GradeMax



Mark Scheme (Results)

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Pearson Edexcel International Advanced Subsidiary
In Psychology (WPS02/01)
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- Biological Psychology

Question Number	Answer	Mark
1 (a)	**AO1 (1 mark)** Credit **one** mark for accurately naming the area of the brain. For example: • Pre-frontal cortex **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
1 (b)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one weakness. (AO1) Credit **one** mark for justification/exemplification of the weakness (AO3) For example: • Brain structure as an explanation of human aggression may not be complete, as it can ignore the role of the environment (1), whereas social learning theory states aggression is a result of environmental factors such as observing and imitating role models and not the brain structure (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
2 (a)	**AO2 (2 marks)** Credit **two** marks for fully operationalised hypothesis in relation to scenario. Credit **one** mark for partially operationalised hypothesis in relation to scenario. For example: • There will be a difference in the brain activity measured by an fMRI scan after drinking three cups of caffeinated coffee compared to not drinking any caffeinated coffee (2). • The amount of coffee drunk will affect the brain activity shown by an fMRI scan (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
2 (b)	**AO2 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of one strength and one weakness in relation to scenario (AO2) Credit **one** mark for justification/exemplification of the strength and the weakness (AO3) For example: Strength • Kazuhito would have objective data from the fMRI scan as it shows the blood flow in the brain with or without caffeinated coffee (1) therefore others could check the data to see if they would get the same results, so increasing the reliability of Kazuhito's results (1). Weakness • The results of the study about the effects of caffeine on brain activity could not be generalised to people who have a pacemaker (1) as fMRI scans would not be appropriate if any of Kazuhito's participants had any metal implants such as a pacemaker (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
2 (c)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of significance (AO2). Credit **one** mark for justification/exemplification of significance (AO3). For example: • The calculated value of 12 is higher than the critical value of 10 for a two-tailed test at p≤0.05 (1) so Kazuhito did not find a significant difference in how alert participants felt when they did not drink caffeinated coffee or had three cups of caffeinated coffee (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
3 (a)	**AO1 (4 marks)** Credit up to **four** marks for accurate description For example: McDermott (2008) • High take participants gave more hot sauce to their opponents compared to low take participants (1). When 20% of the participants' earning were taken only 39% of the participants gave hot sauce to their opponents (1). McDermott concluded that people become more aggressive toward those they see as responsible for any provocation the more the provocation increases (1). It was also concluded that genes interact with the environment in terms of aggression as high or low MAOA alone did not affect aggression (1). Hoefelmann et al. (2006) • They found that students who spent more than two hours a day playing computer games had less sleep duration (1). It was found that frequently snacking and drinking were both associated with poor sleep in terms of both quality and duration (1). Students who watched a lot of television were less likely to say they did not get enough sleep (1). They concluded that students who thought their quality of sleep was poor, thought this over a period of time with little variation (1). **Look for other reasonable marking points.**	**(4)**

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: McDermott (2008). Strength: • The results are quantitative as they measured how much of the hot sauce the participants would give to their opponent (1), this means that McDermott did not have to interpret the aggression shown, making the data objective (1). Weakness: • The participants did not know that their opponent was not real so they were lied to and thought they were harming a real person (1), this breaks the ethical code of deception so the study could be considered to be unethical as it could affect how participants perceive themselves (1). Hoefelmann et al. (2006). Strength: • The students were randomly selected from 20 different schools so the results can be generalised (1), as there should be a representative sample as all students had an equal chance of participating in the study (1). Weakness: • The students self-reported on both their sleep quality and their lifestyle so they may not have been totally honest (1), as they may have shown some social desirability and minimised the amount of alcohol drunk so affecting the validity of the results (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
4 (a)	**AO2 (3 marks)** Credit up to **three** marks for accurate description in relation to scenario (AO2) For example: • First Xavi would have to work out the proportion of the target population that had one sibling and two or more siblings (1). He would then have to pick his sample so that it had an equal proportion of participants who had one or two or more siblings (1). He would also consider the proportion of aggressive males and females in the target population (1). **Look for other reasonable marking points.** **Generic answers score 0 marks**	**(3)**

Question Number	Answer	Mark
4 (b)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one improvement in relation to scenario (AO2). Credit **one** mark for justification/exemplification of one improvement (AO3). For example: • Xavi could use participants from other businesses in different areas (1), as this would make the sample more representative of the local population so his results about siblings would be more generalisable (1). **Look for other reasonable marking points.** **Generic answers score 0 marks**	**(2)**

