GradeMax



Mark Scheme (Results)

Summer 2017

Pearson Edexcel International GCE
In Psychology (WPS02)
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)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of a strength in relation to scenario (AO2) Credit **one** mark for justification of the strength (AO3) For example: • Jayla's data will be objective as the images from the brain when reading or doing the mathematics are transferred from the scan to a computer (1), so increasing reliability as other researchers should gain the same conclusions from the data about brain activity when reading or doing mathematics. (1) **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
1(b)	**AO2 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of each improvement in relation to scenario (AO2) Credit **one** mark for accurate justification of each improvement (AO3) For example: • Jayla could use a random sample, instead of opportunity with a range of participants from different areas (1) as this would make her sample more representative of the target population (1). • She should use a range of participants of different ages, not just 18 to 22 year olds (1) so her results could be generalised to the whole population rather than just university students (1) **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
1(c)	**AO1 (1 mark)** Credit **one** mark for an accurate definition For example: • When the null hypothesis is rejected but it is actually correct (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
2(a)	**AO1 (3 marks)** Credit up to **one** mark for each accurate identification For example: • Consistent low mood (1). • Lack of pleasure in normal activities (1). • Sleeping longer/hard to get up in the morning (1). **Look for other reasonable marking points.**	**(3)**

Question Number	Answer	Mark
2(b)	**AO2 (3 marks)** Credit up to **three** marks for accurate description in relation to scenario For example: • Lysander would have to sit under a light box for 30 to 60 minutes each morning (1). Lysander could use a dawn simulator which gradually increases the light in the morning just before he wakes up so he will feel more like playing football later on (1). The light will decrease the levels of Lysander's melatonin so he should feel less sleepy in the morning and will spend less time in bed (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(3)**

Question Number	Answer	Mark
3(a)	**AO2 (1 mark)** Credit **one** mark for an accurate directional hypothesis in relation to scenario. For example: • The more brothers and sisters someone has the fewer children they will have (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
3(b)	**AO2 (4 marks)** Credit one mark for correct completion of column $(x-\bar{x})^2$ Credit one mark for correct completion sum of difference ². Credit one mark for dividing the (sum of the values) ² by 4 (n-1) =3.7 Credit one mark for correct calculation of standard deviation	**(4)**

Teacher		**Number of children participants have**	$x-\bar{x}$	$(x-\bar{x})^2$
A		2	-1.2	1.44
B		1	-2.2	4.84
C		4	0.8	0.64
D		3	-0.2	0.04
E		6	2.8	7.84
Mean number of children = 3.2			Sum of difference ² = 14.8	
Standard deviation = 1.92				

Look for other reasonable answers.

Question Number	Answer	Mark
3(c)	**AO2 (2 marks)** Credit **one** mark for accurate identification of significance in relation to scenario. Credit **one** mark for accurate use of formulae and statistical tables presented at the front of the paper. For example: • Arissa's results are not significant (1) because her observed value of -0.58 is smaller than the critical value of 0.900 (1) **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
4(a)	**AO1 (2 marks),** Credit **one** mark for each accurate identification. For example: • Pre-frontal cortex (1). • Limbic system (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
4(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 each weakness (AO3) For example: **Strength** • There have been several studies to support this explanation of aggression giving it credibility (1). Flynn (2006) found that when the hypothalamus in cats was stimulated this lead to predatory aggression (1). **Weakness** • A lot of the research done on areas of the brain and aggression involve the use of animals that have different biological aspects (1) therefore the results may not represent the role of brain functioning in human aggression so it may not be generalisable to humans (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Indicative content	Mark
5	**AO1 (4 marks), AO3 (4 marks)** **Brendgen et al (2005)** AO1 • They aimed to see how the contribution of genes and the environment differed between social and physical aggression. • There was a sample size of 234 twin pairs. • Data was gathered through peer ratings and teacher ratings of aggression. • They found that social aggression was affected by the environment more than physical aggression. AO3 • The study was ethical as informed consent was gained from the parents. • All the twins came from Montreal, Canada which makes the study ethnocentric. • There was a 94% agreement between zygosity based on physical likeness and gene markers showing reliability. • The results can be applied to change the environment so social aggression can be reduced. **McDermott et al (2008)** AO1 • 78 males gave genetic samples and were then classified as either high MAOA activity or low MAOA activity. • The participants thought that an anonymous person was taking earnings from them for a verbal task they had done. • The participants could then say if they would pay to give hot sauce to the anonymous person as a form of punishment. • They found that those with high MAOA activity were more likely to give a punishment than those with low MAOA activity. AO3 • As the sample was large at 78 participants but this is small given the target population so may not be generalisable. • Paying to punish someone is not an everyday form of punishment, therefore the measure of aggression may lack validity. • The data are objective as the participants either would or would not have given the punishment therefore increasing reliability. • There are ethical issues as the participants did not give informed consent, as they thought the person taking away their earning was real.	**(8)**

