GCE

Psychology

H167/01: Research methods

AS Level

Mark Scheme for June 2023

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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.

PREPARATION FOR MARKING

RM ASSESSOR

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor3 assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are posted on the RM Cambridge Assessment Support Portal http://www.rm.com/support/ca

3. Log-in to RM Assessor and mark the **required number** of practice responses ("scripts") and the **number of required** standardisation responses.

   Check with instructions: YOU MUST MARK 10 PRACTICE AND 10 STANDARDISATION RESPONSES BEFORE YOU CAN BE APPROVED TO MARK LIVE SCRIPTS.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the RM Assessor3 50% and 100% (traditional 40% Batch 1 and 100% Batch 2) deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader by telephone or the RM Assessor3 messaging system, or by email.

5. **Crossed Out Responses**
   Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

   Rubric Error Responses – Optional Questions
   Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Enter a mark for each question answered into RM assessor, which will select the

highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses
When a multiple-choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).
When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses
When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)
Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)
If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)
Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

6. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.

7. Award No Response (NR) if:
    •   there is nothing written in the answer space

    Award Zero '0' if:
    •   anything is written in the answer space and is not worthy of credit (this includes text and symbols).

Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

8. The RM Assessor3 **comments box** is used by your team leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**

   If you have any questions or comments for your team leader, use the phone, the RM Assessor messaging system, or e-mail.

9. *Assistant Examiners will send a brief report on the performance of candidates to their Team Leader (Supervisor) via email by the end of the marking period. The report should contain notes on particular strengths displayed as well as common errors or weaknesses. Constructive criticism of the question paper/mark scheme is also appreciated.*

10. For answers marked by levels of response:
    a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
    b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

Annotation	Meaning
BP	Blank page
?	Meaning unclear
✖	Incorrect
✔	Correct
^	Missing information
▢	Relevant information
CONT	Context
NAQ	Not answering question
REP	Repeats
SEEN	Seen (to show content on page has been noted)
BOD	Benefit of doubt given
IRRL	Irrelevant
EVAL	Evaluation
L1	L1 Basic
L2	L2 Limited
L3	L3 Reasonable
L4	L4 Good

12.   **Subject Specific Marking Instructions**

Section A: Multiple choice

Ques	Answer
1	C
2	C
3	A
4	B
5	B
6	D
7	A
8	C
9	C
10	A
11	B
12	D
13	A
14	B
15	B

Section B: Research design and response

Write a null hypothesis for this study. [3]			
Question	**Answer**	**Marks**	**Guidance**
16	For example ... (accept variations in operational decisions of IV and DV) There will not be a significant difference in prosocial behaviour (doing someone a good deed) after listening to music with prosocial lyrics (containing the word 'love') compared to music without prosocial lyrics. Any difference found will be due to chance.	**Max 3**	-Context = music, prosocial, love, kindness, helpful etc -Can be written in future or present tense. -Use of the word 'significant' is not necessary for full marks -Award zero for citing an alternative hypothesis -Award zero if reference to 'relationship' or 'correlation' -For full marks both the IV and DV must be operationalised - Both levels of the IV must be included
	Correctly cited null hypothesis with both IV and DV operationalised	**3**	
	Correctly cited null hypothesis, reference to both variables, but neither or only one variable operationalised	**2**	
	Simply stating 'there will not be a difference' **OR** a null hypothesis with reference to just one variable	**1**	
	The candidate has not provided any creditworthy information	**0**	

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Explain how you would conduct a study using the laboratory experimental method to investigate if people become more helpful after listening to music with prosocial lyrics. Justify your decisions as part of your explanation. You must refer to:
> • the experimental design you would use
> • how you would operationalise the dependent variable (DV) in a way that would produce quantitative data
> • one ethical consideration you would take into account

You should use your own experience of practical activities to inform your response. **[12]**

Question				Answer	Marks	Guidance
17					**Max 12**	-Context = music, prosocial, love, kindness, helpful etc

