OCR
Oxford Cambridge and RSA

GCE

Psychology

Unit **H567/01**: Research methods

Advanced GCE

Mark Scheme for June 2018

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

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.

Annotations

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

Section A: Multiple choice

Question	Answer
1	B
2	A
3	A
4	A
5	D
6	B
7	A
8	A
9	B
10	A
11	B
12	D
13	D
14	C
15	A
16	D
17	A
18	B
19	A
20	A

Section B: Research design and response

Write an appropriate research aim for the study. [2]					
Question			**Answer**	**Marks**	**Guidance**
21			Something like ... *The aim was to investigate what people do on a long journey* Or, *to investigate if there are differences in the behaviour of people of different ages whilst on a long journey*	**Max 2**	-Context = journey (including modes of transport – e.g. car, bus, plane, train etc), and/or any relevant related behaviours from the candidates suggested behavioural categories) -Accept answers relating to an overall aim (e.g. *to investigate what people do on a long journey*) or ones with a more specific focus (e.g. *to investigate if there are differences in the behaviour of people of different ages whilst on a long journey*) etc -For 2 marks, as a guide look for the 'what' (is being studied) and 'where' (e.g. mode of transport, such as train or car, or, just referring to a 'journey'). Example 2 mark response *To investigate if people read or text more whilst on a train*, or *To see what kind of behaviours people engage in to pass the time whilst on a journey* -Some example 1 mark responses … *To investigate boredom* *To investigate people on trains* -Cap at 1 mark if worded as a question *(e.g. will people read more on a train or use at their phones?)*
			Clearly written aim	**2**	
			Attempt to write aim	**1**	
			The candidate has not provided any creditworthy information	**0**	

	Explain how you would use the naturalistic observation method to conduct this research. Justify your decisions as part of your explanation. **In your answer, the required features that you must refer to are:** ● **participant or non-participant observation** ● **behavioural categories** ● **time or event sampling** ● **how data will be recorded during the observation** **You should use our own experience of practical activities to inform your response. [15]**		
Question 22	**Answer**	**Marks**	**Guidance**

*The mark scheme is a little different when it comes to this question. What you are being **driven** by is the left hand column of the grid ('details of the required features (RFs)'. That is always your starting point and 'locator' for the appropriate mark band before considering the other two columns ('justification of decisions made' and 'reference to own practical work').

<table>
<tr><th>Level of response</th><th>Details of required features (RFs) included</th><th>Justification of decisions made</th><th>Reference to own practical work</th><th>Additional guidance</th></tr>
<tr><td rowspan="5">Good
12-15 marks</td><td rowspan="2">-All 4 required features (RFs) addressed

-Accurate and detailed knowledge and understanding of each feature in context

-Good evidence of application of required features in context</td><td rowspan="2">-Appropriate justification of all decisions and some is contextualized

-Well developed line of reasoning that is clear and logically structured</td><td rowspan="9">-Explicit 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

-If there is no explicit clear link between own practical work and any of the 4 required features caps the mark at 11 maximum.</td><td rowspan="9">-Context = journey (including modes of transport – e.g. car, bus, plan train etc), and/or any relevant related behaviours from the candidates suggested behavioural categories)

RF1
To be regarded as having been 'addressed' there must be some description, and not just naming/stating 'participant', or 'non-participant obs' will be used. If observation technique incorrectly named, then counts as not addressed (e.g. claiming participant obs is used but actually describing non-participant)

RF2
Sufficient here to identify / name the behavioural categories to be used (whether presented as a list or in a table)

RF3
To demonstrate understanding must provide a definition, or must be a clear distinction between event and time sampling (e.g. for event sampling making it clear that each time every behaviour from the behavioural categories occur they are recorded and over what total time period – the entire journey, first half-an-hour etc). For time sampling if just saying for example 'record behaviour every 10 minutes' without explaining for how long (e.g. just at that moment, or for 30 seconds) at that interval = limited response here. If sampling named incorrectly, then counts as not addressed (e.g. claiming event sampling is used but actually describing time sampling)

RF4
It is appreciated there may be some overlap here with what has already been discussed in relation to some of the other RFs already addressed. Typical responses here may include: ref to where the observer(s) will be positioned and what they will be doing whilst observing; use of a tally chart / system; covert or overt recordings; use of video etc</td></tr>
<tr></tr>
<tr><td rowspan="2">Reasonable
8-11 marks</td><td>-All 4 required features addressed

