

# **Psychology**

Advanced Subsidiary GCE

Unit **G541**: Psychological Investigations

## **Mark Scheme for January 2012**

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Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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Annotations

Annotation	Meaning
	Good response/positive (to be used to indicate number of marks awarded for part questions e.g. +++/++= 3+2 marks)
	Negative
	Unclear
	Attempts evaluation
	Benefit of doubt
	Context
	Omission
	Incorrect response
	Evaluation
	Expandable horizontal wavy line
	Irrelevant
	Not answered question
	Expandable vertical wavy line
	Correct response

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Question	Answer	Marks	Guidance												
1	<p>Strengths could include: the ability to use the same cartoon to control for possible effects of some cartoons being funnier than others; no carry-over effects (e.g. insight or fatigue) from having already participated in one condition prior to the other.</p> <p>Weaknesses could include: individual differences in how happy or not people are, regardless of whether 'smiling' or not; need more participants as they can only participate in one condition.</p> <p>3 marks for strength, 3 marks for weakness</p> <table border="1" data-bbox="320 587 1263 1034"> <tr> <td data-bbox="320 587 439 655"><b>0 marks</b></td> <td colspan="2" data-bbox="439 587 1263 655">The candidate has not provided any creditworthy information</td> </tr> <tr> <td data-bbox="320 655 439 759"><b>1 mark</b></td> <td colspan="2" data-bbox="439 655 1263 759">Appropriate strength/weakness outlined briefly but lacks clarity/detail (e.g. simply stating 'no order effects') and not in context</td> </tr> <tr> <td data-bbox="320 759 439 967"><b>2 marks</b></td> <td data-bbox="439 759 824 967">Appropriate strength/weakness outlined clearly outlined, but not in the context of the research outlined in the source material</td> <td data-bbox="824 759 1263 967"><b>OR</b> outline of strength/weakness lacks clarity/detail but attempt to discuss in context</td> </tr> <tr> <td data-bbox="320 967 439 1034"><b>3 marks</b></td> <td colspan="2" data-bbox="439 967 1263 1034">Appropriate strength/weakness outlined clearly outlined and in the context of the research outlined in the source material</td> </tr> </table>	<b>0 marks</b>	The candidate has not provided any creditworthy information		<b>1 mark</b>	Appropriate strength/weakness outlined briefly but lacks clarity/detail (e.g. simply stating 'no order effects') and not in context		<b>2 marks</b>	Appropriate strength/weakness outlined clearly outlined, but not in the context of the research outlined in the source material	<b>OR</b> outline of strength/weakness lacks clarity/detail but attempt to discuss in context	<b>3 marks</b>	Appropriate strength/weakness outlined clearly outlined and in the context of the research outlined in the source material		6	<p>-Context here refers to for example: smiling, happiness, emotion, funny, pencil, teeth, lips or cartoon.</p>
<b>0 marks</b>	The candidate has not provided any creditworthy information														
<b>1 mark</b>	Appropriate strength/weakness outlined briefly but lacks clarity/detail (e.g. simply stating 'no order effects') and not in context														
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Question		Answer		Marks	Guidance	
2	(a)	The independent variable is 'smiling' operationalised as holding a pencil in the teeth or lips.		2	-If unclear because reference is made to both IV and DV cap at 1 mark.	
		<b>0 marks</b>	The candidate has not provided any creditworthy information			
		<b>1 mark</b>	Independent variable identified but no explanation of how it has been operationalised			<b>OR</b> description of how the independent variable has been operationalised without saying what it is
		<b>2 marks</b>	Independent variable correctly identified and details of how it was operationalised			
	(b)	The dependent variable is 'happiness' operationalised as a score on a scale (between 1 and 10).		2	-If unclear because reference is made to both IV and DV cap at 1 mark.  -Accept 'mood' for DV. -Accept 'rating scale' for how the DV is operationalised.	
		<b>0 marks</b>	The candidate has not provided any creditworthy information			
		<b>1 mark</b>	Dependent variable identified but no explanation of how it has been operationalised			<b>OR</b> description of how the dependent variable has been operationalised without saying what it is
		<b>2 marks</b>	Dependent variable correctly identified and details of how it was operationalised			

