Mark Scheme (Results)

January 2023

Pearson Edexcel International Advance 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.

Section A

Question Number	Answer	Mark
1a	**AO1 (1 mark)** Credit **one** mark for accurate statement. For example: • Pre-frontal cortex (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
1b	**AO1 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of each weakness (AO1) Credit **one** mark for justification/exemplification of each weakness (AO3) For example: • It ignores other factors that may cause aggression, such as social learning theory so it can be considered reductionist (1), which states that aggression is learnt through observing then imitating role models rather than the functioning of the brain (1). • A lot of the research is carried out on animals so it may not be true for humans as we rarely show predator aggression unlike animals (1) so humans may not be aggressive in the same situations as animals such as cats so the results from animal studies may not be generalisable (1) . **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
2(a)	**AO2 (2 marks)** Credit **two** marks for an accurate description in relation to the scenario. For example: • Estelle could have put a poster up in the local health care centre asking for participants for her investigation on aggression in males and females (1). On her poster she would have stated when and where the participants should attend for her investigation on aggression in males and females (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 of a weakness in relation to the scenario (AO2) Credit **one** mark for justification/exemplification of the weakness (AO3) For example: • As the sample is volunteer only those males and females who think they are not very aggressive may agree to take part in the study (1), which means the results will be biased and not be true of all males and females as the very aggressive people will not have taken part (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
2(c)	**AO2 (1 mark)** Credit **one** mark for the correct answer. For example: • 4.5 (1). **Reject all other answers.**	**(1)**

Question Number	Answer	Mark
2(d)	**AO2 (4 marks)** For example:	

	Number of aggressive acts in a day	$(x - \bar{x})$	$(x - \bar{x})^2$
G	3	-0.33	**0.11**
H	5	1.67	**2.79**
I	2	-1.33	**1.77**
J	4	0.67	**0.45**
K	1	-2.33	**5.43**
L	5	1.67	**2.79**
Mean = 3.33		Sum of differences² = **13.34**	
		Standard deviation = **1.63**	

Credit **one** mark for correct completion of **column** $(x - \bar{x})^2$ Credit **one** mark for correct calculation of **sum of differences²** = **13.34** Credit **one** mark for correct calculation of **dividing the sum of the differences² by (n-1)** = **2.67** Credit **one** mark for correct answer for **standard deviation** = **1.63** **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
3(a)	**AO1 (2 marks)** Credit **one** mark for each accurate aim given. For example: • Brendgen et al. (2005) aimed to find out the extent to which social aggression could be explained by genetic factors, shared environmental factors or nonshared environmental factors (1). • They aimed to investigate to what extent the covariance between physical and social aggression could be explained by genetic, shared or nonshared environmental factors (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
3(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 the strength and the weakness (AO3) For example: Strength • 234 pairs of twins were used which is a large sample size so may increase the representativeness of the results (1), as any anomalies in the results on aggression and twin pairs are less likely to have an effect on the overall results (1). Weakness • The twins were all aged 6-years old with an average age of 72.7 months so the results may not be true for older children (1), especially as social	

| | aggression is not fully developed until 8-years-old so the results are not representative of social aggression at a later age (1).

Look for other reasonable marking points. | **(4)** |

Question Number	Answer	Mark
4 (a)	**AO2 (4 marks)** Credit up to **four** marks for accurate description in relation to the scenario. For example: • Nancy should make sure her bedroom is dark at night time as this stimulates the production of melatonin which will help her sleep (1). When Nancy feels tired in the middle of the day, she could go out for a walk to expose herself to sunshine so the light would stimulate her suprachiasmatic nucleus (1). If Nancy is feeling tired whilst she is at work, she should make sure there is plenty of bright light in the office so the SCN realises it is daytime and resets the 24-hour body clock, including the sleep wake cycle (1). Nancy should regulate her eating so that she has a big meal in the evening as this will help reset her 24-hour clock so that she can sleep in the evening (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	(4)

