GradeMax



Mark Scheme (Results)

Summer 2021

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

Paper 1: Biological Psychology, Learning Theories and Development

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Summer 2021
Publications Code WPS02_01_2106_MS
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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.

Summary of changes from provision Mark Scheme

A few minor changes were made to the Mark Scheme before marking on the marking service begun. These have been highlighted in red in the Mark Scheme.

The changes have been highlighted in the table:

Question Number	Summary of change
1	Examples added as valid answers.
2a	Examples added as valid answers.
2b	Examples added as valid answers.
3a	Other aspects of the limbic system in relation to aggression were credited.
3b	Studies were credited as weaknesses as long as they were used to explain a weakness of the limbic system as an explanation of aggression.
4	Other correlational practicals were credited.
4d	Other improvements relating to the gathering of the data were credited.
6a	Examples added as valid answers.
6b	Examples added as valid answers.
7a	Other combinations of decimal places in the working out were credited. The final answer had to be to two decimal places.
7b	Other examples of where the opportunity sample could have been gathered from were credited.
7c	Examples added as valid answers.
8b	Other weaknesses were credited.
8c	Other improvements were credited.
9a	Other procedural points were credited as long as they were applicable to the treatment group.
9b	Other strengths were credited.

Section A

Question Number	Answer	Mark
1	**AO1 (1 mark)** Credit **one** mark for accurate statement. For example: • An environmental cue that synchronises a biological rhythm to the natural 24-hour cycle (1). • An environmental cue that synchronised a biological rhythm (1). • An environmental cue that synchronises our body clock (1). **Look for other reasonable marking points.**	**(1)**

Question Number	Answer	**Mark**
2(a)	**AO2 (1 mark)** Credit **one** mark for accurate identification in relation to scenario. For example: • Figure 1 shows a positive correlation between the level of testosterone and number of aggressive acts in a month (1). • A positive correlation (1). • Positive (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 one difference in relation to scenario. (AO2) Credit **one** mark for justification/exemplification of one difference. (AO3) For example: • Haziq is more likely to find there is no correlation between testosterone levels and the number of aggressive acts in a month using $p \leq 0.01$ (1) as it is more likely to produce a type II error where the null hypothesis stating there is no relationship between testosterone and aggression is incorrectly kept. (1) • Haziq is more likely to find a correlation between testosterone levels and the number of aggressive acts in a month at $p \leq 0.05$ (1) as it is less likely to produce a type II error compared to $p \leq 0.01$ (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
2(c)	**AO3 (2 marks)** Credit up to **two** marks for accurate justification in relation to scenario. For example: • His stratified sample will be more representative because the percentages of each gender will reflect percentages in his target population (1). This means that Haziq can be more confident that his results about levels of testosterone and aggression are generalisable (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
2(d)	**AO2 (1 mark)** Credit **one** mark for accurate order of magnitude. For example: • 9.1456×10^2 • Reject all other answers. **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
2(e)	**AO2 (1 mark)** Credit **one** mark for correct calculation of the mean to **three** decimal places. For example: • 9.238 (1) **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
3(a)	**AO1 (4 marks)** Credit up to **four** marks for accurate description. For example: • The limbic system regulates our basic urges which include aggression (1). The amygdala is part of the limbic system and alerts the PFC to the fact that there may be a threatening situation (1). If the PFC processes the situation as threatening, then the amygdala can go into fight mode and become aggressive (1). The hypothalamus leads to the expression of emotions, including aggression so determines how the aggression is expressed (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 each weakness. (AO1) Credit **one** mark for justification/exemplification of each weakness. (AO3) For example: • The explanation could be considered reductionist as it ignores other factors that may cause aggression (1), such as social learning theory which states aggression is caused by imitating role models (1). • Some of the research may not be generalisable as it is done through unique case studies such as the case of Phineas Gage (1), where he had specific damage to various parts of his brain which would not be the same for others with damage to the limbic system (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
4 (a)	**AO2 (1 mark)** Credit **one** mark for accurate statement in relation to the biological psychology practical investigation. For example: • One aim was to investigate whether there was a negative correlation between the number of hours slept and the amount of time spent on social media (1). **Look for other reasonable marking points.** **Generic answers score 0 marks** **Answers must relate to conducting correlations to gather quantitative data relating to aggression or body rhythms.**	**(1)**

