

GCE

Psychology

Unit H167/01: Research methods

Advanced Subsidiary GCE

Mark Scheme for June 2018

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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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H167/01

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

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	- 11
1	Tick	
V.	Development of point	
^	Omission mark	

Section A: Multiple choice

Ques	Answer
1	D
2	С
3	А
4	В
5	В
6	D
7	С
8	В
9	D
10	В
11	А
12	С
13a	В
13b	С
13c	С

Section B: Research design and response

Write an alternative one-tailed hypothesis for this study. [3]					
Question		Answer	Marks	Guidance	
14		 For example There will be a positive correlation between the amount of TV watched (average hours viewed per week) and the number of items of snack foods (crisps, peanuts and chocolate) eaten. 3 marks are awarded for correctly citing an appropriate alternative hypothesis for this study with increasing level of detail in terms of reference to the variables studied. 1 mark for the stem, which should predict a correlation plus 1 mark for the inclusion of each of the variables, plus a further mark if both variables are fully operationalised. 	Max 3	 -Can be written in future or present tense. -Use of the word 'significant' is not necessary for full marks. -Award zero if reference to a difference and/or cause-and-effect (rather than relationship or correlation) -For full marks both the variables must be operationalised. -can state positive or negative correlation will be found -Zero marks if cited as two-tailed (must be one-tailed - i.e. state a positive OR negative 	
		Correctly cited one-tailed alternative hypothesis with both variables operationalised	3	correlation) -If phrased as an experimental, rather than	
		Correctly cited one-tailed alternative hypothesis with reference to both variables, but only one operationalised	2	correlational hypothesis = zero	
		Correctly cited one-tailed alternative hypothesis with reference to both variables, but neither operationalised	1		
		The candidate has not provided any creditworthy information	0		
Exp and -	Explain how you would conduct a study using the correlation technique to investigate if there is a relationship between the amount of TV watched and snack foods eaten. Justify your decisions as part of your explanation. You must refer to: [12] - how the participants would be obtained - how data for each of the measured variables would be obtained				
- You	the o shoul	control of at least one extraneous variable d use your own experience of practical activities to inform your response.			

Que	stion	Answei	r	Marks	Guidance
15				Max 12	Context = reference to TV and snacks

PMT

PMT

Level of response	Details of required features (RFs) included	Justification of decisions made	Reference to own practical work
Good	-All 3 required features addressed	-Appropriate justification of all	-Explicit reference to own practical work
10-12 marks	-Accurate and detailed knowledge and	decisions and <i>some</i> is contextualized	and clear links between own work and the
	understanding of each feature in context	-Well developed line of reasoning that is	e a specific mention of aim or procedural
	-Good evidence of application of	clear and logically structured	features
	required features in context		
Reasonable	-All 3 required features addressed	-Some appropriate justification of	-For top band (good) 10 marks if just one
7-9 marks	-Reasonably accurate and detailed knowledge and understanding of <i>each</i>	decision related to all three required features (7 marks if only two required features justified)	RF linked, 11 marks if two and 12 if all three
	-At least two applications of required features in context	-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 3 required features caps the mark at 9 maximum.
	If two required features are addressed in de	etail and justified in context and explicit	·
	links made to own practical work award 8 m	narks	RF1 – sampling technique must be described not just named (otherwise counts
Limited	-Two of the required features addressed	 Attempt to justify decision(s) but weak 	as 'basic')
4-6 marks	-Limited application of required features	-Evidence of some structure, but weak	
	OR all required features referred to but in		RF2 – must be clear how both variables will
	a limited way		be measured for use in a correlation
	If one required feature addressed in detail a	and justified in context and explicit links	analysis (production of quantitative data)
	made to own practical work award 4 marks		
Basic	 One of the required features addressed 	-None, or if present very weak	
1-3 marks	-Weak application of required features		
	OR more than one of the required		
	features referred to but in a very brief		
	and/or basic way		

Des	Describe one strength of using the correlation technique in this study. [3]					
Question Answer		Marks	Guidance			
16	(a)	(a)	Likely answers: enables the relation viewed, and amount of snack food variables (TV viewing hours and a expressed quantatively; allows da etc etc	onship between amount of TV d eaten to be studied; enables both amount of snacks consumed) to be ata to be plotted on a scatterdiagram	Max 3	Context = reference to TV and snacks -If using <i>'can see relationship between</i> <i>variables'</i> as strength needs elaboration for full marks – e.g. by stating when the data is plotted on a scatterdiagram, or
			Clear description of strength of co	prrelation in context	3	by outlining how the relationship shown
			Clear description of strength of correlation but not in context	OR attempt in context	2	can then be used as the basis for more controlled research investigating cause-
		Brief and/or weak attempt to desc (whether in context or not)	ribe strength of correlation data	1	and-effect etc. If just simply stating can see relationship easy cap at 1 mark	
			The candidate has not provided a	ny creditworthy information	0	(whether in context or not) -Any reference to cause-and-effect as a
						strength at any stage of answer = zero