	Hoefelmann et al (2006) AO1 • They tested to see if there was a correlation between health behaviours and sleep patterns. • Participants answered a questionnaire about physical activity, eating habits, sleep duration and quality. • Students with lower levels of physical activity were less likely to have poor sleep quality. • Snack consumption was positively correlated with poor sleep quality. AO3 • The questionnaire had closed questions so data could be analysed easier than open questions. • Negative consent was gained from parents of participants under 18 (had to return form saying didn't consent) making it ethically questionable. • Other studies have shown physical activity is positively correlated with sleep quality, so reliability can be questioned. • Sleep quality was self-reported, so may not be an accurate measurement of the actual quality of sleep reducing validity. **Look for other reasonable marking points.**	

Level	**Mark**	**Descriptor**
Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation / conclusion in their answer.		
	0	No rewardable material.
Level 1	1-2 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) A conclusion may be presented, but will be generic and the supporting evidence will be limited. Limited attempt to address the question. (AO3)
Level 2	3-4 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Candidates will produce statements with some development in the form of mostly accurate and relevant factual material, leading to a superficial conclusion being made. (AO3)
Level 3	5-6 Marks	Demonstrates accurate knowledge and understanding. (AO1) Arguments developed using mostly coherent chains of reasoning, leading to a conclusion being presented. Candidates will demonstrate a grasp of competing arguments but evaluation may be imbalanced. (AO3)
Level 4	7-8 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Displays a well-developed and logical evaluation, containing logical chains of reasoning throughout. Demonstrates an awareness of competing arguments, presenting a balanced conclusion. (AO3)

Section B

Question Number	Answer	Mark
6(a)	**AO2 (1 mark)** Credit **one** mark for an accurate statement in relation to scenario. For example: • A child plays a game with another child (1) **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
6(b)	**AO2 (1 mark)** Credit **one** mark for correct calculation. • **22.22%** (1) **Reject all other answers.**	**(1)**

Question Number	Answer	Mark
6(c)	**AO2 (1 mark)** Credit **one** mark for accurate definition. For example: • The range determines the spread of scores from the highest score to the lowest score (1) **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
6(d)	**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 each weakness (AO3) For example:- **Strength** • It is more ethical than covert observations (1) as participants know they are being observed so have given consent by staying to be observed (1). **Weakness:** • Participants' behaviour may change as they are aware of the observer (1). They may behave in a way that makes them look better than they normally are, so decreases the validity (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
7(a)	**AO1 (1 mark)** Credit **one** mark for an accurate definition. For example: • An unconditioned stimulus is the natural stimulus that causes a reflexive response (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
7(b)	**AO2 (1 mark)** Credit **one** mark for an accurate statement in relation to scenario. For example: • The neutral stimulus was the wasp (1). **Look for other reasonable marking points.** **Generic answers score 0 marks**	**(1)**

Question Number	Answer	Mark
7(c)	**AO2 (1 mark)** Credit **one** mark for an accurate statement in relation to scenario For example: • Katya's conditioned response is being scared of wasps (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
7(d)	**AO1 (3 marks), AO3 (3 marks)** Credit up to **three** marks for accurate identification of each comparison (AO1) Credit up to **three** marks for exemplification of each comparison (AO3) For example: • Both operant conditioning and classical conditioning can be considered scientific (1) as both use animals in laboratory conditions which are controlled (1). • One difference is that classical conditioning deals with reflexive behaviour whilst operant conditioning deals with voluntary behaviour (1) so operant conditioning could be seen as a more detailed explanation of how we learn as it looks at more complex behaviours (1). • Both can explain how people develop phobias (1) classical conditioning through association and operant conditioning through the use of reinforcements (1). **Look for other reasonable marking points.**	**(6)**

Question Number	Answer	Mark
8(a)	**AO2 (2 marks)** Credit up to **two** marks for description of sampling method in relation to their practical For example: • We used an opportunity sample as we observed men and women on one day in a shopping center (1). Only those people who were in the shopping center at the time of the observation had a chance of being in our practical (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to the learning theories and development practical investigation of an observation.**	**(2)**

Question Number	Answer	Mark
8(b)	**AO2 (2 marks)** Credit up to **two** marks for description of results in relation to their practical For example: • We found that more teenagers drove faster than pensioners (1) and that pensioners drove at about 25 kilometres per hour which was 5 kilometres slower than the teenagers (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to the learning theories and development practical investigation of an observation**	**(2)**

