GradeMax



Mark Scheme (Results)

October 2019

Pearson Edexcel International Advanced Subsidiary In Physchology (WPS02) Paper 1: Biological Psychology, Learning Theories and Development

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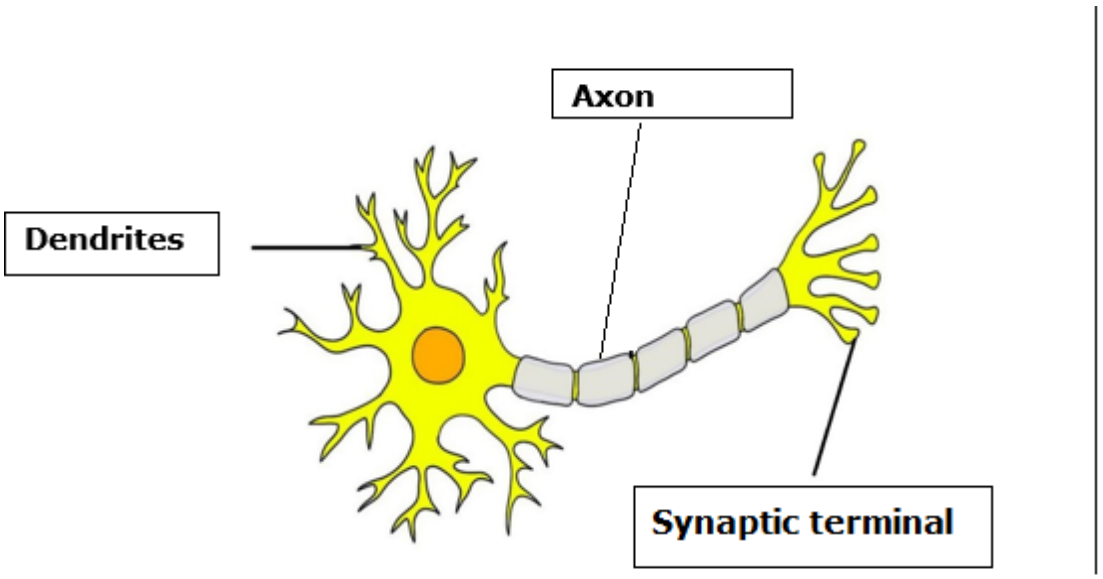
General Marking Guidance

- 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
1	**AO1 (3 marks)** Credit up to **three** marks for accurate naming of the parts.  **Look for other reasonable marking points.**	**(3)**

Question Number	Answer	Mark
2 (a)	**AO2 (1 mark)** Credit **one** mark for accurate statement in relation to scenario. For example: • Whether the rats were injected with testosterone or not injected with testosterone (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
2(b)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of reason in relation to scenario. (AO2) Credit **one** mark for justification/exemplification of reason. (AO3) For example: • Tobias used independent measures so that the experimental rats' previous experience with the other rats in the cage did not affect his results (1), because if the rat had been more aggressive due to the testosterone in the first condition they may carry on being aggressive in the second condition affecting the validity of Tobias's results (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

<table>
<tr><th>Question Number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>2(c)</td><td>
AO2 (4 marks)

Credit up to four marks for correct calculation.
For example:

<table>
<tr><td>Rat</td><td>Condition A Injected with testosterone</td><td>$(x - x)$</td><td>$(x - \bar{x})^2$</td></tr>
<tr><td>A</td><td>5</td><td>0</td><td>0</td></tr>
<tr><td>B</td><td>3</td><td>-2</td><td>4</td></tr>
<tr><td>C</td><td>7</td><td>2</td><td>4</td></tr>
<tr><td>D</td><td>4</td><td>-1</td><td>1</td></tr>
<tr><td>E</td><td>6</td><td>1</td><td>1</td></tr>
<tr><td colspan="2">Mean number of attacks = 5</td><td colspan="2">Sum of differences² = 10</td></tr>
<tr><td colspan="4">Standard deviation = 1.58</td></tr>
</table>

Credit one mark for correct completion of column $(x - x)^2$
Credit one mark for correct calculation of sum of differences² = 10
Credit one mark for correct calculation of dividing the sum of the differences² by (n-1) = 2.5
Credit one mark for correct answer for standard deviation = 1.58