Question Number	Answer	Mark
4 (c)	**AO2 (1 mark)** Credit **one** mark for accurate statement in relation to scenario. For example: • Xavi's mean of 5.4 is not the same as the median of 3.2, as they are so different he has a skewed distribution (1). **Look for other reasonable marking points.** **Generic answers score 0 marks**	**(1)**

Question Number	Answer	Mark
4 (d)	**AO2 (1 mark)** Credit **one** mark for accurate calculation. • 5 (1). **Reject all other answers.**	**(1)**

Question Number	Indicative content	Mark
5	**AO1 (4 marks), AO2 (4 marks)** AO1 • External zeitgebers help to regulate human circadian rhythms to a 24-hour cycle. • The release of melatonin is increased when it gets dark causing us to feel tired and sleepier. • External zeitgebers do not influence a circadian rhythm immediately, it can take time for the circadian rhythm to synchronise. • Food can also act as an external zeitgeber, as most people have a large meal towards the end of the day. AO2 • Julianne should use external zeitgebers such as light and food during the night to help regulate the factory employees' circadian rhythm. • Julianne could ensure that the factory has bright light that mimics sunlight during night work. • To enable the employees to adapt their circadian rhythm to working at night Julianne should keep the same employees on permanent night work, so that the external zeitgebers are constant. • Julianne could offer the night employees a large meal towards the end of their work, in the early hours of the morning, rather than offer them a light breakfast. **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- Learning Theories and Development

Question Number	Answer	Mark
6 (a)	**AO2 (1 mark)** Credit **one** mark for accurate identification in relation to scenario. For example: • Stijn is in the oral stage as he enjoys putting the new toy in his mouth (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
6 (b)	**AO2 (4 marks)** Credit up to **four** marks for accurate description in relation to scenario. For example: • Lieke is four years old, so she will be in the phallic stage and likes playing with her genitals (1). She will have developed unconscious feelings for her father, so will want to be with him all the time (1). She will see her mother as a rival for her father's affection and so does not like spending time in her mother's company (1). Lieke may also be jealous of Stijn taking up their father's time and may try and hit him (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
7 (a)	**AO2 (2 marks)** Credit up to **two** marks for accurate description in relation to scenario. For example: • Nika may have written down what the children said to each other and to the teachers (1). She may also have noted any non-verbal communication between the children and the teachers (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
7 (b)	**AO2 (2 marks)** Credit up to **two** marks for accurate description in relation to scenario For example: • Nika could ask another person to observe the children's interactions at the same time as she does (1). If the other person observes similar interactions to Nika, then her data has inter-observer reliability (1). **Look for other reasonable answers.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
7(c)	**AO2 (3 marks)** Credit up to **three** marks for accurate description in relation to scenario. For example: • Nika would first of all have to decide on themes from her data, such as helping another child (1). She would then create a tally chart using the themes to convert her observations of the children's interactions (1). Nika would count up the total number of times each theme from her observations of the children occurred (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(3)**

Question Number	Answer	Mark
8 (a)	**AO1 (4 marks)** Credit up to **four** marks for accurate description. For example: • Skinner used 8 pigeons who were kept at 75% of their normal body weight (1). He put the pigeons, individually, in an experimental cage that contained a food hopper (1). A timer was used to release the food in the hopper for the pigeons to eat (1). Two researchers independently noted the behaviour of the pigeons in relation to the food hopper (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
8 (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 each strength and weakness (AO3). For example: Strength: • One strength is that he only used 8 pigeons so he kept the number of animals to a minimum (1), this is in line with the Scientific Procedures Act (1986) which states the smallest number of animals needed for the research should be used (1). Weakness: • One ethical issue is that he kept the pigeons at 75% of their normal weight causing them to be hungry (1) which can be seen as unethical as researchers should use other means than deprivation if possible (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
9 (a)	**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: • The central nervous system of animals such as rats is very similar to that of humans (1), which means that a physical response in animals can be generalised to humans as they will involve similar processes (1). • It can be more ethical to do experiments on animals that cannot be done on humans (1), such as brain lesioning so psychological knowledge of brain functioning in humans can be advanced (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
9 (b)	**AO3 (2 marks)** Credit up to **two** marks for justification of why animal experiments are more reliable. For example: • Experimenters can have more control over extraneous variables when conducting experiments on animals so animal experiments can be replicated exactly increasing reliability (1), as variables such as what food and drink the animals have during the study can be controlled so they do not affect the results (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Indicative content	Mark
10	**AO1 (4 marks), AO3 (4 marks)** **AO1** • Classical conditioning involves learning reflexive behaviour to a previously neutral stimulus. • An unconditioned stimulus is paired with a neutral stimulus and eventually the neutral stimulus will cause an observable reflex as it becomes the conditioned stimulus. • Pavlov (1927) found that sounding a metronome before feeding dogs lead to dogs salivating at the sound of the metronome. • Systematic desensitisation is a therapy based on classical conditioning that treats phobias through associating relaxation with the phobic object. **AO3** • Classical conditioning does not explain how humans learn new voluntary behaviours, therefore it is not a complete explanation of human behaviour. • As classical conditioning is based on observable reflexes, it is a more scientific explanation of human behaviour than Freud's theory which is based on unobservable, unconscious processes. • Pavlov's study (1927) was on dogs, so classical conditioning may not be a good explanation of human behaviour as humans are more complex than dogs. • CapafÓns et al. (1998) found that systematic desensitisation did reduce a fear of flying, showing that classical conditioning can explain some human behaviours. **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 C

