

**GCE**

**Psychology**

Unit **H567/01**: Research methods

Advanced GCE

**Mark Scheme for June 2017**

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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

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These are the annotations, (including abbreviations), including those used in scoris, which are used when marking

Annotation	Meaning
	Unclear
	Attempts evaluation
	Benefit of doubt
	Context
	Cross
	Evaluation
	Extendable horizontal line
	Extendable horizontal wavy line
	Significant amount of material which doesn't answer the question
	Not answered question
	Good use of resources
	Tick
	Development of point
	Omission mark

**Section A: Multiple choice**

<b>Question</b>	<b>Answer</b>
1	B
2(a)	D
2(b)	A
2(c)	B
2(d)	B
2(e)	B
3	B
4	B
5(a)	A
5(b)	A
6	C
7	C
8	D
9	C
10	B
11(a)	D
11(b)	C
12	A
13	B
14	B

### Section B: Research design and response

Write a research aim for this study. [2]			
Question	Answer	Marks	Guidance
15	For example ... <i>The aim of this study was to investigate peoples' experiences of dreaming and the type of dreams they have</i>	<b>Max 2</b>	Context = 'dream(s)', 'dreaming' etc
	Clearly written aim	<b>2</b>	
	Attempt to write aim	<b>1</b>	
	The candidate has not provided any creditworthy information	<b>0</b>	

What is a semi-structured interview? [2]					
Question		Answer	Marks	Guidance	
16	(a)	A semi-structured interview is one in which some specific questions to ask are prepared in advance, whilst others are created at the time of the interview	<b>Max 2</b>	-Do not credit responses that <i>only</i> explain the use of predetermined questions and do not refer to the use of questions compiled/arising at the time of the interview	
		Clear explanation of what a semi-structured interview is			<b>2</b>
		Attempt to explain what a semi-structured interview is but lacks some clarity			<b>1</b>
		The candidate has not provided any creditworthy information			<b>0</b>

Briefly outline how you could use a semi-structured interview for this study. [4]						
Question		Answer	Marks	Guidance		
16	(b)	Involves the preparation of some specific questions relating to dreaming and dreaming habits prior to undertaking the interview (e.g. about the themes in people's dreams, or how often they remember their dreams). Also, thinking of some questions to ask as the interview is being conducted (e.g. in response to answers / replies given to other questions asked).	<b>Max 4</b>	-Context = 'dream(s)', 'dreaming' etc  -It is not necessary to write any specific questions here to illustrate the creation of material completed before the interview starts (although this would help produce a more clear response). Categories of questions would be sufficient.		
		Clear outline of how a semi-structured interview could be used in this study in context. For <b>4 marks</b> it must be clear that the additional (un-prepared) questions arise in response to the pps answers, rather than having been set previously.			<b>3-4</b>	
		Clear outline of how a semi-structured interview could be used but not in context			<b>OR</b> attempt and/or unclear outline of how a semi-structured interview could be used in context	<b>1-2</b>
		The candidate has not provided any creditworthy information			<b>0</b>	

Evaluate the use of a semi-structured interview in this study. [6]						
Question		Answer		Marks	Guidance	
16	(c)	The preparation of some specific questions about dreaming prior to the interview allows standardisation of a core set of questions common to all participants, whilst the ability to ask new, individual and extra questions as the interview proceeds can allow a greater variety of information about different people's dreams and dreaming behaviour to be studied, thereby increasing overall validity. However, interpreting responses to some questions, especially those created as the interview unfolds could be problematic etc		<b>Max 6</b>	-Context = 'dream(s)', 'dreaming' etc  -Accept both positive and negative evaluation points here  -Points related to the general use of an interview and/or open or closed questions are not creditworthy  -For top band must have at least two points, both in context	
		Detailed evaluation with reference to 2 or more points context		<b>5-6</b>		
		Reasonable evaluation. Two (or more) points made, but one is weaker/less clear than the other, or not in context	<b>OR</b> two (or more points) made but not in context	<b>OR</b> one evaluation point discussed in detail and in context		<b>3-4</b>
		Brief and/or unclear evaluation whether in context or not		<b>1-2</b>		
		The candidate has not provided any creditworthy information		<b>0</b>		

Explain how you would use the self report method to investigate dreaming. Justify your decisions as part of your explanation.