Question Number	Answer	Mark
4(b)	**AO2(1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of a strength in relation to the scenario (AO2) Credit **one** mark for justification/exemplification of the strength (AO3) For example: • Research such as Skene and Arendt (2007) show that the light is an important factor in helping Nancy regulate her sleep wake cycle following her return from abroad (1), as they found that blind people who have some perception of light had normal circadian rhythms so giving the explanation credibility (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	(2)

Question Number	Indicative content	Mark
5	**AO1 (4 marks), AO3 (4 marks)** **AO1** • Infradian rhythms last more than 24 hours and affect the menstrual cycle and seasonal affective disorder. • The menstrual cycle last about 28 days and starts with menstruation when progesterone is low and can affect female behaviour. • Seasonal affective disorder is a twelve-month cycle with people becoming depressed during the winter months when there is less light. • The lack of daylight causes more melatonin to be produced which makes the person feel more tired throughout the winter months. **AO3** • Law (1983) found that significantly more females menstruated around the new moon compared to other phases of the moon suggesting human behaviour and infradian rhythms are affected be external factors so infradian rhythms on their own are not a valid explanation of all human behaviour. • Guéguen (2012) found that women walk slower and more sexily in front of men when they were near ovulation showing that infradian rhythms do affect human behaviour giving the explanation credibility. • Yang et al. (2020) found that vegetarianism and higher alcohol consumption were associated with seasonal affective disorder so it may not just be due to biological rhythms but to being vegetarian and having higher alcohol uptake, therefore they do not explain all human behaviour. • Eastwood et al. (1985) found that people with affective disorders had a greater amplitude of periodicities in their infradian rhythms compared to a control groups, showing infradian rhythms do affect our mood and is a valid explanation of human 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 (2 marks)** Credit up to **two** marks for accurate description in relation to the scenario For example: • The neutral stimulus of her grandma does not elicit any reflexive response when Rose originally saw her (1). The reflexive response of salivating when she sees her grandma only comes after she is associated with baking bread (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
6 (b)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of a strength (AO1). Credit **one** mark for justification/exemplification of the strength (AO3). For example: • Watson and Rayner (1920) reported that they could condition Little Albert to become scared of rats giving the theory credibility (1), as it shows that pairing a neutral stimulus of a rat with a loud noise does create a new, reflexive response of fear of rats showing the theory can explain new reflexive behaviours (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
7 (a)	**AO2 (2 marks)** Credit **two** marks for accurate description of an ethical issue in relation to the scenario For example: • As Pip is using children, he should get fully informed consent from their parents and the head teacher at the school (1), this means he should tell them that he will be observing the children to see if they will help pick up books (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
7 (b)	**AO2 (1 mark)** Credit **one** mark for accurate identification in relation to the scenario. For example: • Pip would have used the critical value 5.02 for a one tailed test at $p \leq 0.01$ (1). **Look for other reasonable answers.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
7 (c)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of a strength in relation to the scenario (AO2). Credit **one** mark for justification/exemplification of the strength. For example: There would have been less chance of the children showing demand characteristics when deciding whether to help tidy up the books as they would not be aware Pip was observing them (1), so their behaviour would have been more natural increasing the validity of the results on the effect of the teacher's behaviour (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
7 (d)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of an improvement in relation to the scenario (AO2). Credit **one** mark for justification/exemplification of the improvement (AO3). For example: Pip could have used the same teacher to help tidy up the books and to not help tidy up the books (1), so whether the children helped tidy the books or not was not affected by the personal characteristics of the teacher (1). **Look for other reasonable answers.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
7 (e)	**AO2 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of a strength and a weakness in relation to the scenario (AO2). Credit **one** mark for justification/exemplification of the strength and the weakness (AO3). For example: Strength - Pip would gain a better, detailed, understanding of why the children helped pick up the books from their conversation increasing validity (1), as he would note down if the child who helped said something about the teacher so giving further evidence about the effect of the teacher's behaviour (1). Weakness - Pip's analysis of the children's conversations when helping would be based on his own interpretations so it would be subjective (1), so if a child used a pronoun Pip may think it referred to the teacher, when another observer may not so reducing the reliability of his observation (1). **Look for other reasonable answers.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
8 (a)	**AO1 (3 marks)** Credit up to **three** marks for accurate description. For example: Prot (2014) - All three groups showed a link between the use of pro-social media and pro-social behaviour (1). The results suggest that there are cross cultural generalisation between Western countries, East European countries and East Asian countries in terms of the use of pro-social media, empathy and pro-social behaviour (1). They found that age had no effect on empathy or helping (1). Bastian et al. (2011) - In study 1 participants found both Mortal Combat and Top Spin Tennis	