Question Number	Answer	Mark
8(c)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of a weakness in relation to practical (AO2) Credit **one** mark for justification of the weakness (AO3) For example: • We had different scores for the number of times females played with a kitchen set (1) which means that our practical had low inter-rater reliability (1) **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to the learning theories and development practical investigation of an observation.**	**(2)**

Question Number	Answer	Mark
9(a)	**AO2 (1 mark)** Credit **one** mark for an accurate statement in relation to scenario. For example: • The independent variable is whether the mouse gets a food pellet or not after each successful practice run (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
9(b)	**AO2 (1 mark)** Credit **one** mark for an accurate statement in relation to scenario. For example: • The dependent variable is how many seconds it takes the rats to successfully complete the maze (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
9(c)	**AO1 (2 marks)** Credit **two** marks for a full description. Credit **one** mark for a partial description. For example: • One issue that needs to be considered is whether the pain the animal may suffer is justified (1) so researchers must have knowledge of how painful the procedure may be to that species (1) **Look for other reasonable marking points.**	**(2)**

Question Number	Indicative content	Mark
10	**AO1 (4 marks), AO3 (4 marks)** **AO1** • The aim of dream analysis is to use symbols in dreams to understand the unconscious. • Whilst asleep ego defence mechanisms are weakened so unconscious desires can become conscious. • However these desires can still harm our mental health so they have to be disguised in the form of symbols. • The manifest content is what we remember of the dream and the latent content is what the symbols actually mean. **AO3** • Dream analysis is subjective as different analyst can interpret the dreams in different ways so the analysis may not help the individual. • Freud (1909) analysed the symbols in Little Hans' dreams and helped cure Hans of his fear of horses, showing it works. • Dream analysis can be expensive compared to other therapies as it can take several years to resolve unconscious issues. • Heaton (1988) found 88% of clients preferred therapists to interpret their dreams rather than themselves as they felt they got more insight showing dream analysis is effective. **Look for other reasonable marking points.**	**(8)**

Level	Mark	Descriptor
Candidates must demonstrate and 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** • Watson and Rayner aimed to see if a phobia of rats could be learnt through classical conditioning. • They tested Little Albert to see what he was naturally afraid of. • He was afraid of loud noises but was not afraid of rats. • They presented him with a white rat and when he went to touch it they hit the metal bar with the hammer. • Watson and Rayner found that eventually Little Albert became scared of the white rat. • His fear of white rats generalised to other objects such as a rabbit. **AO3** • Watson and Rayner only used one boy age 9 to 11 months so the study may not be generalisable. • There were strict controls such as the timing of hitting the metal bar so the study is replicable. • There is some debate about whether Albert was a fully healthy baby so the results may not be valid. • The findings can be used to help cure phobias by pairing the phobic object with relaxation. • The study can be deemed unethical as they caused distress. • However, Watson and Rayner argued they did intend to decondition his fear. **Look for other reasonable marking points.**	**(12)**

Level	Mark	Descriptor
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), A02 (4 marks), AO3 (6 marks)** **AO1** • Working night shifts means that our sleep wake pattern is out of sync with our body clocks. • Melatonin is decreasing when we try to sleep in the day. • Body temperature is increasing in the day when night shift workers are trying to sleep. • Social learning theory states that we observe role models and imitate their behaviour. • This is due to having the motivation to carry out the behaviour through vicarious reinforcement. • Operant conditioning states that behaviour that is reinforced will be repeated. **A02** • Nalu has not reset his internal body clock so he has insomnia when he tries to sleep in the morning. • Nalu cannot sleep in the morning as melatonin levels are decreasing so he is becoming more awake. • Nalu's father is his role model as they are the same sex, so he imitates his father's sleep patterns. • Nalu may receive positive reinforcement for not sleeping in the morning as he can spend time with his friends instead of sleeping.	**(16)**

	AO3 • Sharkey et al (2001) found taking melatonin orally can help night shift workers sleep in the day so sleep patterns are biological. • Bhatti et al (2014) found morning types who worked nights had better levels of melatonin when sleeping in the day than night shift workers who were evening types so biological effects on sleep depend on personality. • Ghandi et al (2015) found that melatonin promoted going to sleep and length of time asleep in zebrafish but this is related to zebrafish and may not be true for humans. • Bandura, Ross and Ross (1961) found children imitate same sex aggressive models so the same may apply for sleeping patterns. • Many of the research studies into learning theories are completed in controlled conditions so results may not be valid for sleeping behaviour in the real world. • Operant conditioning cannot explain why shift workers cannot sleep in the morning if they do not get reinforced for it, they should be negatively reinforced for going to sleep. **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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