Question Number	Answer	Mark
4(b)	**AO2 (4 marks)** Credit up to **four** marks for accurate description in relation to the biological psychology practical investigation. For example: • We created a questionnaire asking two closed questions, how long do you sleep per night and how long to you spend on social media per day (1). We used opportunity sampling and gathered 25 participants to answer our questionnaire on sleep and social media (1). Each person was given the questionnaire individually and we went out of the room whilst they answered the questions on the hours they slept and spent on social media (1). We gave them an envelope to put their answers in so that we could not identify who had spent how long on social media (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.** **Answers must relate to conducting correlations to gather quantitative data relating to aggression or body rhythms.**	**(4)**

Question Number	Answer	Mark
4(c)	**AO2 (1 mark), AO3 (2 marks)** Credit **one** mark for accurate identification of a conclusion in relation to the biological psychology practical investigation. (AO2) Credit up to **two** marks for justification/exemplification of one conclusion. (AO3) For example: • We concluded that those who spend more time on social media get less sleep per night (1). This is because we found a significant negative correlation between the number of hours slept per night and the number of hour spent on social media per day (1) as our calculated value of -0.561 was bigger than the critical value of 0.464 (1). **Look for other reasonable marking points.** **Generic answers score 0 marks** **Answers must relate to conducting correlations to gather quantitative data relating to aggression or body rhythms.**	**(3)**

Question Number	Answer	Mark
4(d)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of **one** improvement in relation to biological psychology practical investigation. (AO2) Credit **one** mark for justification/exemplification of **one** improvement. (AO3) For example: • We could have asked participants to note down how long they spent on social media every day for a week (1), this would make the results more valid as it would be the time they actually spent on social media rather than them estimating how long they spent on it (1). **Look for other reasonable marking points.** **Generic answers score 0 marks** **Answers must relate to conducting correlations to gather quantitative data relating to aggression or body rhythms.**	**(2)**

Question Number	Indicative content	Mark
5	**AO1 (4 marks), AO3 (4 marks)** AO1 • Raine et al. (1997) used 82 participants, 41 were in the experimental group and 41 were in the control group. • The experimental group consisted of convicted murderers who had pleaded not guilty to murder by reason of insanity. • Any participants who were on medication such as those who had schizophrenia, were kept off their medication for two weeks before the experiment took place. • Each participant carried out a continuous visual performance task for 32 minutes and then had a PET scan immediately afterwards. AO3 • A sample size of 41 murderers is considered representative, and therefore the results of Raine et al. (1997) can be generalised to the target population of NGRIs. • As the murderers had pleaded not guilty by reasons of insanity the results may not be true for other convicted murderers who had not claimed to be insane. • Keeping the participants who had schizophrenia off their medication may be seen as unethical even though they consented, as it could cause them to have more distressing symptoms. • The continuous performance task did not cause any distress to the murderers so did not breach the protection from harm guideline. **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 (1 mark)** Credit **one** mark for accurate identification in relation to scenario. For example: • The ice cream is the primary reinforcer that Rosie's mother uses (1) • The ice cream (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 accurate identification in relation to scenario. For example: • Rosie's mother used negative punishment as she took away something Rosie liked, her favourite toy (1). • Negative punishment (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(1)**

Question Number	Answer	Mark
6 (c)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of in relation to scenario. (AO2) Credit **one** mark for justification/exemplification. (AO3) For example: • Punishment did not work for teaching Rosie how to play with the dog nicely as it only shows her that pulling the dogs tail will have negative consequences (1), it does not teach new behaviour, such as how to play with the dog nicely, punishment just discourages undesirable behaviour (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>7 (a)</td><td>

AO2 (2 marks)

Credit one mark for accurate calculation of $(O-E)^2/E$.
Credit one mark for accurate calculation of chi-squared=0.22.