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3	<p>For both reliability and validity positive and/or negative evaluation issues are acceptable.</p> <p>Comments about reliability could include use of the same scale (1 to 10) with clearly defined ends so should be easy to use in the same way by each participant; possible differences in the way each number on the scale is interpreted by participants; use of the same cartoon clip.</p> <p>Comments about validity could include: potential dishonesty of participants when selecting a number; demand characteristics (picking a number to please/upset the researcher); the numerical scale allows the extent of participants happiness to be assessed; difficult to express happiness just in a quantitative way.</p> <table border="1" data-bbox="320 655 1263 1374"> <tr> <td data-bbox="320 655 439 722"><b>0 marks</b></td> <td colspan="3" data-bbox="439 655 1263 722">The candidate has not provided any creditworthy information</td> </tr> <tr> <td data-bbox="320 722 439 790"><b>1-2 marks</b></td> <td data-bbox="439 722 846 790">General attempt to evaluate reliability only</td> <td colspan="2" data-bbox="846 722 1263 790"><b>OR</b> General attempt to evaluate validity only</td> </tr> <tr> <td data-bbox="320 790 439 857"><b>3-4 marks</b></td> <td data-bbox="439 790 846 857">General attempt to evaluate both reliability and validity</td> <td colspan="2" data-bbox="846 790 1263 857"><b>OR</b> attempt to evaluate reliability <b>or</b> validity in context</td> </tr> <tr> <td data-bbox="320 857 439 1099"><b>5-6 marks</b></td> <td data-bbox="439 857 701 1099">Clear evaluation of reliability, <b>or</b> validity in context</td> <td data-bbox="701 857 965 1099"><b>OR</b> clear evaluation of both reliability and validity, but not in context (if only one clear = 5 marks)</td> <td data-bbox="965 857 1263 1099"><b>OR</b> attempt to evaluate both reliability and validity in context (if only one in context = 5 marks)</td> </tr> <tr> <td data-bbox="320 1099 439 1270"><b>7-8 marks</b></td> <td data-bbox="439 1099 846 1270">Clear evaluation of reliability in context and attempt at evaluation of validity (just 7 marks if attempt not in context)</td> <td colspan="2" data-bbox="846 1099 1263 1270"><b>OR</b> Clear evaluation of validity in context and attempt at evaluation of reliability (just 7 marks if attempt not in context)</td> </tr> <tr> <td data-bbox="320 1270 439 1374"><b>9-10 marks</b></td> <td colspan="3" data-bbox="439 1270 1263 1374">Clear evaluation of <b>both</b> reliability and validity in context. <b>Note:</b> For 10 marks all evaluation points discussed must be correctly labelled with no confusion between the two.</td> </tr> </table>	<b>0 marks</b>	The candidate has not provided any creditworthy information			<b>1-2 marks</b>	General attempt to evaluate reliability only	<b>OR</b> General attempt to evaluate validity only		<b>3-4 marks</b>	General attempt to evaluate both reliability and validity	<b>OR</b> attempt to evaluate reliability <b>or</b> validity in context		<b>5-6 marks</b>	Clear evaluation of reliability, <b>or</b> validity in context	<b>OR</b> clear evaluation of both reliability and validity, but not in context (if only one clear = 5 marks)	<b>OR</b> attempt to evaluate both reliability and validity in context (if only one in context = 5 marks)	<b>7-8 marks</b>	Clear evaluation of reliability in context and attempt at evaluation of validity (just 7 marks if attempt not in context)	<b>OR</b> Clear evaluation of validity in context and attempt at evaluation of reliability (just 7 marks if attempt not in context)		<b>9-10 marks</b>	Clear evaluation of <b>both</b> reliability and validity in context. <b>Note:</b> For 10 marks all evaluation points discussed must be correctly labelled with no confusion between the two.			10	<p>-Context here refers to happiness and emotion.</p> <p>-NB reference to anything other than the actual measure of the DV is not creditworthy (such as Ps prior emotion state)</p>
<b>0 marks</b>	The candidate has not provided any creditworthy information																										
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Question	Answer	Marks	Guidance						
4	<p>Findings could include: most number of times thinking about a white bear reported was 21; least number of times was 2; range of scores was 2-21 showing a lot of variation in how many times thoughts of a white bear were reported; most people reported thinking of a white bear 10 or more times during the five minute period, .</p> <p>2 marks for each finding</p> <table border="1" data-bbox="320 512 1263 751"> <tr> <td data-bbox="320 512 443 580"><b>0 marks</b></td> <td data-bbox="443 512 1263 580">The candidate has not provided any creditworthy information</td> </tr> <tr> <td data-bbox="320 580 443 683"><b>1 mark</b></td> <td data-bbox="443 580 1263 683">The candidate has stated a finding, but this lacks clarity, or is not in the context of the research outlined in the source material.</td> </tr> <tr> <td data-bbox="320 683 443 751"><b>2 marks</b></td> <td data-bbox="443 683 1263 751">The candidate has stated a clear finding and this is in the context of the research outlined in the source material.</td> </tr> </table>	<b>0 marks</b>	The candidate has not provided any creditworthy information	<b>1 mark</b>	The candidate has stated a finding, but this lacks clarity, or is not in the context of the research outlined in the source material.	<b>2 marks</b>	The candidate has stated a clear finding and this is in the context of the research outlined in the source material.	4	<p>-Context here refers to a 'white bear' (or just 'bear')</p> <p>-The following descriptive statistics are creditworthy. Mean = 11.6, median = 11.5 (accept 11 or 12), range = 19, total = 116</p> <p>-Accept the scores of 2 and 21 as anomalous or extreme</p>
<b>0 marks</b>	The candidate has not provided any creditworthy information								
<b>1 mark</b>	The candidate has stated a finding, but this lacks clarity, or is not in the context of the research outlined in the source material.								
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5	Appropriate descriptive statistics include calculating the mean, median or range.		4	Context here refers to a 'white bear' (or just 'bear')  -Mode and bar chart not appropriate - Credit average, dispersion and central tendency.
0 marks	The candidate has not provided any creditworthy information			
1 mark	Appropriate descriptive statistic named	<b>OR</b> described but not named (or described but named incorrectly)		
2 marks	Attempt to describe how an appropriate descriptive statistic could be used but not in context of the information outlined in the source material	<b>OR</b> described in context (or described in context but named incorrectly)		
3 marks	Attempt to describe how an appropriate descriptive statistic could be used in context of the information outlined in the source material	<b>OR</b> Appropriate descriptive statistic fully explained but not in context		
4 marks	Appropriate descriptive statistic fully explained in context of the research outlined in the source material			