Question Number	Indicative content	Mark
11	**AO1 (6 marks), AO3 (6 marks)** **AO1** • Research can be carried out through the use of case studies, to investigate the effect of not having daylight on the sleep-wake cycle of an individual. • Experiments can be carried out by altering the number of hours participants experience light to see the effect this has on their sleep-wake cycle. • Siffre (1972) spent time in a cave with no external light, and his circadian rhythm became a 24.5-hour rhythm on average. • Ralph et al. (1990) found that transplanting the SCN from one hamster to another altered their sleep-wake cycle to the length of time of the original hamster. • Folkard et al. (1985) found that adjusting a clock to a 22-hour cycle resulted in 11 of the 12 participants changing their sleep-wake cycle to a 22-hour cycle. • Stothard et al. (2017) found that the human sleep-wake cycle adapts to the length of the night, depending on whether it is summer or winter, in the absence of electric light. **AO3** • The use of case studies means that the effects of light on the circadian rhythms could be tested over a period of time, giving us a more detailed understanding compared to experiments. • The use of experiments to investigate the sleep-wake cycle means that the environment is controlled so the results may not be accurate for everyday sleeping patterns. • The results from Siffre (1972) help us understand that light affects our sleep-wake cycle which can be used by employers to help people who work night shifts change their sleep-wake cycle. • The use of animals to look at the role of the SCN on the sleep-wake cycle allows us to carry out research that could not be done on humans, and so gain more knowledge of the sleep-wake cycle. • Folkard et al. (1985) only used 12 participants and there could have been individual differences in those participants that made them more likely to conform to the instructions about when to go to sleep. • Stothard et al. (2017) used melatonin before and after non-exposure to electric light, this is not necessarily measuring when the participants went to sleep or woke up. **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
12	**AO1 (6 marks), AO2 (4 marks), AO3 (6 marks)** **AO1** • Light therapy treats seasonal affective disorder by simulating natural sunlight using a light box using white light or blue light. • The light box is used when the patient gets up to decrease the levels of melatonin released, decreasing tiredness. • Some light boxes gradually increase the level of light, rather than have the full level of light so that it is more like a natural dawn. • Psychoanalysis aims to gain insight into unconscious processes through the use of free association and dream analysis. • Free association can be used to explore issues with the client's childhood through allowing the client to talk without interruption. • The client may transfer their feelings about their parents onto the analyst, who then responds through counter transference. **AO2** • As the patient says the symptoms have developed over the winter months, they may be suffering from seasonal affective disorder so Alejandro should use a light box. • The use of a light box will make Alejandro's patient more alert in the mornings so they will find it easier to get out of bed, and to be motivated. • Katerina may ask the patient to talk about their childhood and use any hesitations to understand the patient's feelings of not being loved by their parents. • Katerina may analyse her response to the patient to gain insight into the patient's relationship with their parents. **AO3** • Meesters et al. (2018) found that the use of both blue light and white light boxes were equally as effective as a treatment in reducing the symptoms of seasonal affective disorder. • Psychoanalysts would argue light therapy may only work in the short term, as it does not look at the underlying reasons for the depression, so it is not an effective treatment. • Reeves et al. (2012) found that light therapy was effective as a treatment as self-report scores for depression fell after one session of light therapy. • Fonagy et al. (2015) found that the use of psychoanalysis for depression was more effective than usual treatment 42 months after the treatment, showing it is an effective therapy. • Psychoanalysis can take a long time to be effective, so light therapy may be a better treatment as it reduces depressive symptoms faster. • Psychoanalysis may not be an effective treatment for those with symptoms of depression, as they may not have the motivation to engage with the therapy.	**(16)**

	Look for other reasonable marking points.	

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)

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