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

Question Number	Answer	Mark
2(d)	**AO2 (2 marks)** Credit up to **two** marks for accurate description in relation to scenario. For example: • It may be that some of the rats Tobias used are naturally highly aggressive and so score highly on aggression (1), this will lead to a skewed distribution where more of the rats score above the mean for aggression, so the mode will be above the mean (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
3(a)	**AO1 (2 marks)** Credit up to **two** marks for accurate description. For example: • When teachers rated physical aggression the genetic variance was at 63% and peers rated it as 54% (1). The teachers rated social aggression as 20% due to genetics which is a lot lower than the rating for physical aggression (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/weakness (AO1) Credit **one** mark for justification/ exemplification of one strength/weakness (AO3) For example: Strength: • The teachers rating for aggression were cross referenced with the peers rating for aggression (1), the correlations were similar for both the teachers and the peers suggesting that the results have reliability (1). Weakness: • Only some of the twins were DNA checked to ensure they were monozygotic, the rest were just checked for physical resemblance (1), and therefore it could be that some twins that were thought to be monozygotic were not so affecting the validity of the results (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 scenario. For example: • Damage to Petal's limbic system may mean she can no longer control her emotions which explains why she has become more aggressive (1). The damage to her amygdala may mean that Petal sees arguments as more threatening than they are, leading to her throwing objects at other people (1). Petal's hippocampus may have been affected meaning that she does not learn that she will be punished for being aggressive (1). Damage to Petal's hypothalamus may mean it is activated easily and so lead to Petal throwing objects such as the cup in anger (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
4(b)	**AO2 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of one strength/weakness in relation to scenario (AO2) Credit **one** mark for justification/ exemplification of one strength/weakness (AO3) For example: Strength: • There are studies such as Matthies et al. (2012) that support the fact that damage to her amygdala may increase Petal's aggression (1), as they found that those who had higher scores for aggression had a 16-18% reduction of amygdala volumes suggesting Petal's amygdala may have been damaged in her accident. Weakness: • There are other possible explanations for Petal's aggression such as operant conditioning (1), if Petal saw the attention she gained from being aggressive as a positive reinforcement this could also explain her aggression so reducing the validity of the limbic system as an explanation (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Indicative content	Mark
5	**AO1 (4 marks), AO2 (4 marks)** **AO1** • The suprachiasmatic nucleus (SCN) is in the hypothalamus and receives information from the optic nerve. • It can detect how light or dark it is in the surrounding environment. • When it is dark the SCN stimulates the pineal gland, causing it to produce more melatonin. • The SCN also regulates body temperature, lowering it when it gets dark. **AO2** • When Doris is working the night shift it will be light when she is trying to get to sleep. • Her SCN will detect that it is daytime and so will no longer stimulate Doris's pineal gland. • Doris will not be producing as much melatonin and so will not feel sleepy when she goes to bed after the night shift. • Doris's temperature will also start to increase at the end of the night shift, so making it harder for her to get to sleep. **Look for other reasonable marking points.**	**(8)**