-Reasonably accurate and detailed knowledge and understanding of each feature

-At least three applications of required features in context</td><td>-Some appropriate justification of decision related to all four required features (8 marks if only three required features justified)

-There was a line of reasoning evident with some structure</td></tr>
<tr><td colspan="2">If three required features are addressed in detail and justified in context and explicit links made to own practical work award 9 marks</td></tr>
<tr><td rowspan="3">Limited
4-7 marks</td><td>-Two of the required features addressed in context

-Limited application of required features

OR three or all four required features referred to but in a limited way (in context or not)</td><td>-Attempt to justify decision(s) but weak

-Evidence of some structure, but weak</td></tr>
<tr><td colspan="2">If one required feature addressed in detail and justified in context and explicit links made to own practical work award 4 marks</td></tr>
<tr><td rowspan="2">Basic
1-3 marks</td><td>-One of the required features addressed
-Weak application of required features

OR more than one of the required features referred to but in a very brief and/or basic way</td><td>-None, or if present very weak</td></tr>
</table>

Describe two things that may influence the inter-rater reliability of this study. [6]					
Question			**Answer**	**Marks**	**Guidance**
23			Possible answers could include: clarity of behavioural categories; whether behavioural categories discussed / agreed beforehand; where observers are positioned; number of observers etc	**Max 6**	-Context = journey (including modes of transport – e.g. car, bus, plan train etc), and/or any relevant related behaviours from the candidates suggested behavioural categories) -Accept answers that relate to things that would make inter-rater reliability low or high (or both) -Remember, inter-rater reliability is not the extent to which if the study was repeated the same findings would be obtained. It is concerned with the ability of two or more observers to look out for and record the same behaviours in the same way. -Nothing creditworthy for ref to the influence of situational variables, such as the time of day, length or journey or the number or types of people on the train in different carriages etc
			For each thing referred to that may influence inter-rater reliability		
			Clear, detailed response in context	**3**	
			Clear, detailed response but not in context **OR** attempt in context	**2**	
			Brief and/or weak attempt to describe something that may influence inter-rater reliability (whether in context or not)	**1**	
			The candidate has not provided any creditworthy information	**0**	

<table>
<tr><th colspan="5">Outline one strength and one weakness of using the naturalistic observation method in this study. [6]</th></tr>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>24</td><td></td><td></td><td>Strengths could include: participants likely to be unaware they are being observed; no restrictions on participants behaviour; sampling more natural behaviour; increased validity etc

Weaknesses could include: recording data can be problematic; demand characteristics / social desirability IF people realise / become aware of being watched; ethical considerations etc</td><td>Max 6</td><td>-Context = journey (including modes of transport – e.g. car, bus, plan train etc), and/or any relevant related behaviours from the candidates suggested behavioural categories)

-Lack of control over extraneous variables and the impact these could have on the findings is creditworthy here

-Re ethics and the use of ‘consent’.
Some ethical considerations are creditworthy, but using the issue of lack of ‘consent’ as a weakness is not really appropriate if the planned research is described as occurring in a public place – e.g. a train. Consent IS creditworthy as a strength in fact, where the point could be made that as it is a public place direct formal consent is not required.

-Reference to research not being replicable on its own without any elaboration (e.g. influence of an extraneous variable) is not creditworthy

-Example 1 mark responses could include just saying something like ...
-High in ecological validity as a natural environment (coach journey)
-strength is more natural behaviour can be observed
-participants don’t know they’re being observed
no control over extraneous variables

2 mark example
High in ecological validity as a natural environment (coach journey) so common behaviours will be observed</td></tr>
<tr><td></td><td></td><td></td><td>Clear, detailed outline of strength / weakness in context</td><td>3</td><td></td></tr>
<tr><td></td><td></td><td></td><td>Clear, detailed outline of strength / weakness but not in context OR attempt to outline strength / weakness in context</td><td>2</td><td></td></tr>
<tr><td></td><td></td><td></td><td>Brief and/or weak attempt to outline strength / weakness (whether in context or not)</td><td>1</td><td></td></tr>
<tr><td></td><td></td><td></td><td>The candidate has not provided any creditworthy information</td><td>0</td><td></td></tr>
</table>