For example:

<table>
<tr><th></th><th></th><th>Observed</th><th>Expected</th><th>O-E</th><th>$(O-E)^2$</th><th>$(O-E)^2/E$</th></tr>
<tr><td rowspan="2">Boys</td><td>Did play with a doll</td><td>6</td><td>6.5</td><td>-0.5</td><td>0.25</td><td>0.04</td></tr>
<tr><td>Did not play with a doll</td><td>4</td><td>3.5</td><td>0.5</td><td>0.25</td><td>0.07</td></tr>
<tr><td rowspan="2">Girls</td><td>Did play with a doll</td><td>7</td><td>6.5</td><td>0.5</td><td>0.25</td><td>0.04</td></tr>
<tr><td>Did not play with a doll</td><td>3</td><td>3.5</td><td>-0.5</td><td>0.25</td><td>0.07</td></tr>
<tr><td colspan="4"></td><td>Chi squared =</td><td>0.22</td></tr>
</table>

<table>
<tr><th></th><th></th><th>Observed</th><th>Expected</th><th>O-E</th><th>$(O-E)^2$</th><th>$(O-E)^2/E$</th></tr>
<tr><td rowspan="2">Boys</td><td>Did play with a doll</td><td>6</td><td>6.5</td><td>-0.5</td><td>0.25</td><td>0.038461538</td></tr>
<tr><td>Did not play with a doll</td><td>4</td><td>3.5</td><td>0.5</td><td>0.25</td><td>0.07142857</td></tr>
<tr><td rowspan="2">Girls</td><td>Did play with a doll</td><td>7</td><td>6.5</td><td>0.5</td><td>0.25</td><td>0.038461538</td></tr>
<tr><td>Did not play with a doll</td><td>3</td><td>3.5</td><td>-0.5</td><td>0.25</td><td>0.07142857</td></tr>
<tr><td colspan="4"></td><td>Chi squared =</td><td>0.22</td></tr>
</table>

Look for other reasonable marking points.

</td><td>(2)</td></tr>
</table>

Question Number	Answer	Mark
7(b)	**AO2 (2 marks)** Credit up to **two** marks for accurate description in relation to scenario. For example: • Mackenzie could have gone to a local nursery at an arranged time to gather his sample of the two-year old children (1), and he would pick the first ten two-year old boys and the first ten two-year old girls who arrived at the nursery (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
7 (c)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of significance. (AO2) Credit **one** mark for justification/exemplification. (AO3) For example: • Mackenzie did not find a significant difference between the number of boys and girls who did or did not play with a doll (1), as the calculated value of 3.68 is smaller than the critical value of 3.84 (1) • He did not find a significant difference (1), as the calculated value is smaller than the critical value of 3.84 (1). • He did not find a significant difference (1), as 3.68 is less than 3.84 (1). **Look for other reasonable answers.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
8 (a)	**AO2 (4 marks)** Credit up to **four** marks for accurate description in relation to scenario. For example: • Haneen has watched her father change the oil on the car and paid attention to how it is done (1). Her father is a role model for Haneen as she sees him as someone important in her life, so she is more likely to imitate his behaviour (1). Haneen may be motivated through vicarious reinforcement as her father gets his favourite cake when he has changed the oil (1). Haneen is further motivated to change the oil again as she has intrinsic reinforcement through the sense of pride she felt (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(4)**

