

AS Psychology Paper 2 Mark Scheme

Question Number	Answer	Marks
1(a)	<p style="text-align: center;">AO1 (3 marks)</p> <p>One mark for each point related to PET which in combination provides a logical description (excluding that it produces 3D as that is in the question), up to 3 marks.</p> <p>For example:</p> <ul style="list-style-type: none"> A PET scan is a way of measuring brain activity (1). The person requiring the scan has some radioactive glucose/isotope injected into their arm/blood circulation/vein. The tracer emits positrons which give out gamma rays that can be detected by the scanner (1). The radioactive glucose is detected by the PET scanner as it moves to the parts of the brain (that are required to complete a task) that are working at that moment in time (1). <p>Look for other reasonable marking points.</p>	(3)

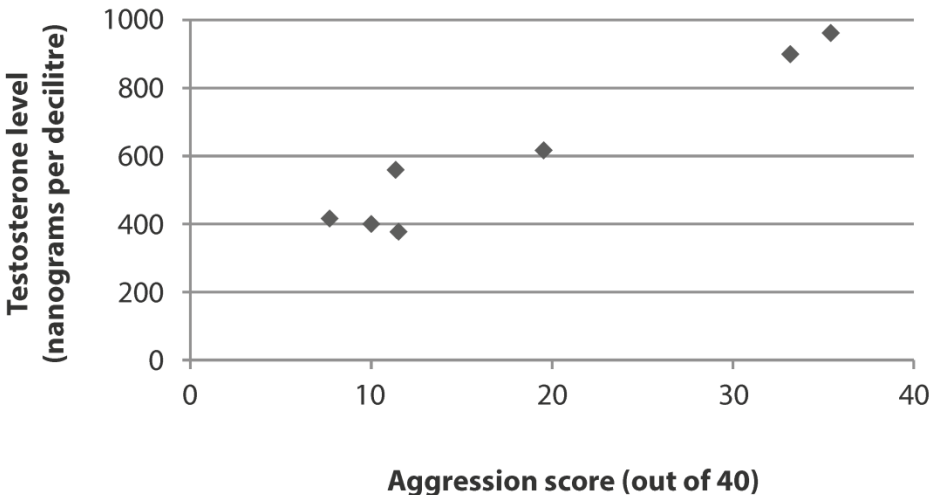
Question Number	Answer	Marks
1(b)	<p style="text-align: center;">AO1 (1 mark)</p> <p>One mark for giving an aim related to Raine et al.'s (1997) study.</p> <p>For example:</p> <ul style="list-style-type: none"> Raine et al. wanted to see if there was a difference in the prefrontal cortex of murderers/people pleading not guilty to murder through diminished responsibility and a control group <p>OR</p> <ul style="list-style-type: none"> Raine et al. (1997) wanted to see if there was brain abnormality in people pleading not guilty to murder by reason of insanity. <p>Look for other reasonable marking points.</p>	(1)

Question Number	Answer	Marks
1(c)	<p style="text-align: center;">AO1 (1 mark)</p> <p>One mark for giving a conclusion of Raine et al.'s (1997) study. For example:</p> <ul style="list-style-type: none"> • They concluded that the brain structure/brain activity of murderers was significantly different from the brain structure/brain activity of non-murderers. <p>OR</p> <ul style="list-style-type: none"> • They concluded that there was a difference in corpus callosum activity between the NGRI participants and the control group, which might suggest a lack of emotional expression and other features that led to aggression. <p>Look for other reasonable marking points.</p>	(1)

Question Number	Answer	Marks
1(d)	<p style="text-align: center;">AO1 (2 marks), AO3 (2 marks)</p> <p>One mark for each strength identified (2 AO1). One mark for justification of each strength (2 AO3). For example:</p> <ul style="list-style-type: none"> • Raine et al. used a matched control group, which means that an accurate and valid comparison could be made between the groups (1). The detail of the matched control group meant that more accurate comparisons could be made, e.g. there were five people with schizophrenia in both groups (1). • Compared to studies of this kind, this is a relatively large sample (of 41) (1), which means that the results are more representative and can be generalised, especially as the 41 participants were people actually charged with aggressive behaviour (1). <p>Look for other reasonable marking points.</p>	(4)