Level of response	Details of required features (RFs) included	Justification of decisions made	Reference to own practical work
Good 10-12 marks	-**All 3** required features addressed -Accurate and detailed knowledge and understanding of each feature in context -**Good** evidence of **application** of required features in context	-**Appropriate justification** of all decisions and *some* is contextualised -Well developed line of reasoning that is clear and logically structured	-**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
Reasonable 7-9 marks	-**All 3** required features addressed -Reasonably accurate and detailed knowledge and understanding of each feature -At least **two** applications of required features in context	-**Some** appropriate **justification** of decision related to all three required features (7 marks if only two required features justified) -There was a line of reasoning evident with some structure	-For top band (good) 10 marks if just one RF linked, 11 marks if two and 12 if all three -If there is no explicit clear link between own practical work and *any* of the 3 required features caps the mark at 9 maximum.
	If two required features are addressed in detail and justified in context and explicit links made to own practical work award 8 marks		
Limited 4-6 marks	-**Two** of the required features addressed -**Limited application** of required features	-**Attempt** to justify decision(s) but weak -Evidence of some structure, but weak	
	OR all 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		
Basic 1-3 marks	-**One** of the required features addressed -**Weak application** of required features	-**None**, or if present very weak	
	OR more than one of the required features referred to but in a very brief and/or basic way		

RF		Details of RF
1	Experimental Design	- Good: Design is identified and conditions labelled with how the participants would be assigned to each condition. If RMD which condition it is first/is it counter-balanced.
		- Reasonable: Design identified and conditions labelled and brief or somewhat muddled outline of how the participants would be assigned to each condition or demonstrates some understanding of the design.
		- Limited: Design identified and conditions labelled.
		- Basic: Design identified or described or confuses experimental designs (e.g., identified RMD and outlines IMD).
2	Operationalising DV (quantitative data)	- Good: if a rating scale is suggested – clear numerical scale with ends of rating scale labelled. Semantic differential scales can be creditworthy and are considered reasonable (good if the numerical scale is given or an explanation of how the data will be made ordinal).
		- Reasonable: rating scale given but lacks clarity (e.g., Ends of rating scale not labelled). Indicates a number of questions will be asked but does not explain how the final score for each participant will be calculated.
		- Limited: the way the DV is operationalised could be considered to be quantitative but not explicit.
		- Basic: vague indication of how DV would be measured e.g., Likert scale
3	One Ethical consideration	- Good: ethical consideration identified and clear details of how this will be addressed.
		- Reasonable: briefly addressed or lacks clarity.
		- Limited: identification of one ethical consideration with some understanding of the consideration.
		- Basic: identification of one ethical consideration

Self-selected sampling could be used in this study. Outline how you would use self-selected sampling to obtain participants for this study.   **[3]**

Question			Answer		Marks	Guidance
18	(a)		For example ... Poster displayed in the café area in a large sixth form college asking for volunteers for a study investigating the influence of music on behaviour. The poster will provide an email address for those interested to reply to, which the researcher will then use to select the first 20 people who respond		Max 3	-Context = music, prosocial, love, kindness, helpful etc
			Clear outline in context		3	
			Clear outline but not in context	**OR** attempted outline in context	2	
			Brief and/or unclear outline (whether in context or not)		1	
			No creditworthy response		0	

Outline one weakness of using self-selected sampling to obtain participants for this study [3]

Question			Answer		Marks	Guidance
18	(b)		Answers could include: less control over composition of sample; sample could be biased (only those who like music applying / taking part), low response rate etc		Max 3	-Context = music, prosocial, love, kindness, helpful etc
			Clear outline of strength in context		3	
			Clear outline of strength but not in context	**OR** attempted outline of strength in context	2	
			Brief and/or weak attempt to outline strength (whether in context or not)		1	
			The candidate has not provided any creditworthy information		0	

Outline two weaknesses of having quantitative data when trying to investigate whether prosocial lyrics influence how helpful people are. [6]					
Question			**Answer**	**Marks**	**Guidance**
19			Weaknesses could include: problems understanding rating scale (if used) by participants; problems responding to forced choice, lack of insight and meaning relating to why participants behaved / responded as they did etc Up to 3 marks for each weakness	**Max 3+3**	-Context = music, prosocial, love, kindness, helpful etc
			Clear outline of weakness in context	**3**	
			Clear outline of weakness but not in context	**OR** attempted outline of weakness in context	**2**	
			Brief and/or weak attempt to outline weakness (whether in context or not)	**1**	
			The candidate has not provided any creditworthy information	**0**	