Describe two ways you would address the ethical consideration of 'responsibility' in relation to this study. [6]					
Question			**Answer**	**Marks**	**Guidance**
25			Under the new (2015) BPS (British psychological Society) ethical considerations 'responsibility' in general refers to the general care of participants. More specifically it includes: **protection of participants** (ensuring participants are not harmed (mentally or physically); and **debrief** (informing participants about how and why the research was done afterwards (and sharing findings, need for deception if any used etc)	**Max 6**	-Context = journey (including modes of transport – e.g. car, bus, plan train etc), and/or any relevant related behaviours from the candidates suggested behavioural categories) -Both points could be about (different) aspects of the same thing – e.g. two points about protection for harm in some way -Responses referring to ethical considerations in general (e.g. deception, or keeping data anonymous etc) without explicit reference to how this could relate to 'responsibility' (e.g. protection of participants in some way) are not creditworthy -Some example 1 mark responses ... *Debrief participants* *Ask if pps happy for their data to be used* -If a candidate just identifies 'protection' and/or and 'debrief' then award 1 mark
			Clear, detailed description in context	**3**	
			Clear, detailed description but not in context **OR** attempt in context	**2**	
			Brief and/or weak attempt to describe how to address the ethical consideration of 'responsibility' (whether in context or not)	**1**	
			The candidate has not provided any creditworthy information	**0**	

Section C: Data analysis and interpretation

Calculate the mean rating of the importance of physical appearance for being in love given by males. Write your answer to two significant figures. [3]					
Question			**Answer**	**Marks**	**Guidance**
26	**(a)**		157/20 = 7.85 The mean is 7.85, so to two significant figures = 7.9	**Max 3**	-Remember to check table of data presented in the question as some candidates may have written their answer here 2 mark = 157/20 = 7.85 (as not to two SFs)
			Mean correctly stated to two significant figures with all workings shown	**3**	
			Mean correctly stated to two significant figures but with no workings shown **OR** workings shown but mean not written to two significant figures	**2**	
			Mean only stated but not to two significant figures	**1**	
			The candidate has not provided any creditworthy information	**0**	

Calculate the median rating of the importance of physical appearance for being in love given by females. [2]					
Question			**Answer**	**Marks**	**Guidance**
26	**(b)**		1,1,2,3,3,3,3,3,3,**4,5**,5,5,5,5,6,6,7,7,9 The median is 4.5	**Max 2**	-Remember to check table of data presented in the question as some candidates may have written their answer here
			Median correctly stated with workings shown	**2**	
			Median correctly stated but with no workings shown **OR** workings shown without answer being stated	**1**	
			The candidate has not provided any creditworthy information	**0**	

What is the mode for the importance of physical appearance for being in love given by females? [1]					
Question			**Answer**	**Marks**	**Guidance**
26	**(c)**		1,1,2**,3,3,3,3,3,3**,4,5,5,5,5,5,6,6,7,7,9 The mode is 3	**Max 1**	-Remember to check table of data presented in the question as some candidates may have written their answer here
			Mode correctly stated	**1**	
			The candidate has not provided any creditworthy information	**0**	

What is the range for the rating of the importance of physical appearance for being in love given by males and females. Show your workings. [4]					
Question			**Answer**	**Marks**	**Guidance**
27	**(a)**		Males range = 5 (10-5) Females range = 8 (9-1) *Also accept answers from the alternative calculation for the range that includes +1 Males range = 6 (10-5(+1)) Females range = 9 (9-1(+1)) *Combined males & females (10-1) = 9 (or +1 = 10)	**Max 4**	If not clear what refers to male and female (i.e. if just figures presented) cap 2 -*If a candidate has calculated the range overall (across males and females combined) correctly, and shown workings can be awarded 4 marks. For example, If some lack of clarity in either the labelling of what the figure presented refers to and/or the calculations cap at 2
			For each calculation of the range (i.e. for males and females) ...		
			Range correctly stated with correct workings shown	**2**	
			Range correctly stated but with no workings shown **OR** correct workings shown without answer being stated or answer wrongly stated	**1**	
			The candidate has not provided any creditworthy information	**0**	