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6	<p><b>Strengths</b> could include: allows researchers access to what kind of things related to a white bear participants were thinking of; informative about what else participants were thinking of when not a white bear</p> <p><b>Weaknesses</b> could include: difficult to classify and interpret findings; may be difficult to understand what some participants mean at times; not a natural process – may be different to how participants think when not expressing their thoughts aloud.</p> <p>3 marks for strength, 3 marks for weakness</p> <table border="1" data-bbox="320 587 1274 967"> <tr> <td data-bbox="320 587 439 655"><b>0 marks</b></td> <td colspan="2" data-bbox="439 587 1274 655">The candidate has not provided any creditworthy information</td> </tr> <tr> <td data-bbox="320 655 439 724"><b>1 mark</b></td> <td colspan="2" data-bbox="439 655 1274 724">Attempt to outline strength/weakness but in general, not in the context of the research outlined in the source material.</td> </tr> <tr> <td data-bbox="320 724 439 895"><b>2 marks</b></td> <td data-bbox="439 724 824 895">Strength/weakness clearly outlined but not in the context of the research outlined in the source material.</td> <td data-bbox="824 724 1274 895"><b>OR</b> Attempt to outline strength/weakness in the context of the research outlined in the source material.</td> </tr> <tr> <td data-bbox="320 895 439 967"><b>3 marks</b></td> <td colspan="2" data-bbox="439 895 1274 967">Strength/weakness clearly outlined in the context of the research outlined in the source material.</td> </tr> </table>	<b>0 marks</b>	The candidate has not provided any creditworthy information		<b>1 mark</b>	Attempt to outline strength/weakness but in general, not in the context of the research outlined in the source material.		<b>2 marks</b>	Strength/weakness clearly outlined but not in the context of the research outlined in the source material.	<b>OR</b> Attempt to outline strength/weakness in the context of the research outlined in the source material.	<b>3 marks</b>	Strength/weakness clearly outlined in the context of the research outlined in the source material.		6	<p>-Context here refers to a 'white bear' (or just 'bear').</p> <p>-Do not credit strengths and weaknesses of the method (e.g. self-reports – dishonesty)</p>
<b>0 marks</b>	The candidate has not provided any creditworthy information														
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7	(a)	An open question is one that does not restrict how respondents reply. For example, describe what it was like when trying not to think of a white bear		2	<p>-Context here refers to a 'white bear' (or just 'bear')</p> <p>- Assume response is an open question if there are no predetermined options. EG Did you think of any bears? = 2 marks.</p>	
		<b>0 marks</b>	The candidate has not provided any creditworthy information			
		<b>1 mark</b>	Attempt to suggest an appropriate open question, but lacks some clarity			<b>OR</b> open question clearly outlined but not in context
		<b>2 marks</b>	Appropriate open question clearly outlined in context			
	(b)	A closed question is one that presents respondents a number of pre-determined response categories to select from when answering the question. For example, How difficult was it not to think of a white bear? - very difficult - somewhat difficult - not very difficult.		2	<p>-Context here refers to a 'white bear' (or just bear')</p> <p>-Must have response options to gain any credit</p>	
		<b>0 marks</b>	The candidate has not provided any creditworthy information			
		<b>1 mark</b>	Attempt to suggest an appropriate closed question, but lacks some clarity			<b>OR</b> closed question clearly outlined but not in context
		<b>2 marks</b>	Appropriate closed question clearly outlined in context			
	(c)	A rating scale question involves the use of a scale for respondents to indicate their answer. For example Indicate on a scale of 1 (not very difficult) to 10 (very difficult) how difficult you found it not to think of a white bear		2	<p>-Context here refers to a 'white bear' (or just 'bear')</p> <p>-A verbal rating scale is Okay, but must include at least three options.</p>	
		<b>0 marks</b>	The candidate has not provided any creditworthy information			
		<b>1 mark</b>	Attempt to suggest an appropriate question involving the use of a rating scale, but lacks some clarity			<b>OR</b> rating scale question clearly outlined but not in context
		<b>2 marks</b>	Appropriate question involving the use of a rating scale, clearly outlined in context			

