mean for the self-reported fear of snakes dropped by 2.17 to 3.75 after therapy (1) which shows that systematic desensitisation reduced self-reported fear of snakes on average for the participants (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Indicative content	Mark
9	**AO1 (4 marks), AO3 (4 marks)** **AO1** • Classical conditioning assumes learning is an involuntary process through association • An unconditioned stimulus (UCS) causes a natural response called an unconditioned response (UCR) • The repeated pairing of the UCS with a neutral stimulus (NS) leads to an association forming between the NS and the UCR, which results in a conditioned stimulus (CS) producing a conditioned response (CR) • Generalisation is where the CR is produced in stimuli similar to the CS **AO3** • Pavlov (1927) showed that dogs would learn to respond by salivating to a buzzer when it was paired with food, supporting classical conditioning • Pavlov (1927) used dogs in his study which lack generalisability to human learning as dogs have different genes and brain structure to humans. • Watson and Rayner (1920) showed that Little Albert generalised his fear of a white rat to other similar stimuli such as a fur coat • Little Albert's conditioning took place in a controlled, artificial setting so it may be that classical conditioning may not explain learning in a more natural setting **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** Prot (2014) • They wanted to investigate the relations between prosocial media use empathy and helping in seven countries. • The samples were gained from Australia, China, Croatia, Germany, Japan, Romania, and the United States, with 2202 adolescents and adults. • They answered a questionnaire on media usage, where they had to name their three favourite television shows, three favourite movies and three favourite video games. • Prosocial behaviour was measured using the Brief Prosocial Scale • Results showed that the higher the prosocial use the higher the levels of prosocial behaviour and empathy in all three groups. • The results suggested cross cultural generalisation of the links between prosocial media use and prosocial behaviour and empathy. **AO3** • Study one used seven different countries and had a representative sample so the results are generalisable cross-culturally. • The participants had to rate how often they helped others in the video games they played, so there may be social desirability. • In study two all of the participants came from Singapore, so culture may have affected the results. • All participants in study one were rated using the same scale for prosocial behaviour, increasing reliability. • Study one was cross sectional so it is difficult to conclude that there was a strong causation between prosocial media use and helping behaviour due to changes in empathy. • The study is supported by other research which has suggested that prosocial media has a positive effect on individuals (e.g. Greitemeyer, 2011). **Look for other reasonable marking points.** **continued...**	**(12)**

Question Number	Indicative content	Mark
10	**...continued** **AO1** Bastian et al. (2011) • They wanted to investigate whether playing violent video games has dehumanising consequences in relation to others and the self. • There were 106 participants, who were all undergraduates aged from 17 to 34 years old. • The participants had to play either Mortal Kombat or Spin Tennis against each other. • Participants were asked how much they enjoyed the game and how frustrating they found the game, both on a scale of 1 to 7. • Participants then had to rate themselves on eight human nature items and rate their opponent on the same four items. • It was found that there was a significant difference between the two groups on rating of both self-humanity and the humanity of the other player. **AO3** • The study can only be generalised to undergraduate students so is limited in its generalisability. • All participants used the same rating scales so the study can be replicated to test for reliability. • Playing a video game in a laboratory is not like real life so the participants may have acted or rated themselves differently if they were at home. • The participants rated their frustration using self-report data which may not be accurate. • Other factors could have caused the ratings in humanity such as personality and therefore the video game may not be the cause. • The study findings are supported by Greitemeyer and McLatchie (2011) who demonstrated that playing violent video games reduces the perceived humanness of real-life antagonists. **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 evaluation/conclusion in their answer.		
	0	No rewardable material.
Level 1	1-3 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	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 superficial conclusion being made. (AO3)
Level 3	7-9 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	10-12 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
11	**AO1 (6 marks), A02 (4 marks), AO3 (6 marks)** **AO1** • Social learning theory assumes observational learning causes behaviour through modelling. • An individual would choose role models who they consider important and go through a process of attention, retention, reproduction, motivation. • Motivation for the observed act can be external where an individual receives praise so wants to continue the behaviour. • Higher levels of testosterone may cause aggressive behaviour • Aggressive behaviour has been linked with an imbalance in the hormones testosterone and cortisol (T/CRT ratio hypothesis). • Low levels of serotonin have been linked with aggressive behaviour. **A02** • Kelvin could have modelled his father's behaviour and therefore assaulted the police officer on holiday. • Kelvin may have been praised by his friends for being violent with the police officer so later screamed at the traffic warden. • Kelvin is male so may have higher testosterone which lead to him violently assaulting a security guard. • Kelvin may have an imbalance in testosterone and cortisol where one is high and the other low which could have caused him to assault the police officer. **AO3** • Bandura, Ross, and Ross (1961) showed that children would observe and imitate real-life models and act aggressively. • Bandura (1965) showed the role of motivation and being rewarded in observational learning, including vicarious reinforcement. • Studies that support social learning like Bandura (1961/1965) took place with children in artificial settings so their generalisability to real life can be questioned. • Castration of rodents reduced aggressiveness and injections of testosterone reinstated it (Beeman, 1947). • Studies that use rodents to investigate the role of hormones in aggression (e.g. Beeman, 1947) use animals who are different to humans in terms of genes and brain structure/function so lack generalisability to humans. • In humans, boys testosterone increases during early teens which is when aggressive behaviour and inter-male fighting increase (Mazur, 1983). • Studies involving testosterone and aggression are correlational so there may be other factors such as the MAOA gene which predisposes an individual to aggressive behaviour. **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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