Question Number	Answer	Marks
2(a)	AO2 (1 mark) One mark for identifying the technique used. <ul style="list-style-type: none"> • Volunteer (sampling)/self-selecting. 	(1)

Question Number	Answer	Marks
2(b)	AO2 (2 marks) One mark for identifying a limitation in this investigation and one mark for justifying that limitation. For example: <ul style="list-style-type: none"> • The sampling method technique means that only a certain type of person is likely to respond to an advert in <i>Male Life</i> (1). This may not be representative of the target population of males required, which may limit the generalisability of the findings (1). <p>OR</p> <ul style="list-style-type: none"> • Only certain people who read <i>Male Life</i> and are motivated to find out the link between testosterone levels and aggression levels may volunteer to take part (1), which means that the results may not be generalised to the general population only to specific 'types' of male (1). <p>Look for other reasonable marking points.</p> <p>Answers must relate to the scenario.</p> <p>Generic answers score 0 marks.</p>	(2)

Question Number	Answer	Marks																
2(c)	<p style="text-align: center;">AO2 (3 marks)</p> <p>One mark for correct/appropriate title.</p> <p>A graph to show a correlation between testosterone levels and aggression levels in males aged 20-50.</p> <p>One mark for correct/appropriate labelling of axes. Y axis: Testosterone level (nanograms per decilitre). X axis: Aggression score out of 40.</p> <p>One mark for correct plots on the graph.</p> <p style="text-align: center;">A graph to show a correlation between testosterone levels and aggression levels in males aged 20-50</p>  <table border="1" style="margin-left: auto; margin-right: auto;"> <caption>Data points from the scatter plot</caption> <thead> <tr> <th>Aggression score (out of 40)</th> <th>Testosterone level (nanograms per decilitre)</th> </tr> </thead> <tbody> <tr><td>8</td><td>420</td></tr> <tr><td>10</td><td>400</td></tr> <tr><td>12</td><td>380</td></tr> <tr><td>12</td><td>560</td></tr> <tr><td>19</td><td>620</td></tr> <tr><td>33</td><td>900</td></tr> <tr><td>36</td><td>950</td></tr> </tbody> </table> <p>Maximum of two marks awarded if one of the components (aggression levels/tolerance levels) is missing. Maximum of one mark awarded if two of the components are missing.</p>	Aggression score (out of 40)	Testosterone level (nanograms per decilitre)	8	420	10	400	12	380	12	560	19	620	33	900	36	950	(3)
Aggression score (out of 40)	Testosterone level (nanograms per decilitre)																	
8	420																	
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2(d)	<p style="text-align: center;">AO2 (2 marks)</p> <p>One mark for each point linked to the relationship, which, in combination, provides a logical description, up to 2 marks.</p> <ul style="list-style-type: none"> • As the aggression score increases so does the testosterone score/this is a positive correlation (1). • There is a linear relationship between the two scores/the line of best fit would show that the lower scores on aggression also have lower testosterone levels (and vice versa) (1). <p>Look for other reasonable marking points.</p> <p>Answers must relate to the scenario.</p> <p>Generic answers score 0 marks.</p>	(2)

Question Number	Answer	Marks
3(a)	<p style="text-align: center;">AO2 (2 marks)</p> <p>One mark for an answer relating to nature. One mark for an answer relating to nurture.</p> <p>Nature</p> <ul style="list-style-type: none"> • Level of hormones (testosterone). • Puberty. • Gender. • She may have brain dysfunction. <p>Nurture</p> <ul style="list-style-type: none"> • Divorce of parents. • Death of family member • Personal injury. • New step parent. • Starting a new school. <p>Look for other reasonable marking points.</p>	(2)