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Question	Answer	Marks	Guidance										
8	<p>Note: null hypotheses are not tailed. Some good examples here would be something like ... There is/will be no correlation between how ugly people rate snakes and how frightened they are of them. Any correlation found is due to chance.</p> <table border="1" data-bbox="320 384 1274 799"> <tr> <td data-bbox="320 384 439 453"><b>0 marks</b></td> <td data-bbox="439 384 1274 453">The candidate has not provided any creditworthy information</td> </tr> <tr> <td data-bbox="320 453 439 555"><b>1 mark</b></td> <td data-bbox="439 453 1274 555">The candidate has written an appropriate null hypothesis but has simply stated 'there will not be/is no correlation'. There is no indication of either of the measured variables</td> </tr> <tr> <td data-bbox="320 555 439 624"><b>2 marks</b></td> <td data-bbox="439 555 1274 624">The candidate has written an appropriate null hypothesis but has only referred to one variable</td> </tr> <tr> <td data-bbox="320 624 439 726"><b>3 marks</b></td> <td data-bbox="439 624 1274 726">The candidate has written an null hypothesis referring to both variables, but there is a lack of clarity about one of the measured variables or both</td> </tr> <tr> <td data-bbox="320 726 439 799"><b>4 marks</b></td> <td data-bbox="439 726 1274 799">The candidate has written a clearly stated appropriate null hypothesis referring to both of the measured variables</td> </tr> </table>	<b>0 marks</b>	The candidate has not provided any creditworthy information	<b>1 mark</b>	The candidate has written an appropriate null hypothesis but has simply stated 'there will not be/is no correlation'. There is no indication of either of the measured variables	<b>2 marks</b>	The candidate has written an appropriate null hypothesis but has only referred to one variable	<b>3 marks</b>	The candidate has written an null hypothesis referring to both variables, but there is a lack of clarity about one of the measured variables or both	<b>4 marks</b>	The candidate has written a clearly stated appropriate null hypothesis referring to both of the measured variables	4	<p>- Allow 'relationship' or 'correlation'.</p> <p>-Do not credit any reference to difference/effect/IV/DV regardless of what else is written.</p> <p>-The variables do not have to be fully operationalised for maximum marks.</p> <p>-Do not credit reference to an 'association' or a 'link'.</p> <p>-Do not credit directional statements.</p>
<b>0 marks</b>	The candidate has not provided any creditworthy information												
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9	<p>The use of rating scales are acceptable here but also measurements based on any other alternatives, such as an observation schedule that classifies the number of anxiety responses towards a snake when exposed to one or discussing one. However, the measure must yield a quantifiable result for use in a correlation analysis.</p> <table border="1" data-bbox="320 419 1274 866"> <tr> <td data-bbox="320 419 439 488"><b>0 marks</b></td> <td colspan="2" data-bbox="439 419 1274 488">The candidate has not provided any creditworthy information</td> </tr> <tr> <td data-bbox="320 488 439 557"><b>1 mark</b></td> <td colspan="2" data-bbox="439 488 1274 557">Attempt to outline how fear could be measured, but lacks detail and/or clarity and not replicable but not in context.</td> </tr> <tr> <td data-bbox="320 557 439 695"><b>2 marks</b></td> <td data-bbox="439 557 857 695">Minor omissions that would prevent replication</td> <td data-bbox="857 557 1274 695"><b>OR</b> Attempt to outline how fear could be measured, but lacks detail and/or clarity and not replicable but in context.