You must refer to:

Sample and sampling technique

Your questionnaire

Open and closed questions

Likert scale questions

You should use our own experience of carrying out a self report to inform your response. [15]

Question	Answer	Marks	Guidance
17			<p>-Context = 'dream(s)', 'dreaming' etc</p> <p>-For context also accept themes appropriate to what the candidate chooses to focus on as a potential influence on dreaming (e.g. exercising, using social media, if they have had a bad day etc etc)</p>



Level of response	Details of required features (RFs) included	Justification of decisions made	Reference to own practical work
<b>Good</b> 12-15 marks	- <b>All 4</b> required features (RFs) addressed in context  -Accurate and detailed knowledge and understanding of each feature in context  - <b>Good</b> evidence of <b>application</b> of required features in context	- <b>Appropriate justification</b> of all decisions and <i>some</i> is contextualized  -Well developed line of reasoning that is clear and logically structured	- <b>Explicit</b> reference to own practical work and clear links between own work and the planned research for each required feature. e.g. specific mention of aim or procedural features  -For top band (good) 12 marks if just one RF linked, 13 marks if two, 14 marks if three and 15 if all four are linked
<b>Reasonable</b> 8-11 marks	-At least <b>3 required features in context</b>  -Reasonably accurate and detailed knowledge and understanding of each feature	- <b>Some</b> appropriate <b>justification</b> of decision related to required features (if no justification in context award 8 marks)  -There was a line of reasoning evident with some structure	-If there is no explicit clear link between own practical work and <i>any</i> of the 4 required features caps the mark at 11 maximum.  RFs additional guidance ...
<b>Limited</b> 4-7 marks	-At least <b>two</b> of the required features addressed in context  - <b>Limited application</b> of required features	- <b>Attempt</b> to justify decision(s) but weak  -Evidence of some structure, but weak	<b>RF1</b> (sample/sampling) should be some details of sample (e.g. size, gender, age etc) and sampling technique and how implemented. If only sample details, <b>or</b> sampling referred to = 'limited' response  <b>RF2</b> (questionnaire) details such as overall make up the questionnaire, number of questions, any accompanying standardised instructions, whether completed anonymously, any time limit to complete, where completed etc etc
	<b>OR</b> three or all four required features referred to but in a limited way  If one required feature addressed in detail and justified in context and explicit links made to own practical work award 4 marks		
<b>Basic</b> 1-3 marks	-At least <b>one</b> of the required features addressed - <b>Weak application</b> of required features	- <b>None</b> , or if present very weak	<b>RF3</b> (open/closed ques) There should be an example of at least one open and one *closed question (*which needs to include the fixed response options). If only one type of question addressed (open only, or closed only) = 'limited' response  <b>RF4</b> (Likert scale ques) There should be an example of at least one Likert scale question. Do not credit non-Likert scale, standard rating scales - e.g. suggestion of using a 1-10 scale
	<b>OR</b> more than one of the required features referred to but in a very brief and/or basic way		

Explain one strength and one weakness of using the self report method in this study. [6]				
Question	Answer		Marks	Guidance
18	Strengths include: relatively quick and easy to plan and conduct; ability to access thoughts about dreams / dreaming; etc Weaknesses include: validity issues due to dishonesty of responses; interpretation problems; demand characteristics / social desirability responses etc.		<b>Max 6</b>	-Context = 'dream(s)', 'dreaming' etc  -Accept strengths and weaknesses related to the use of open and closed questions as part of the self-report method
	Up to 3 marks for each strength and 3 marks for each weakness			
	Clear explanation of strength / weakness of the self-report method in context		<b>3</b>	-Accept strengths and weaknesses related to the use any form of self-report (e.g. interviews)
	Explanation of strength/weakness brief and/or lacks clarity but in context	<b>OR</b> Clear explanation of strength / weakness of the self-report method but not in context	<b>2</b>	
	Attempt to explain strength / weakness of the self-report method (whether in context or not)		<b>1</b>	
	The candidate has not provided any creditworthy information		<b>0</b>	

## Section C: Data analysis and interpretation

Identify two findings from the data presented in this table. [4]

Score on maths test (max 20) when stood up or sat down when taking the test			
Stood up		Sat down	
participant	score	participant	score
1	18	1	14
2	20	2	8
3	17	3	20
4	15	4	4
5	18	5	15
6	19	6	12

Question	Answer	Marks	Guidance
<b>19</b>	<b>2 marks for each finding</b>		
	Answers could include: maths scores were generally higher when stood up than sat down; there was more variation in the maths scores when sat down; the maximum score was 20 obtained by both someone in the standing up condition and the sitting down condition etc etc.	<b>Max 4</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc  Creditworthy descriptive statistics Stood up:                      Sat down: Mean = 17.83                  Mean = 12.17 Median = 18                    Median = 13 Mode = 18                      Range = 20-4 = 16 Range = 20-15 = 5 (or +1 =17) (or +1 = 6)
	Finding clearly identified in context	<b>2</b>	
	Attempt to identify finding	<b>1</b>	
	The candidate has not provided any creditworthy information	<b>0</b>	