Question Number	Answer	Marks
3(b)	<p style="text-align: center;">AO2 (2 marks)</p> <p>One mark for each point, which, in combination, provides a logical description, up to 2 marks.</p> <p>The counsellor will explain to Sophie that</p> <ul style="list-style-type: none"> • She has suffered some serious events to affect her aggression e.g. divorce of her parents (1). • There are some events she can do something about (e.g. making new friends at school) and some she can't (e.g. parents' separation) (1). • Looking at the figures will get her to rationalise her situation (1). • Devising a strategy (e.g. to increase her circle of friends) will reduce the environmental causes of her aggression and help her to control her anger (1). <p>Look for other reasonable marking points.</p>	(2)

Question Number	Indicative content	Marks
4	<p style="text-align: center;">AO1 (4 marks), AO3 (4 marks)</p> <p>AO1</p> <ul style="list-style-type: none"> • The psychodynamic approach looks at three parts of the personality: the id, ego and superego. • The superego is the conscience and gives society's rules, the id is the 'demanding' part of the personality and the ego sets about getting a balance between the demands and the rules. • Aggression can release unconscious desires and wishes and can be cathartic. • The biological approach covers areas such as genes, hormones and brain functioning/structure. • Testosterone levels, for example, may explain why male aggression is more common than female. <p>AO3</p> <ul style="list-style-type: none"> • Biological research methods tend to gather quantitative data, which is useful when looking at brain functioning, whereas psychodynamic research methods tend to focus on qualitative data, which is important in explaining such aspects as emotions. • Biological research focuses on neurotransmitters, which have been shown to be important in brain functioning and which will link to aggressive thoughts, whereas psychodynamic research focuses on the unconscious, which can explain such aspects of behaviour as personality. • The biological approach ignores the influence of early experiences on behaviour except perhaps development of testosterone/hormones. But attachment studies have shown this to be very important in adult behaviour, and the psychodynamic approach ignores the influence of genes and hormones, which can explain such behaviours as aggression. • The biological approach suggests that behaviour is determined by physical aspects of the person such as hormones, genes and brain functioning, whereas the psychodynamic approach suggests that the different parts of the mind, (which is part of the human nature so in a way biological)– determine behaviour. 	(8)

Question Number	Indicative content	Marks
4 cont.	<ul style="list-style-type: none"> • The biological approach holds that aggression is from areas of the brain such as the limbic system and prefrontal lobe functioning whereas the psychodynamic approach sees aggression as being cathartic, releasing energy that was being used to repress anger. Both together give a rounded explanation of aggression from the cause to the behaviour. • Some behaviours are better explained by biology such as the role of brain functioning in aggression. • Some behaviours are better explained by psychodynamic such as the role of catharsis in releasing aggression. • The use of psychodynamic therapies show that psychodynamic theory has some relevance, such as uncovering unconscious wishes and thoughts to release them and free the person from aggressive tendencies. • Personality differences can be explained using the psychodynamic ideas of ID, ego and superego. • Biological concepts of genes and arousal levels can also explain personality differences. <p>Look for other reasonable marking points.</p>	

Level	Mark	Descriptor
AO1 (4 marks), AO3 (4 marks)		
Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation/conclusion in their answer.		
Level 1	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)

Question Number	Answer	Marks
5(a)(i)	AO2 (1 mark) One mark for identifying the correct reinforcement type. Positive reinforcement	(1)

Question Number	Answer	Marks
5(a)(ii)	AO2 (1 mark) One mark for identifying the correct reinforcement type. Negative reinforcement	(1)

Question Number	Answer	Marks
5(b)	AO2 (2 marks) One mark for type of reinforcement used with the student identified. One mark for justification of that type. For example: <ul style="list-style-type: none"> • Positive reinforcement: if the student is rewarded by positive comments from their peers/family (1), then they will continue to keep their room tidy in order to receive more praise (1). OR <ul style="list-style-type: none"> • Negative reinforcement: if the student is criticised by their peers/family for being untidy (1), then they will continue to keep their room tidy to stop the criticism (1). Look for other reasonable marking points. Negative reinforcement, positive reinforcement and punishment could be used to answer this question as long as the answer is justified. Answers must relate to the scenario. Generic answers score 0 marks.	(2)