	equally frustrating (1). Both self-humanity ratings and other humanity ratings were lower in those who played Mortal Kombat compared to those who played Top Spin Tennis in study 1 (1). In the second study they found that those playing a violent video game had a mean score of 3.82 for self-humanity compared to 4.48 for those playing the non-violent game (1). **Look for other reasonable marking points.**	**(3)**

Question Number	Answer	Mark
8 (b)	**AO1 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of each strength (AO1). Credit **one** mark for justification/exemplification of each strength (AO3). For example: Prot (2014) - Prot used an established scale to measure empathy, the empathic-concern and perspective-taking subscales from the Interpersonal Reactivity Index (1), which increases reliability as other researchers can use the same scale to check for consistency of results (1). - The sample size was 2202 with participants from seven different countries giving a large, diverse sample (1), this increases the generalisability of the relating to pro-social media and pro-social behaviour as the sample is more representative of the target population (1). Bastian et al. (2011) - The participants played one of two real games, Mortal Kombat or Top Spin Tennis which increases the validity of the study (1) as the games are commercially successful and not games the experimenters thought would be realistic (1). - The second study controlled for the effects of playing against a human avatar by using Call of Duty which has computer based avatars rather than mythical avatars (1), increasing the validity of the study as they can be sure it is the violence that affects ratings of self-humanity rather than who they are playing against (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
8 (c)	**AO1 (2 marks), AO3 (2 marks)**	
	Credit **one** mark for accurate identification of each improvement (AO1). Credit **one** mark for justification/exemplification of each improvement (AO3).	
	For example:	
	Prot (2014)	
	• Other measures of empathy and pro-social behaviour could be used rather than self-report data, such as observing participants to see how pro-social they are (1), as this would increase the validity of the results as objective data is being measured rather than subjective ratings (1).	
	• Prot (2014) could have used a wider age range to include older adults and young children (1) which would have increased the generalisability of the results as they would look at the effect of pro-social media on a range of ages that view such media (1).	
	Bastian et al. (2011)	
	• They could use a range of occupations when gathering their participants, not just undergraduates (1), which would mean the results about the effects of playing violent video games would be more representative of the range of people who play them (1).	
	• They could allow the participants to play the games for more than 20 minutes, such as for an hour (1) as in real life people may play video games for prolonged periods of time so this would increase the ecological validity of the study (1).	
	Look for other reasonable marking points.	**(4)**

Question Number	Indicative content	Mark
9	**AO1 (4 marks), AO2 (4 marks)**	
	AO1	
	• Case studies are carried out on one individual or a small group of people to gather detailed information about them.	
	• Case studies can gather qualitative data in the form of verbal information from patients talking about their dreams.	
	• Case studies use a variety of techniques, such as dream analysis and free association.	
	• The results from a variety of methods are triangulated to check for consistency of the results and come to some conclusions about unconscious issues the individual may have.	
	AO2	
	• Lette is carrying out her case study on one person, Bill in order to gather information about why he has relationship issues.	
	• Lette is gathering qualitative data in the form of Bill's dream diary.	
	• Lette is using a variety of techniques including analysing Bill's dreams and using free association when she encourages him to talk openly to allow his unconscious to show through.	
	• The information from the dream analysis and the free association will be triangulated to come to conclusion about how the unconscious is affecting Bill's relationships.	
	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 C