Question Number	Answer	Mark
8 (b)	**AO2 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one weakness in relation to scenario. (AO2) Credit **one** mark for justification/exemplification of one weakness. (AO3) For example: • Research such as Bandura, Ross and Ross (1961) may not apply to Haneen changing the oil as it was carried out on young children (1), as Haneen is seventeen years old she may have more complex cognitive processes so may not just imitate her father, therefore it may not be a valid explanation of her behaviour (1). **Look for other reasonable marking points.** **Generic answers score 0 marks.**	**(2)**

Question Number	Answer	Mark
8 (c)	**AO1 (2 marks) AO3 (2 marks)** Credit up to **two** marks for accurate identification of comparison. (AO1) Credit up to **two** marks for exemplification of comparison. (AO3) Answers must include both similarities and differences for full marks. Max 2 marks if the answer is only similarities or only differences. For example: • Both social learning theory and Freud's theory of psychosexual development describe how children imitate behaviour (1), social learning theory through observing a role model and Freud's theory through identification with the same sex parent (1). • Social learning theory can be considered to be more scientific than Freud's theory of psychosexual development (1) as social learning theory has empirical evidence to support it whilst Freud's theory of psychosexual development has evidence mainly from case studies (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
9 (a)	**AO1 (4 marks)** Credit up to **four** marks for accurate description. Must be of the treatment group For example: • All the participants were measured for their fear of flying at the start of the experiment through a variety of measures e.g. the EPAV scale (1). Participants were shown simulation situation video tape of a plane trip. (1) The treatment groups had a standardised desensitisation programme for between 12 and 15 sessions (1). The treatment included imagining themselves in different flying scenarios whilst using relaxation techniques (1). **Look for other reasonable marking points.**	**(4)**

Question Number	Answer	Mark
9 (b)	**AO1 (1 mark), AO3 (1 mark)** Credit **one** mark for accurate identification of one strength. (AO1) Credit **one** mark for justification/exemplification of one strength. (AO3) For example: • Capafóns et al. (1998) used a physiological measures of stress such as heart rate which makes the data reliable (1) as it is objective numerical data can be analysed by other researchers to see if they come to the same findings (1). **Look for other reasonable marking points.**	**(2)**