Question Number	Answer	Marks
6(a)(i)	AO2 (1 mark) One mark for calculating the mean for the data subset. 5.5	(1)

Question Number	Answer	Marks
6(a)(ii)	AO2 (1 mark) One mark for correctly stating the range for the data subset. Range = 5 Accept the population range, 4 (n-1)	(1)

Question Number	Answer	Marks
6(a)(iii)	AO1 (1 mark) One mark for an appropriate reason for the SD being more useful / advantage of standard deviation. For example: <ul style="list-style-type: none"> • The standard deviation takes account of all the figures in the data set individually whereas the range does not, it just takes the bottom score from the top score (1). OR <ul style="list-style-type: none"> • The standard deviation can take account of the effect of outliers, and the range takes the most outlying scores into account but just the top and bottom scores (1). Look for other reasonable marking points.	(1)

Question Number	Answer	Marks
6(b)	<p style="text-align: center;">AO2 (2 marks)</p> <p>One mark for a partially correct operationalised directional hypothesis and two marks for a fully correct operationalised directional hypothesis.</p> <p>For example:</p> <ul style="list-style-type: none"> • 'Females will stop more times than males'. (1) • 'Females will stop and wait for the green light more times than males stop and wait for the green light.' (2). <p>Look for other reasonable marking points.</p>	(2)

Question Number	Answer	Marks
6(c)	<p style="text-align: center;">AO2 (2 marks)</p> <p>One mark for point identified in the study relating to weather conditions (AO2). One mark for justification of that point in how it might affect the results (AO3).</p> <p>For example:</p> <ul style="list-style-type: none"> • In poor weather conditions, people's behaviour at lights may not be normal/representative (1) as if it is raining, for example, people will be less likely to wait for a green light because they do not want to get wet (1). <p>Look for other reasonable marking points.</p> <p>Answers must relate to the scenario.</p> <p>Generic answers score 0 marks.</p>	(2)

Question Number	Answer	Marks
7	<p style="text-align: center;">AO1 (2 marks)</p> <p>One mark for identifying and briefly describing the treatment in relation to Little Albert's phobia (what would be done).</p> <p>One mark for explaining how the phobia would be 'cured' (how it would work).</p> <p>For example:</p> <ul style="list-style-type: none"> • The experimenters could have used the technique of flooding by continually presenting Little Albert with a white rat (1). Eventually Little Albert's fear response would diminish as it would be extinguished through fatigue (1). <p>OR</p> <ul style="list-style-type: none"> • Little Albert could have been counter-conditioned, e.g. the rat could have been paired with food or a favourite toy (1). This results in him associating the rat with a feeling of pleasure, rather than fear (1). <p>OR</p> <ul style="list-style-type: none"> • Little Albert could have been gradually introduced to the rat whilst maintaining relaxation such as when happily playing (using systematic desensitisation) (1) so that he would replace his fear response with relaxed/happily playing response (1). <p>Look for other reasonable marking points.</p>	(2)

Question Number	Answer	Marks
8(a)	<p style="text-align: center;">A02 (2 marks)</p> <p>One mark for each point related to data collection procedures, which, in combination, provide a logical description, up to 2 marks.</p> <p>For example:</p> <ul style="list-style-type: none"> Qualitative data was gathered by describing what was observed with regard to polite behaviours shown by each gender (1), for example stating that females tended to say thank you whereas males nodded their head (1). <p>Look for other reasonable marking points.</p> <p>Answers must relate to the scenario.</p> <p>Generic answers score 0 marks.</p>	(2)