</td> </tr> <tr> <td data-bbox="320 695 439 798"><b>3 marks</b></td> <td data-bbox="439 695 857 798">Replicable outline of how fear could be measured but not in context</td> <td data-bbox="857 695 1274 798"><b>OR</b> Minor omissions that would make replication difficult but in context</td> </tr> <tr> <td data-bbox="320 798 439 866"><b>4 marks</b></td> <td colspan="2" data-bbox="439 798 1274 866">Replicable outline of how fear could be measured that is in context</td> </tr> </table>	<b>0 marks</b>	The candidate has not provided any creditworthy information		<b>1 mark</b>	Attempt to outline how fear could be measured, but lacks detail and/or clarity and not replicable but not in context.		<b>2 marks</b>	Minor omissions that would prevent replication	<b>OR</b> Attempt to outline how fear could be measured, but lacks detail and/or clarity and not replicable but in context.	<b>3 marks</b>	Replicable outline of how fear could be measured but not in context	<b>OR</b> Minor omissions that would make replication difficult but in context	<b>4 marks</b>	Replicable outline of how fear could be measured that is in context		4	<p>-The measure of fear must be quantifiable. -Context is 'snakes'.</p> <p>-For 3 marks numerical values for rating scales is needed.</p> <p>-For 4 marks the scale needs to be labelled (ends and/or mid-points).</p> <p>- For 4 marks it must be clear who is doing the rating if a rating scale is used.</p> <p>-If verbal scales given cap at 2 marks.</p>
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10	<p>Possible responses here include strengths of using a rating scale (e.g. produced quantifiable data, easy to compare fear of snakes across different people etc) and weaknesses (e.g. a number does not indicate more detailed reasons about how/why a person fears snakes etc).</p> <p>3 marks for strength, 3 marks for weakness</p> <table border="1" data-bbox="331 451 1290 762"> <tr> <td data-bbox="331 451 450 523"><b>0 marks</b></td> <td colspan="2" data-bbox="450 451 1290 523">The candidate has not provided any creditworthy information</td> </tr> <tr> <td data-bbox="331 523 450 595"><b>1 mark</b></td> <td colspan="2" data-bbox="450 523 1290 595">Attempt to outline strength /weakness, but lacks detail and/or clarity</td> </tr> <tr> <td data-bbox="331 595 450 699"><b>2 marks</b></td> <td data-bbox="450 595 835 699">Clear outline of strength / weakness, but not in context</td> <td data-bbox="835 595 1290 699"><b>OR</b> Attempt to outline strength /weakness, but lacks detail and/or clarity but in context.</td> </tr> <tr> <td data-bbox="331 699 450 762"><b>3 marks</b></td> <td colspan="2" data-bbox="450 699 1290 762">Clear outline of strength / weakness in context</td> </tr> </table>	<b>0 marks</b>	The candidate has not provided any creditworthy information		<b>1 mark</b>	Attempt to outline strength /weakness, but lacks detail and/or clarity		<b>2 marks</b>	Clear outline of strength / weakness, but not in context	<b>OR</b> Attempt to outline strength /weakness, but lacks detail and/or clarity but in context.	<b>3 marks</b>	Clear outline of strength / weakness in context		6	<p>-Context is 'snakes'</p> <p>-Ethical issues are acceptable but must be outlined appropriately and not just stated (e.g. 'reduces harm').</p>
<b>0 marks</b>	The candidate has not provided any creditworthy information														
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11		A positive correlation is where as the values of one variable increase, related values of the second variable also tend to increase (although not necessarily at the same rate).	2	<p>-A sketch of a scattergraph displaying a positive correlation is fine, but must be accompanied by some explanatory text for full marks.</p> <p>-Reference to DV = 0 (as it implies causation).</p> <p>-Clear examples of positive correlations (whether in context or not) can achieve full marks.</p>	
		<b>0 marks</b>			The candidate has not provided any creditworthy information
		<b>1 mark</b>			Attempt to explain what a positive correlation is, but could be clearer
		<b>2 marks</b>			Clear explanation of a positive correlation