Suggest one open question you could use to obtain additional information in this study. [2]					
Question			**Answer**	**Marks**	**Guidance**
20	**(a)**		Examples … *How did you feel when you were listening to the music?* *Would you say you were generally a kind person?* *What type of music do you like listening to?* etc	**Max 2**	-Context = music, prosocial, love, kindness, helpful etc
			Clear suggestion in context	**2**	
			Clear suggestion but not in context	**OR** attempted suggestion in context	**1**	
			The candidate has not provided any creditworthy information	**0**	

Outline one weakness of using this open question in this study. [3]					
Question			**Answer**	**Marks**	**Guidance**
20	**(b)**		Answers here will be predicated on the candidate's response to the previous question (20a) Possible answers could include: difficult to analyse/compare, possible misinterpretation of data.	**Max 3**	-Context = music, prosocial, love, kindness, helpful etc Do not credit that qualitative data <u>cannot</u> be compared – it <u>can</u> be compared just not as easily/quickly. No credit for general evaluation of self-reports. Evaluation must be specific to open questions.
			Clear outline in context	**3**	
			Clear outline but not in context **OR** attempted outline in context	**2**	
			Brief and/or weak outline (whether in context or not)	**1**	
			The candidate has not provided any creditworthy information	**0**	

Outline one strength of using open questions in any one of your own practical activities. [3]					
Question			**Answer**	**Marks**	**Guidance**
21			Answer here relates to one of candidates' own practical activities Possible answers may include: detailed answers given, explains the reason 'why'	**Max 3**	-Context here = the theme of the candidates own chosen practical activity
			Clear outline of strength in context	**3**	
			Clear outline of strength but not in context **OR** attempted outline of strength in context	**2**	
			Brief and/or weak attempt to outline strength (whether in context or not)	**1**	
			The candidate has not provided any creditworthy information	**0**	

Section C: Data analysis and interpretation

| What type of question has been used to produce the data displayed in the table above? Give reasons for your answer. [2] | | | | |
Question			Answer	Marks	Guidance
22			Closed question. Reason = the data is just frequency counts of the number of responses in each category of things that motorists may find annoying. The data is participants responses to fixed choice response options with no opportunity to respond in any different way.	Max 2	Context is not required for full marks
			Correct question type identified and clearly justified	2	
			Correct question type identified	OR correct question type identified and unclear attempt to justify why	1	
			The candidate has not provided any creditworthy information	0	

Outline two conclusions that can be made from the data collected in this study. [4]				
Question		**Answer**	**Marks**	**Guidance**
23		For example: Male and female motorists find different things annoying (males 'people driving too slow' was the most frequently reported category, and for females 'people driving too close'), which suggests the way men and women approach driving and their experiences of it are very different; Many more females (51) than males (20) reported being annoyed by other motorists driving too fast, which suggests females are more safety conscience than males and think more about the consequences of driving too fast; Etc Up to 2 marks for each conclusion ...	**Max 2+2**	-Context = driving, car(s), anger, frustration, annoying etc -Must be conclusions (interpretation of data), and not simply stating findings (if so, cap at 1 mark max, whether one or two findings stated)
		Clear outline of conclusion in context	**2**	
		Clear outline of conclusion but not in context **OR** attempted outline of conclusion in context	**1**	
		The candidate has not provided any creditworthy information	**0**	

Draw a fully labelled bar chart displaying the data from the male participants who took part in this study. [4]				
Question		**Answer**	**Marks**	**Guidance**
24		 1 mark is awarded for correctly presenting by value each bar representing all 6 categories of motorists' behaviour found annoying for males 1 mark is awarded for named categories on the x axis 1 mark is awarded for clear labelling of the y axis (must be contextualised to 'annoying behaviour') 1 mark is awarded for a clearly contextualised title	**Max 4**	-Context = driving, car(s), anger, frustration, annoying etc Full contextualisation would include driving/motorists and annoying If presented as a histogram cap at 2m If both males and females are included on the graph cap at 2m If a clearly contextualised title has been included, this could make up for any shortfall of labelling on an x and y axis
		All features included	**4**	
		3 features included	**3**	
		2 features included	**2**	
		1 feature included	**1**	
		The candidate has not provided any creditworthy information	**0**	