Question Number	Answer	Marks
8(b)	<p style="text-align: center;">A02 (2 marks)</p> <p>One mark for each point related to the sampling method, which, in combination, provides a logical description, up to 2 marks.</p> <p>For example:</p> <ul style="list-style-type: none"> An opportunity sample was used from the school's sixth form group (1). The sixth form common room was observed at each break time for a week and people were observed who were available at the time (1). <p>Look for other reasonable marking points.</p> <p>Answers must relate to the scenario.</p> <p>Generic answers score 0 marks.</p>	(2)

Question Number	Answer	Marks
8(c)	<p style="text-align: center;">AO3 (4 marks)</p> <p>One mark for identifying each improvement and one mark for each justification of that improvement. Maximum two marks if two or more points made without any justification.</p> <p>For example:</p> <ul style="list-style-type: none"> • By conducting the observation on a busier day (e.g. a Saturday) there would be a wider range of participants/people observed (1). This would mean that the sample was more representative of a target population in terms of age and gender, for example (1). • By repeating the observation in more locations over a period of time, there would be a larger sample (1), which means that more generalisable conclusions can be drawn as the sample is more likely to be representative (1). <p>Look for other reasonable marking points.</p>	(4)

Question Number	Indicative content	Marks
9	<p style="text-align: center;">AO1 (4 marks), AO3 (4 marks)</p> <p>AO1</p> <ul style="list-style-type: none"> • Non-human animals are used in psychology such as Skinner's work on operant conditioning and Pavlov's work on classical conditioning. • There are ethical issues with using non-human animals, such as needing to have a licence and having to use appropriate caging. • Also endangered species are avoided, and there has to be minimal use. • Other ways of studying the area must be considered such as using humans or computer simulation. • There are also practical issues with non-human animals such as them representing human processing to an extent but not fully. • The APA has Guidelines for Ethical Conduct in the Care and Use of Animals to guide researchers. • The UK has the Animals (Scientific Procedures) Act 1986 to adhere to. • Pavlov's dogs may have suffered from being restrained. • There was apparatus and a qualified person would be needed to run the study, with anaesthetic as required. <p>AO3</p> <p>For the use of non-human animals in research</p> <ul style="list-style-type: none"> • It is possible to have more control over extraneous variables when using non-human animals compared to humans. This allows us to be more certain about the cause of a specific behaviour as only one thing is changed between the groups of non-human animals. • For example, Pavlov was able to make sure the dogs were hungry and to maintain environmental conditions in the laboratory to cut out other stimuli (other than the IV). • Skinner built a box to make sure that the environment was controlled. • Non-human animals reproduce at a faster rate than humans. This means that we can study the effect of something such as genes over the generations. 	(8)

Question Number	Indicative content	Marks
9 cont.	<ul style="list-style-type: none"> • Van den Oever et al. (2008) were able to condition animals to have a heroin addiction, then extinguish the addiction, then re-introduce cues in a relatively small space of time, none of which would be possible on ethical or practical grounds using humans. • It is possible to do things to non-human animals (such as cause brain damage) that would be unethical in humans, e.g. Skinner gave electric shocks to the rats in the Skinner box; we wouldn't be able to give electric shocks to humans in the same way. • Some non-animal studies are not in a laboratory and animals are observed in their natural setting, which is more ethical than when non-human animal studies are laboratory-based. This can be hard in practical terms, as animals can perhaps sense themselves being observed. • Pavlov's work was used to develop therapies for human use such as systematic desensitisation, so his findings help humans. <p>Against the use of non-human animals in research</p> <ul style="list-style-type: none"> • Some people argue that we should never do things to non-human animals that we would not do to humans, and all non-human animal studies are unethical. • While we may expect a benefit to come from the research, we cannot know there will be any benefit until after the research has been completed. • Results from non-human animals such as rats may not be true for humans, which means that they have been used in vain so making it unethical. • There may be issues of cost (caging, facilities). • Social animals, such as monkeys, should not be used in experiments and, if they are, they should not be isolated any more than is essential to the experiment. • The human brain is more complex than an animal's brain (such as our use of emotions, consciousness and reasoning), which is higher-order compared with animals. Therefore, findings from non-animal studies might not be generalisable enough to humans. 	