Question Number	Indicative content	Mark
10	**AO1 (6 marks), AO3 (6 marks)**	

AO1
- CBT works by challenging a client's negative thoughts about winter and what they are able to do during the winter.
- The client will have a number of weekly or bi-weekly sessions with a trained therapist which could be in a group with other people who have seasonal affective disorder.
- The first session will establish what the client hopes to achieve through CBT, such as being able to socialise with friends during the winter months.
- The therapist will help the client change their negative thought patterns about winter into more positive thought patterns and ask the clients to practice the new thought patterns at home.
- The client may be asked to provide evidence to support their negative thought patterns about winter, or to engage in activities that would disprove the negative thoughts.
- The behavioural aspect of the therapy includes getting clients to actively engage in activities that will help reduce anxiety about the winter months.

AO3
- Rohan et al. (2015) found that combining light therapy with CBT was more effective in treating seasonal affective disorder two winters after treatment compared to those who only had light treatment.
- If the client is not motivated to engage with the therapist due to the depression caused by seasonal affective disorder, then CBT will not be effective as it requires the client to talk about their thought patterns.
- CBT does not have possible side effects unlike antidepressants so may be better for clients who are worried about the effects of taking antidepressants.
- CBT focuses on the current problem of seasonal affective disorder; it does not address past issues which may have caused the onset of seasonal affective disorder so may not be fully effective.
- The skills gained in CBT can be used in future winters so the clients do not need to have treatment for seasonal affective disorder every winter, unlike the use of light therapy.
- Meyerhoff et al. (2018) found that light therapy led to the remission of early insomnia, psychic anxiety, hypersomnia, and social withdrawal in less time than CBT.

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), AO2 (4 marks), AO3 (6 marks)** **AO1** - In males increased testosterone increases their competitive responses especially in relation to sex, so leading to an increase in aggression. - Testosterone increases activity in the amygdala and hypothalamus in the brain when in situations that could be viewed as possibly fearful, so making it more likely the person will respond with aggression. - People with low levels of cortisol have an under aroused autonomic nervous system (ANS), therefore, to increase arousal they become aggressive. - Positive reinforcement is when someone gets something they like after a behaviour and makes it more likely the behaviour will be repeated. - A primary reinforcer satisfies a basic need whilst a secondary reinforcer does not but allows us to get something that satisfies a basic need. - Negative reinforcement means a behaviour will be repeated as something undesired is avoided or taken away. **AO2** - Bob may fight the other boys as he feels competitive and wants to impress Belle so he can go on a date with her. - As Bob and his friends had previously been attacked by the group of boys, he may have viewed the situation as dangerous and so fought the boys. - Bob's friends praised him after the fight which acts as a positive reinforcement so explains why Bob wants to fight the group of boys again. - Bob avoided being caught by the police, so he is more likely to be aggressive and fight the group of boys again. **AO3** - Dabbs et al. (1987) found that the level of testosterone was higher in the male prisoners who had committed violent crimes compared to those who had committed non-violent crimes so testosterone may explain aggressive behaviour. - The reciprocal model of testosterone says testosterone does not cause aggression, but aggression increases testosterone so an increase in testosterone may not cause aggression. - 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 showing low levels of cortisol may increase aggression. - Operant conditioning only focuses on nurture when explaining aggression, it ignores the role of nature, such as the effect of genes so may not be a complete explanation of aggression. - Skinner found that rats in a Skinner box who received food when they	

| | | accidently pushed a lever learnt to push the lever, showing behaviour may be learnt through positive reinforcement, which can be applied to explaining aggression.
• A lot of studies have been done on animals so operant conditioning may not explain aggression in humans as our cognitive processes are more complex and may influence whether we are aggressive.

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 judgement/conclusion in their answer.** **Application to the scenario 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 and procedures). (AO2) 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	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 and procedures). (AO2) 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	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 and procedures). Might demonstrate the ability to integrate and synthesise relevant knowledge. (AO2) 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	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 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)