Outline one conclusion from the calculation of the range for the rating of the importance of physical appearance for being in love given by males and females. [3]					
Question			**Answer**	**Marks**	**Guidance**
27	**(b)**		For example... Females (range = 9) vary more than males (range = 6) in how much they think the importance of physical appearance is for being in a relationship. Males are more consistent, suggesting men are of the same or similar opinion that appearance does matter in terms of forming relationships than females. Accept any other appropriate conclusion.	**Max 3**	-Context = love (and things 'love related') -Note: a conclusion is an interpretation of a finding (here the interpretation of the range). It is not creditworthy just to state findings again on their own -Nothing creditworthy for conclusions based on other descriptive statistics (e.g. the mean), or incorrectly interpreting the range as an indicator average rating (e.g. claiming that females regard appearance as more important than males) 1 mark example *There is more variation in females than males scores* 2 mark example *There is more variation in females than males scores about physical appearance* Example 3 marks *Males are more consistent, suggesting men are of the same or similar opinion that appearance does matter in terms of forming relationships than females.*
			Clear outline of conclusion in context	**3**	
			Attempt in context	**2**	
			Attempt but not in context	**1**	
			The candidate has not provided any creditworthy information	**0**	

Using the formula provided calculate the value of chi square for the data in the table below. The E values (expected frequencies) have already been provided (in the table in italics). Show your workings. [5]

Question			Answer	Marks	Guidance
28	(a)		The answer presented as the X^2 value will vary slightly depending on how many decimal places are used at different stages of the calculation. Therefore ... accept the overall X^2 answer as anything between 5.0 and 5.02 (e.g. 5.0, 5.01278772, 5.012, 5.02) and to any number of decimal places	**Max 5**	Rationale for allocation of marks ... As the expected frequencies are already provided, there are essentially four steps left to perform to reach the correct calculation. As there are 5 marks in total to be awarded, the breakdown is one mark for each step correctly performed, with the extra mark for showing all relevant workings. *Please note where candidates have calculated X^2 cell-by-cell this is also creditworthy -Alternative ways of using the formula, providing it arrives at the correct cell value (expressed as a decimal or even fraction) and overall answer is creditworthy (e.g. some students who learn about X^2 in different subjects may do this)

Step-by-step calculations for Chi square test

Cell	O-E	$(O-E)^2$	$(O-E)^2 \setminus E$	$\Sigma (O-E)^2 \setminus E$
a	5 – 8.5 = –3.5	$(-3.5)^2$ = 12.25	12.25 / 8.5 = 1.441	1.441 1.065 1.441 1.065 **5.012**
b	15 – 11.5 = 3.5	$(3.5)^2$ = 12.25	12.25 / 11.5 1.065	
c	12 – 8.5 = 3.5	$(3.5)^2$ = 12.25	12.25 / 8.5 1.441	
d	8 – 11.5 = –3.5	$(-3.5)^2$ = 12.25	12.25 / 11.5 1.065	

	Correct calculation with all workings shown	**5**
	Correct calculation of the sum of $(O-E)^2/E$ but with some or all workings missing	**4**
	Correct calculation of each individual $(O-E)^2/E$ value	**3**
	Correct calculation of each individual $(O-E)^2$ value	**2**
	Correct calculation of each individual (O-E) value	**1**
	The candidate has not provided any creditworthy information	**0**
	***OR** 1 mark for each set of calculations done correctly for each cell ($(O-E)^2/E$) Plus 1 mark for overall correct answer (X^2 value)	

Using the extract of the tables of critical values for the chi square test presented below, what is the critical value at the 5% probability level for data collected in this study? [2]					
Question			**Answer**	**Marks**	**Guidance**
28	**(b)**		The critical value is 3.841	**Max 2**	-If a candidate just circles the correct critical value in the table award 2 marks (as to be able to do this requires knowledge of what df to use) -Award 1 mark if df = 1 is just circled on the table (so remember to check table)
			Critical value correctly stated	**2**	
			Degrees of freedom correctly identified as 1 but without stating the critical value from the table (or incorrectly stating the critical value)	**1**	
			The candidate has not provided any creditworthy information	**0**	