Question Number	Indicative content	Mark
10	**AO1 (4 marks), AO2 (4 marks)** **AO1** • Classical conditioning is based on learning a reflexive behaviour to a new, conditioned stimulus. • The unconditioned stimulus is paired with a neutral stimulus, that originally did not cause a reflexive action. • One trial learning is when the conditioned response occurs after one pairing of the unconditioned stimulus and the neutral stimulus. • Generalisation occurs when the conditioned response occurs to similar stimuli to the conditioned stimulus. **AO2** • Evuska's original reflex was choking when something gets stuck in her throat. • The neutral stimulus was the peanut butter sandwich as Evuska did not have choking reaction to them before the conditioning. • Evuska now gagging when she sees a peanut butter sandwich is an example of one trial learning as she only had one bad incident with them. • Evuska has generalised her phobia as she now chokes when she sees any sandwich, not just a peanut butter sandwich. **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
11	**AO1 (6 marks), AO3 (6 marks)** Must be focussed on reliability and validity. **AO1** • Watson and Rayner (1920) aimed to find out if an emotional response could be classically conditioned in an infant. • They used Little Albert from the age of around nine months old, and he was reported to be a healthy child. • Initial testing with a variety of objects such as a white rat and a dog found that he was not scared of these objects. • From the age of 11 months and three days a white rat was presented to Little Albert, whilst a hammer was struck on a metal bar. • By the age of 11 months and 15 days Little Albert was showing a fear of the white rat even when there was no loud noise. • Watson and Rayner (1920) concluded that emotional responses could be conditioned and that they can transfer onto other, similar objects. **AO3** • It was assumed that Little Albert was afraid of the white rat due to his response of crying and moving away, but he could not tell us what he was feeling, so the results may not be valid. • As only one infant was used in the study we cannot generalise the results to adults, who may not be as easily conditioned to fear so it lacks population validity. • The initial testing provides a baseline to compare the later results with, giving the study credibility which may improve the reliability. • The procedure of presenting the white rat and the loud noise, along with the block to calm Albert down can be repeated to check for consistency of the results. • There are ethical issues with the study as Little Albert was distressed, and deliberately upset so the study cannot be repeated to check the reliability of the results. • The conclusions from the study give us an understanding of how phobias develop, and so can lead to treatments such as flooding, so giving the study validity. **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** • Twin studies involve comparing the level of aggression between monozygotic twins and dizygotic twins to determine if aggression is caused by nature or nurture. • The pairs of twins would need to be checked for zygosity through measures such as blood group. • A concordance rate is calculated to see if the monozygotic twins or the dizygotic twins have a higher concordance rate for aggression. • Animal experiments involve having two groups of animals, and manipulating the independent variable to measure the effect on the dependent variable. • The independent variable and dependent variable would be operationalised so that the experimenters knew exactly what the change would be, and exactly how aggression would be measured. • Extraneous variables are controlled in animal experiments, such as the environment that they are in before and during the experiment. **AO2** • Ion could get a sample of monozygotic twins and dizygotic twins through a local twin register. • Ion would give each twin the same questionnaire on aggression and then compare the scores for each pair of twins. • Nikola could have two groups of rats and could stimulate the amygdala of one group of rats to see if it changed their levels of aggression compared to the other group of rats. • Nikola could ensure that all the rats she used had the same amount of food before she did the experiment so hunger was not a factor in the levels of aggression in the rats. **AO3** • Even monozygotic twins do not share exactly the same environment so it is not possible to totally rule out the effects of nurture affecting the validity of the research. • Checking the twins for zygosity through a number of methods allows the results to be cross checked with each other so twins can reliably be determined to be monozygotic or dizygotic. • If there is a large sample of twins then it would be difficult to check them all for zygosity, so it could be that some twins are incorrectly categorised, affecting the validity of the results. • The results from animal experiments in aggression can be generalised to humans as the areas of the brain, such as the amygdala, are very similar. • Due to operationalisation of the dependent variable, there should be validity in the results as the experimenters know what consists of an aggressive act. • The tight control on extraneous variables means the results may not be valid for everyday life, as it could be argued that aggression in animals is usually due to a variety of factors in the natural environment and not just brain structure. **Look for other reasonable marking points.**	**(16)**

Level	Mark	Descriptor
AO1 (6 marks), AO2 (4 marks), AO3 (6 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation/conclusion in their answer. Application to the context is capped at maximum 4 marks.		
	0	No rewardable material.
Level 1	1-4 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) Provides little or no reference to relevant evidence from the context (scientific ideas, processes, techniques & procedures). (AO2) A conclusion may be presented, but will be generic and the supporting evidence will be limited. Limited attempt to address the question. (AO3)
Level 2	5-8 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Line(s) of argument occasionally supported through the application of relevant evidence from the context (scientific ideas, processes, techniques & procedures). (AO2) Candidates will produce statements with some development in the form of mostly accurate and relevant factual material, leading to a superficial conclusion being made. (AO3)
Level 3	9-12 marks	Demonstrates accurate knowledge and understanding. (AO1) Line(s) of argument supported by applying relevant evidence from the context (scientific ideas, processes, techniques & procedures). Might demonstrate the ability to integrate and synthesise relevant knowledge. (AO2) Arguments developed using mostly coherent chains of reasoning. leading to a conclusion being presented. Candidates will demonstrate a grasp of competing arguments but evaluation may be imbalanced. (AO3)
Level 4	13-16 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Line(s) of argument supported throughout by sustained application of relevant evidence from the context (scientific ideas, processes, techniques or procedures). Demonstrates the ability to integrate and synthesise relevant knowledge. (AO2) Displays a well-developed and logical evaluation, containing logical chains of reasoning throughout. Demonstrates an awareness of competing arguments, presenting a balanced conclusion. (AO3)