Calculate the mean for the 'stood up' condition and present your findings to 2 decimal places. Show your workings. [2]					
Question		Answer		Marks	Guidance
20	(a)	Mean stood up = $107/6 = 17.8333333$ 2 DPs = 17.83		Max 2	
		Mean correctly calculated and presented to 2 decimal places with workings shown		2	
		Mean correctly calculated and presented to 2 decimal places but no workings shown	OR correct workings but answer not presented to two decimal places/incorrect	1	
		The candidate has not provided any creditworthy information		0	

Calculate the mean for the 'sat down' condition and present your findings to 2 significant figures. Show your workings. [2]					
Question		Answer		Marks	Guidance
20	(b)	Mean sat down = $73/6 = 12.166666$ 2 SFs = 12		Max 2	
		Mean correctly calculated and presented to 2 significant figures with workings shown		2	
		Mean correctly calculated and presented to 2 significant figures but no workings shown	OR correct workings but answer not presented to two significant figures/incorrect	1	
		The candidate has not provided any creditworthy information		0	

Calculate the mean percentage number of words recalled in each condition. Show your workings. [2]				
Question		Answer	Marks	Guidance
20	(c)	Mean stood up = $107/6 = 17.83$ mean %age recall = $17.83/20 \times 100 = 89.15\%$	<b>Max 2</b>	-Due to the error in the wording of this question, candidates who have used the data from the table presented in Section A (Q2) should also receive credit. Mean 'young condition' $26.5/30 \times 100 = 88.33\%$ (acceptable presented to any number of decimal places, or two significant figures) Mean 'old condition' $15/30 \times 100 = 50\%$
		Mean sat down = $73/6 = 12.17$ mean %age recall = $12.17/20 \times 100 = 60.85\%$		
		Due to variations in the actual figure used for the mean (based on number of decimal places and/or number of significant figures used) acceptable answers can be <i>anywhere</i> in the following ranges <b>Stood up</b> condition: <b>89% to 90%</b> <b>Sat down</b> condition: <b>60% to 61%</b>		
		Mean percentage correctly calculated for each condition with workings		
		Mean percentage correctly calculated for one condition with workings	<b>1</b>	
		The candidate has not provided any creditworthy information	<b>0</b>	

Explain how you would calculate the standard deviation for each condition of this study. [5]				
Question		Answer	Marks	Guidance
21	(a)	Step 1: work out the difference of each individual score on the maths test compared to the mean Step 2: square this difference Step 3: find the sum of all the differences squared Step 4: divide the sum of the differences squared by the total number of scores / participants (or total minus 1) Step 5: find the square root	<b>Max 5</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc  -Cap at 4 marks if correct description of how to calculate the standard deviation but not in context
		One mark for each step of how to calculate the standard deviation up to a maximum of five marks with at least one step to be in context for full marks	<b>5</b>	-If the steps are presented in the wrong sequence (i.e. that would result in an incorrect calculation of the sd) then only credit up to the last correct step in sequence
		The candidate has not provided any creditworthy information	<b>0</b>	

What information would the standard deviation provide if it was calculated for the data in this study? [2]						
Question		Answer	Marks	Guidance		
21	(b)	The standard deviation informs us about the dispersion of scores around the average, so in this study how much variation there was in the typical way a pupil performed depending on whether they were stood up or sat down.	<b>Max 2</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc		
		Clear outline of what the standard deviation informs us in context			<b>2</b>	
		Attempt whether in context or not			<b>OR</b> clear outline of what the standard deviation informs us but not in context	<b>1</b>
		The candidate has not provided any creditworthy information			<b>0</b>	

**(c) The standard deviation for each condition of this study is presented in the table below. What do these findings inform us about the effect of standing up or sitting down when performing a test? [4]**

Stood up 1.72, sat down 5.60

Question		Answer	Marks	Guidance	
21	(c)	It informs us that when sat down there is much more variation in performance, with some pupils doing very well on the test and others performing very poorly. When stood up there is much less variation in how pupils perform on the test. Therefore, overall there is more variation in test performance when sat down compared to standing up with some pupils seeming to benefit from it whereas others not.	<b>Max 4</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc  -Responses stating/indicating that the higher the standard deviation score the better the performance/concentration ability are not creditworthy	
		Clear description of what the findings of the calculation of standard deviation inform us for one or both conditions of the experiment in context	<b>3-4</b>		
		Attempt to describe what the findings of the calculation of standard deviation inform us for one or both conditions of the experiment whether in context or not	<b>OR</b> Clear description of what the findings of the calculation of standard deviation inform us for one or both conditions of the experiment but not in context		<b>1-2</b>
		The candidate has not provided any creditworthy information			<b>0</b>