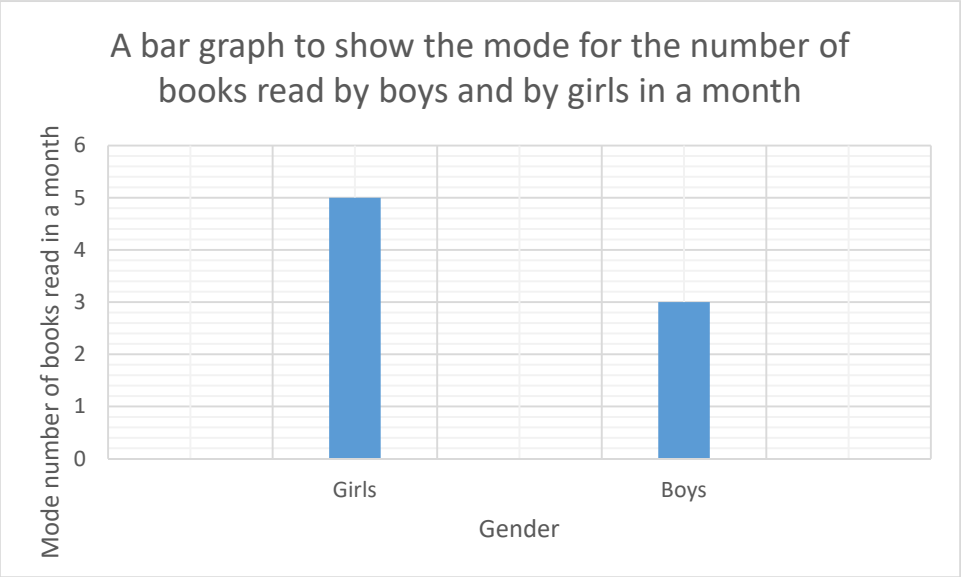
Level	Mark	Descriptor
AO1 (4 marks), AO2 (4 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs application in their answer.		
	0	No rewardable material
Level 1	1–2 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) Provides little or no 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
6 (a)	**AO1 (2 marks)** Credit up to **two** marks for accurate description. For example: • Stimulus generalisation is when a conditioned response is elicited from a stimulus that is similar to the conditioned stimulus (1). The more similar the stimulus is to the conditioned stimulus the stronger the response will be (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
6 (b)	**AO1 (2 marks)** Credit up to **two** marks for accurate description. For example: • Extinction is when the conditioned stimulus no longer causes a conditioned response (1). It occurs when the conditioned stimulus has not been paired with the unconditioned stimulus for some time (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
7 (a)	**AO2 (1 mark)** Credit one mark for appropriate estimation. For example: • 3.6 (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	Mark
7 (b)	**AO2 (3 marks)** **One** mark for appropriate title. **One** mark for appropriate labelling of axes. **One** mark for correct plotting of both mode scores. For example:  **Look for other reasonable answers.**	**(3)**

Question Number	Answer	Mark
8 (a)	**AO2 (4 marks)** Credit up to **four** marks for accurate description in relation to scenario. For example: • Anya is in the oral stage of development and Gregor is in the anal stage of development according to Freud's theory (1). Anya will like putting things, such as toys, in her mouth as this gives her pleasure (1). Gregor will be potty training, which can explain why he is having tantrums due to him receiving love on condition he performs on the potty (1). Gregor's ego is developing so he now has to balance his desires, such as leaving his toys out, with reality (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
8 (b)	**AO1 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of one strength/weakness (AO1) Credit **one** mark for justification/ exemplification of one strength/weakness (AO3) For example: Strength: • Freud's case study of Little Hans showed that Little Hans was going through the phallic stage (1), as his fear of horses was really a fear of his father giving the theory credibility (1). Weakness: • Freud's theory is based on unconscious processes that we are not aware of (1), making it unscientific as unconscious processes are hard to measure objectively (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
9 (a)	**AO1 (2 marks)** Credit up to **two** marks for accurate description For example: • At 11 months and 10 days Albert was scared of the rat, removing his hand when the rat touched it (1). Albert's fear generalised onto other objects such as a white rabbit and a dog (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Answer	Mark
9 (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: • The study was carried out under controlled conditions, such as no other loud noise when the rat was presented (1), therefore meaning no other extraneous variables affected the results giving the study internal validity (1). • Watson and Rayner gathered objective data, for example whether Little Albert cried or not (1), and this means the study is reliable as they did not have to interpret the data (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
10	**AO2 (2 marks), AO3 (2 marks)** Credit **one** mark for accurate identification of one strength and one weakness (AO2) Credit **one** mark for justification/ exemplification of one strength and one weakness (AO3) For example: Strength • The use of dream analysis will allow Phillipe's client to gain insight into the unconscious reasons he suffers from anxiety (1) meaning that the client will be able to deal with the reasons for anxiety and so be cured (1). Weakness • Phillipe's interpretation of his client's dreams are subjective such as the cat representing the client's wife (1), therefore his analysis may not reflect what is in his client's unconscious so the therapy will not help cure his client (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Indicative content	Mark
11	**AO1 (4 marks), AO3 (4 marks)** **AO1** • Social learning theory states that we observe our role models and imitate their behaviour. • In order to imitate a behaviour we need to be able to remember the actions of that behaviour. • If a role model is rewarded then that behaviour is more likely to be imitated due to vicarious reinforcement. • For someone to be a role model they must have relevance to the observer, such as being interested in the same music. **AO3** • Bandura, Ross and Ross (1961) found that boys did imitate a male role model more than a female role model so showing we do learn behaviour from role models and through social learning theory. • Charlton (2000) found that the introduction of television did not increase anti-social behaviour, so there must be factors other than observation that influence our behaviour, not just social learning. • Bandura (1965) found that vicarious reinforcement does make it more likely that a role model will be imitated, giving the theory further validity as an explanation for human behaviour. • The validity of the explanation is reduced as it does not explain how we carry out behaviours that we have not previously observed, such as insight learning, so it is not a full 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 C