Calculate the overall percentage of people reporting 'overtaking' as being most annoying. Show your workings. [3]				
Question		**Answer**	**Marks**	**Guidance**
25		14% Workings … 18 (males) + 24 (females) = 42 in total So … 42/300 x 100 = 14	**Max 3**	18 + 24 is not a necessary working to show for full marks.
		Correct answer with full workings shown	**3**	
		Correct answer with some workings shown	**2**	
		Correct answer shown with no workings OR some correct workings shown but incorrect final answer	**1**	
		The candidate has not provided any creditworthy information	**0**	

Explain why the Chi square would be the appropriate non-parametric inferential statistical test to use to analyse the data from this study. [3]				
Question		**Answer**	**Marks**	**Guidance**
26	**(a)**	Reasons: -test of difference (the study investigated the difference between what males and females found annoying in other motorists' behaviour) -nominal data collected (frequency count of different categories of annoying behaviour in motorists) -independent measures design (males v females)	**Max 3**	-Context = driving, car(s), anger, annoying, frustration, males and females etc
		Two or three appropriate reasons provided, at least one in context	**3**	
		Two appropriate reasons provided without context OR one appropriate reason in context	**2**	
		One appropriate reason provided without context	**1**	
		The candidate has not provided any creditworthy information	**0**	

Calculate the 'degrees of freedom' required to check for significance when using the Chi square test to analyse the data collected in this study. [1]				
Question			Answer	Marks	Guidance
26	(b)		df = 5 Workings ... (R-1) x (C-1) (2-1) x (6-1) = 5	Max 1	
			Correct answer **(no need for workings)**	1	
			The candidate has not provided any creditworthy information	0	

After it is calculated, how is the 'degrees of freedom' used when checking for significance? [2]				
Question			Answer	Marks	Guidance
26	(c)		A clear explanation The 'degrees of freedom' is mapped against levels of significance on a table of critical values to establish the critical value necessary to judge the significance of the study.	Max 2	For two marks candidates must refer to level of significance or probability AND finding the critical value. Reference to number of participants is not creditworthy.
			Basic explanation: e.g. It is used to find the critical value.	1	
			The candidate has not provided any creditworthy information	0	

	Outline the meaning of $p < 0.05$ if it appeared as part of the significance statement when presenting the findings from an inferential statistical test for this study. [2]			
Question	Answer	Marks	Guidance	
26 (d)	The probability of the null hypothesis being true (or results being due to chance) is less than 5% (so in this study, there is a significant difference in what male and female motorists find annoying in other motorists)	Max 2	Context is not required for full marks.	
	Correct answer clearly explained	2	For 1 mark accept 'The null hypothesis will be rejected' or 'The Alternate hypothesis will be accepted'.	
	Basic response such as 'There is a significant difference'	1		
	The candidate has not provided any creditworthy information	0		

	Identify and explain one evaluation point you could have included in the discussion section of the write-up of any one of your own practical activities. [4]			
Question	Answer	Marks	Guidance	
27	Depends on candidates own practical activity Answers could include but are not limited to: sample size, method used, design used, data collected, reliability, usefulness of data collected	Max 4	-Context here = the theme of the candidates own chosen practical activity If candidates write a generic evaluation point which could be included in a discussion session of a practical report (but this is not their own practical report) cap at 2 marks. If candidates elaborate on their evaluation with a relevant counterargument about the same issue this can be accepted as part of a developed explanation.	
	4 marks for an identification with a developed explanation (in context) that is applied meaningfully to the details/findings of the practical activity.			
	3 marks for an identification with a basic/generic explanation of the evaluation point in context.			
	2 marks for an identification with a basic/generic explanation of the evaluation point.	Or 2 marks for identification of the evaluation point in context.		
	1 mark for identifying an appropriate evaluation point.			

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