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January 2012

Question	Answer	Marks	Guidance						
12	<p><b>Strengths</b> could include: provides information about patterns/trends that can then be investigated more experimentally if desired; can be plotted visually in a scattergraph to see relationship clearly; enables us to make predictions based on the relationship between variables; when unethical or impractical to carry out an experiment; starting point for further research; etc.</p> <p><b>Weaknesses</b> could include: does not inform us about cause-and-effect; the relationship revealed can be misleading; some variables cannot be correlated (only variables generating continuous data can be correlated)</p> <p>2 marks strength, 2 marks for weakness</p> <table border="1" data-bbox="331 655 1290 863"> <tr> <td data-bbox="331 655 450 724"><b>0 marks</b></td> <td data-bbox="450 655 1290 724">The candidate has not provided any creditworthy information</td> </tr> <tr> <td data-bbox="331 724 450 793"><b>1 mark</b></td> <td data-bbox="450 724 1290 793">Attempt to identify strength/weakness, but lacks some clarity</td> </tr> <tr> <td data-bbox="331 793 450 863"><b>2 marks</b></td> <td data-bbox="450 793 1290 863">Strength/weakness clearly outlined</td> </tr> </table>	<b>0 marks</b>	The candidate has not provided any creditworthy information	<b>1 mark</b>	Attempt to identify strength/weakness, but lacks some clarity	<b>2 marks</b>	Strength/weakness clearly outlined	4	<p>-For full marks the strength and weakness cited must be specific to the correlational method, and not generic. For example, a weakness is that just because we might find a positive correlation between the variables it does not show cause and effect.</p> <p>-Citing quantitative data on its own is not sufficient to credit, but elaborating on it is creditworthy. A weak elaboration would gain one mark.</p> <p>-Reference to a relationship between an IV and a DV should not be credited.</p>
<b>0 marks</b>	The candidate has not provided any creditworthy information								
<b>1 mark</b>	Attempt to identify strength/weakness, but lacks some clarity								
<b>2 marks</b>	Strength/weakness clearly outlined								

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