What would be the appropriate non-parametric inferential statistical test to use to analyse the data from this study. Give reasons for your answer. [2]				
Question		Answer	Marks	Guidance
22	(a)	The correct test would be the Mann Whitney U test. This is because ... 1. It is a test that examines differences between performance in two conditions and the study compared test scores whilst stood up to sitting down) 2. it is a test that is used for independent measures designs where the scores in each condition come from different participants and there where different pupils' scores in the standing up compared to sitting down conditions 3. It is a test that requires ordinal level data which the study had because scores out of 20 in a maths test can be ranked	<b>Max 2</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc
		Test correctly identified and at least one justification for its selection referred to in context	<b>2</b>	
		Test correctly identified but not justified, or not justified in context, or justified incorrectly	<b>1</b>	
		The candidate has not provided any creditworthy information	<b>0</b>	

Outline how the data would be ranked before using the inferential statistical test. [2]						
Question		Answer	Marks	Guidance		
22	(b)	The data would be ranked by considering all the scores from each condition ('stood up' and 'sat down') <b>together as one group</b> , assigning numbers to denote position in an ordered sequence. The lowest score would receive rank 1, the next score rank 2 and so on (or awarding the highest score rank 1 and so on, providing consistency is maintained)	<b>Max 2</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc		
		Clear outline of how to rank data in context			<b>2</b>	
		Attempt to outline how to rank the data whether in context or not			<b>OR</b> clear outline of how to rank data but not in context	<b>1</b>
		The candidate has not provided any creditworthy information			<b>0</b>	

Outline one advantage and one disadvantage of having quantitative data in this study. [4]				
Question	Answer	Marks	Guidance	
23	<p>Advantage: can use more descriptive statistics (e.g. able to work out differences in performance in when standing up compared to sitting down)</p> <p>Disadvantage: doesn't inform us why standing up or sitting down affects performance in test scores</p> <p>Accept any other creditworthy advantage or disadvantage</p>	<b>Max 4</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc	
	2 marks for advantage, 2 marks for weakness			
	Clear outline of advantage / disadvantage in context	<b>2</b>		
	Attempt to outline advantage / disadvantage whether in context or not	<b>OR</b> clear outline of advantage / disadvantage but not in context		<b>1</b>
	The candidate has not provided any creditworthy information			<b>0</b>

Outline what is meant by each of the following features of science and state how they apply to this study. (a) hypothesis testing. [3]				
Question		Answer	Marks	Guidance
24	(a)	Hypothesis testing refers to predictions that are made about the likely outcomes of research to be conducted. The alternative hypothesis predicts that there will be an effect of one variable (the IV) on another (the DV). In this study, the prediction that being stood up or sat down (the IV) will effect performance in maths test scores (the DV). The null hypothesis predicts that there will not be an effect – i.e. in this study that being stood up or sat down will have no effect on performance in maths test scores (or that any differences found will be due to chance)	<b>Max 3</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc  - <i>Clear outline</i> could include reference to ... alternative (or 'experimental' or 'research') hypothesis and null <b>OR</b> the effect of the IV on the DV
		Clear outline of what hypothesis testing involves in context	<b>3</b>	
		Clear outline of what hypothesis testing involves but not in context	<b>2</b>	
		Attempt to outline of what hypothesis testing involves, whether in context or not	<b>1</b>	
		The candidate has not provided any creditworthy information	<b>0</b>	

Outline what is meant by each of the following features of science and state how they apply to this study. (b) manipulation of variables. [3]					
Question		Answer	Marks	Guidance	
24	(b)	Manipulation of variables in an experiment refers to how the independent variable (IV) is operationalised to assess the effects on the dependent variable (DV) that is measured. In this study the IV is how pupils were positioned whilst taking the maths test. It was operationalised as being stood up or sat down whilst taking the test.	<b>Max 3</b>	Context = 'stand' / 'standing up', 'maths test', 'concentration' etc	
		Clear outline of what manipulation of variables involves (with details of how the IV was operationalised included) in context			<b>3</b>
		clear outline of what manipulation of variables involves but not in context			<b>2</b>
		Attempt to outline of what manipulation of variables involves whether in context or not			<b>1</b>
		The candidate has not provided any creditworthy information			<b>0</b>

**OCR (Oxford Cambridge and RSA Examinations)**  
**1 Hills Road**  
**Cambridge**  
**CB1 2EU**

**OCR Customer Contact Centre**

**Education and Learning**

Telephone: 01223 553998

Facsimile: 01223 552627

Email: [general.qualifications@ocr.org.uk](mailto:general.qualifications@ocr.org.uk)

**[www.ocr.org.uk](http://www.ocr.org.uk)**

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**Head office**  
**Telephone: 01223 552552**  
**Facsimile: 01223 552553**

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