Write the significance statement for the analysis performed on this data using the Chi square test. [2]					
Question			**Answer**	**Marks**	**Guidance**
28	**(c)**		$X^2 = 5.01$, df=1, p<0.05 **OR** In words e.g. this is a significant result (at the 5% probability level) because the calculated value of X^2 had to be equal to or exceed the table critical value (3.841) to be significant	**Max 2**	Example 2 marks (written version) *As the calculated value is higher than the critical it is significant* -Example 1 mark response *The null is rejected,* and/or *the alternative hypothesis is accepted*
			Correctly written significance statement (calculated value, degrees of freedom and probability level) **OR** written in words rather than a formal statement	**2**	
			just stating p<0.05 **OR** weak and/or brief written response	**1**	
			The candidate has not provided any creditworthy information	**0**	

Using the data presented in the pie chart in Figure 1, calculate the ratio of how many people said that personality was the most important thing for love compared to those that said wealth was. Show your workings. [4]					
Question			**Answer**	**Marks**	**Guidance**
29			Answer = **3:1** First, the number of people represented by 37.5% (who regarded 'personality' as most important for love) and 12.5% (who regarded 'wealth' as most important for love) needs to be calculated. This requires a knowledge of percentages. 37.5% of 40 = 37.5/100 x 40 = 15 12.5% of 40 = 12.5/100 x40 = 5 So the ratio is 15:5, which can be simplified to 3:1	**Max 4**	-Zero if ratio presented the wrong way round (1:3)
			Correctly stated ratio with all workings shown clearly	**4**	
			Correctly stated ratio but with some or all workings missing **OR** correctly stated ratio, but not simplified (i.e. left at 15:5)	**3**	
			Some correct workings shown	**2**	
			Some correct workings shown but also with some that are incorrect	**1**	
			The candidate has not provided any creditworthy information	**0**	

<table>
<tr><th colspan="6">Evaluate the population validity of the data collected in this study. [6]</th></tr>
<tr><th colspan="3">Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>30</td><td></td><td></td><td>In general, population validity is a form of external validity that refers to the extent to which the findings from research can be applied to other people who did not take part directly in the research.

Examples of points that could be made here include: size of the sample (40) and how this affects generalising the findings to others; balance of males and females (20 males, 20 females in the sample); potential bias in the sample due to the use of the self-selected sampling method used (so only those interested in, or currently in, or out of love may have volunteered to take part etc). etc</td><td>Max 6</td><td rowspan="6">-Context = love (and things ‘love related’)

-Accept positive and/or negative evaluation points as creditworthy

-Do not accept as creditworthy any general evaluation points related to the methodology used in general (e.g. use of the self-report method etc)</td></tr>
<tr><td colspan="3"></td><td>Clear evaluation with two or more points with some context (for 6 marks two of the points must be in context)</td><td>5-6</td></tr>
<tr><td colspan="3"></td><td>Clear evaluation with two or more points made but not in context OR one clear evaluation point in context OR two points, one in context one not</td><td>3-4</td></tr>
<tr><td colspan="3"></td><td>Attempt to evaluate population validity (whether in context or not)</td><td>1-2</td></tr>
<tr><td colspan="3"></td><td>The candidate has not provided any creditworthy information</td><td>0</td></tr>
</table>

The discussion section of the write-up of a practical report includes a conclusion made from the analysis of the data collected. Outline one conclusion from the discussion section of any of your own practical activities. [3]

Question			Answer		Marks	Guidance
31			Responses here will vary depending on the nature of what the candidate investigated in their chosen practical activity.		Max 3	-Note: it is not necessary to know the full aim or hypothesis of the candidates chosen practical activity in order to be able to gain full marks here. -Must be a conclusion (interpretation of a finding) and not simply the presentation of results / findings. Cap at 1 mark max if just a finding(s) / result(s) presented For 3 marks there must be sufficient detail / elaboration. For example … -The conclusion could be elaborated by suggestion of an application of the outcome of their study -An explanation of why the findings occurred as they did is another way of elaborating on their response
			Conclusion clearly outlined in context		3	
			Conclusion clearly outlined but not in context	**OR** attempt to outline conclusion in context	2	
			Brief and/or weak attempt to outline conclusion (whether in context or not)		1	
			The candidate has not provided any creditworthy information		0	

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