Question Number	Indicative content	Mark
12	**AO1 (4 marks), AO2 (4 marks), AO3 (4 marks)** **AO1** • Seasonal affective disorder is an infradian rhythm as it lasts for about a year. • As the winter months are darker the levels of melatonin in the body increase, leading to feeling more tired. • Lack of sunlight can lead to a reduction in serotonin, which will decrease a person's mood. • The reduction of daylight in the winter may cause disruption to circadian rhythms and so affect the sleep wake cycle. **AO2** • Rosa has a yearly rhythm, as she has less enjoyment when going out with her friends every winter. • Rosa's levels of melatonin have increased which is why she spends most of the weekend in bed. • As she does not walk her dog as much in the winter Rosa is exposed to even less sunlight so reducing her serotonin, which can lead to depression. • Due to the mornings being darker Rosa's sleep wake cycle has become disrupted so she finds it hard to get out of bed for work. **AO3** • Zhang et al. (2016) found that giving mice, who had a rare variance on the circadian clock gene, light at different times of day affected their sleep wake cycle. • Sandman et al. (2016) found participants who had seasonal affective disorder were more likely to suffer from insomnia, so it may be the lack of sleep that causes the depression rather than bodily rhythms. • Knowing that a lack of light may lead to seasonal affective disorder has led to light therapy being used to treat it, so it has application. • Palinkas et al. (2004) said that it was the social environment that had more of an effect on mood disorders on participants who spent the winter in the Antarctic rather than the physical environment. **Look for other reasonable marking points.**	**(12)**

Level	Mark	Descriptor
AO1 (4 marks), AO2 (4 marks), AO3 (4 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs application vs evaluation / conclusion in their answer.		
	0	No rewardable material.
Level 1	1-3 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	4-6 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	7-9 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	10-12 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)

Question Number	Indicative content	Mark
13	**AO1 (6 marks), AO3 (10 marks)** **AO1** • fMRI scans take scans of a functioning brain by placing the head in a scan that uses a magnetic field. • When the magnet is on the haemoglobin in the blood repels the magnetic field if it still contains oxygen, and follows the direction of the magnetic field when the oxygen has been used. • The scan takes images of these changes which is converted into a 3 dimensional image on a computer. • Observations involve quantitative data where defined behaviours are recorded on a tally chart. • An unstructured observation often takes place in a natural setting, such as a playground. • If the observation is covert the participants do not know that they are being observed. **AO3** • fMRI scans are safer than PET scans as they do not use radiation, so maybe more useful for researching human behaviour. • People with a pacemaker or metal objects in their bodies cannot have fMRI scans due to the magnetic field, so cannot be used to study all human behaviour. • fMRI scans only give an indication of brain activity, it they cannot explain other reasons for human behaviour such as imitating a role model. • It can be a distressing procedure for people who suffer from claustrophobia as they take place in a noisy confined space. • Li et al. (2013) found that activity in the PCC was associated with heroin addicts cravings, so brain scans can be used to explain addiction. • The use of quantitative data in an observation can be reductionist as it does not record the actions leading up to a behaviour so may be of limited use when studying human behaviour. • If an observation is covert then there are less likely to be any demand characteristics, so the behaviour is more likely to be realistic and valid. • If behavioural categories have been defined by one researcher then some behaviours may be ignored, so the observation may not show all human behaviour. • If more than one observer is used then their results can be checked, and if there is inter-rater reliability the results will be valid for human behaviour. • A participant observation can give detailed insight into a group's behaviour, including reasons for that behaviour such as the influence of other people in that group. **Look for other reasonable marking points.**	**(16)**

Level	Mark	Descriptor
AO1 (6 marks), AO3 (10 marks) Candidates must demonstrate a greater emphasis on evaluation/conclusion vs knowledge and understanding in their answer. Knowledge & understanding is capped at maximum 6 marks.		
	0	No rewardable material.
Level 1	1-4 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	5-8 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	9-12 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	13-16 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)