Question Number	Indicative content	Marks
9 cont.	<p>General points</p> <ul style="list-style-type: none"> Using Bateson's cube, non-human animal studies are ethical if we are certain there will be a benefit, their suffering is low and the research is of high quality. It is important to make sure that there is no alternative way (e.g. computer simulations) to carry out the study without the use of non-human animals. If the non-human animals are going to suffer after the experiment, there should be facilities to humanely euthanise them. <p>Allow other appropriate marking points.</p>	

Level	Mark	Descriptor
AO1 (4 marks), AO3 (4 marks)		
Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation/conclusion in their answer.		
Level 0	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)

Question Number	Indicative content	Marks
10	<p style="text-align: center;">AO1 (6 marks), AO3 (6 marks)</p> <p>AO1 Hormones</p> <ul style="list-style-type: none"> • Hormones are seen as playing a part in behaviour, such as in aggression, where testosterone is linked. • The biological approach also considers genes as being responsible for behaviour. • Genes (sex genes) link with hormone production. • Hormones such as testosterone have been linked to aggression and adrenaline for fight or flight behaviour and to social dominance. • Hormones should be at a certain balance in an individual's body, and an imbalance of certain hormones can cause the temperament of individuals to change. <p>SLT</p> <ul style="list-style-type: none"> • Role modeling imitation is used in explaining why children copy an adult abusing a bobo doll. • Vicarious reinforcement explains why children will copy a model who is rewarded for aggression. • Biological factors have little role in SLT. • Boys are seen to imitate male models being aggressive more than female models (e.g. Bandura et al., 1961, 1963). <p>AO3 For hormone levels playing a role in explaining human behaviour</p> <ul style="list-style-type: none"> • Research with animals clearly shows a link between testosterone and aggression, giving evidence that hormones do influence behaviour (e.g. Archer, 1991). • However, children have been shown to copy an adult abusing a bobo doll with no role of testosterone (e.g. Bandura et al, 1961/1963), supporting the social learning explanation. • The fact that males and females have different levels of hormones and that they present very different nurturing behaviours demonstrates the clear role hormones play in determining behaviour. 	(12)

Question Number	Indicative content	Marks
10 cont.	<ul style="list-style-type: none"> • The hormones adrenaline and noradrenaline are released in a threatening situation showing a clear link between hormones and behaviour. • Hormones such as testosterone have been linked to aggression and adrenaline for fight or flight behaviour. <p>Against hormone levels playing a role in explaining human behaviour</p> <ul style="list-style-type: none"> • Researchers such as Raine et al. (1997) and case studies of individuals such as Phineas Gage have shown that brain areas such as the prefrontal cortex, and not hormones, are responsible for influencing human behaviour. • Archer (1991) suggests that in animals aggression and testosterone go together, but a review of studies using humans is less conclusive, and there is a suggestion the link is not that strong. • Mims (2007) suggests that testosterone might link to aggression to an extent, but one does not cause the other. • Simpson (2001) sees testosterone as maybe part of what leads to aggression, but environmental issues and previous experience (which might link to social learning theory) are likely to be stronger as causes. • Research has shown that neurotransmitters may be more important than hormones in influencing human behaviour, e.g. serotonin has been consistently linked to depression and dopamine to schizophrenia. • Further evidence for the role that neurotransmitters play in influencing human behaviour is the fact that drugs that alter neurotransmitter levels have a positive impact on behaviour. Drugs can be prescribed for aggression but would be more linked to aggression from psychosis than 'pure' aggression. However, this does support the idea that neurotransmitter functioning is involved. <p>Allow other appropriate marking points.</p>	

Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation/conclusion in their answer.

Level	Mark	Descriptor
AO1 (6 marks), AO3 (6 marks)		
	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)