Des	Describe one weakness of using the correlation technique in this study. [3]				
Que	estion	Answer		Marks	Guidance
16	(b)	b) Likely answers: doesn't show cause-and-effect (whether watching TV makes people eat more snacks or not); affords no insight in to why people may eat more when watching TV etc etc		Max 3	Context = reference to TV and snacks -If just saying something like 'doesn't establish cause-and-effect between
		Clear description of weakness of c	orrelation in context	3	amount of TV watched and amount of
		Clear description of weakness of correlation but not in context	OR attempt in context	2	<i>snack foods eaten</i> ' without any elaboration, cap at 1 mark
		Brief and/or weak attempt to description (whether in context or not)	be weakness of correlation data	1	
		The candidate has not provided an	y creditworthy information	0	

Name the gra	Name the graph that would be used to display the data from a correlation analysis. [1]				
Question	Answer		Marks	Guidance	
17	Scatter of	liagram (accept 'scattergraph' or 'scattergram' also)	Max 1	-Also accept 'scattergraph' and 'scattergram'	
	AO1 mark	1 mark for correct naming of scatter diagram (or scattergraph or scattergram)	1xAO1 mark		
	Scatter of	liagram (or scattergraph or scattergram) correctly named	1		
	The can	didate has not provided any creditworthy information	0		

Explain what the term 'positive correlation' refers to. [2]					
Question	Answer	Marks	Guidance		
18	A positive correlation is a relationship between two variables in which the value of one variable increases as the other increases	Max 2	-Any reference to IVs and DVs or cause-and-effect = zero		
	Clear explanation of what a positive correlation is	2			
	Attempt to explain what a positive correlation is	1			
	The candidate has not provided any creditworthy information	0			

Explain how	Explain how you could reduce the possibility of social desirability in this study. [4]				
Question	Answer		Marks	Guidance	
19	For example: keeping participants naïve; anonymous responses; inclusion of other, unrelated questions (distractor / filler questions); providing data / completing study outside of a research context etc		Max 4	-Context = reference to TV and/or snacks -The explanation for reducing social	
	Clear explanation of how to reduce social desirability in context		4	desirability can refer to either variable,	
	Clear explanation of how to reduce social desirability, but not in context	OR attempt in context	3	or both of them together	
	Attempt to explain how to reduce social desirability but not in context		2		
	Brief and/or weak attempt to explai	n how to reduce social desirability	1		
	whether in context or not				
	The candidate has not provided an	y creditworthy information	0		

Explain what	the term 'criterion validity' refers to in this study. [3]		
Question	Answer	Marks	Guidance
20	measure predicts an outcome for another (related) measure. Here, it refers to how well the measures taken to investigate the relationship between the amount of TV viewed and the number of snacks consumed would compare to different measures of the same thing, such as using weight gain instead of the number of snacks consumed.		Context = reference to TV and/or snacks Accept reference to predictive validity' -Award one mark for discussion of validity in general (and cap at this if no explanation of criterion validity
	Clear explanation of what criterion validity refers to in context		specifically)
	Clear description of what criterion validity refers to but not in context	2	
	Brief and/or weak attempt to explain what criterion validity refers to, whether in context or not	1	
	The candidate has not provided any creditworthy information	0	

For stud	each of ly.	the following, identify the section (or sub-section) they would appea	r in when writ	ing-up the practical report for this
(a)	Raw d	ata	[1]	
(b)	Replic	able details of how the study was conducted	[1]	
(c)	Name	s, dates and place of publication of work by other researchers	[1]	
(d)	An eva	aluation of the way the study was conducted	[1]	
Que	stion	Answer	Marks	Guidance
21		 (a) Appendices (b) procedure (also credit 'method' as section the procedure is in) (c) References (d) Discussion One mark each for correctly identifying the section or sub-section 	Max 4	
		Section or sub-section correctly identified for all 4 things	4	_
		Section or sub-section correctly identified for 3 things	3	
		Section or sub-section correctly identified for 2 things	2	
		Section or sub-section correctly identified for 1 things	1	
		The candidate has not provided any creditworthy information	0	

Section C: Data analysis and interpretation

Exp	Explain what quantitative data is. [2]							
Question		Answer	Marks	Guidance -1 mark if literally just saying 'numbers' without any attempt to explain what is meant by numbers.				
22 (a)		Ouantitative data is information about the quantity of something that is expressed in numbers, rather than words	Max 2					
		Clear explanation of what quantitative data is	2					
		Attempt to explain what quantitative data is	1	-Examples of 2 mark responses could				
		The candidate has not provided any creditworthy information	0	 include 'findings', 'data recorded in numbers', or 'the measurement of a variable or aspect of persons behaviour' -'Numbers that are easy to analyse and compare' = 2 marks 				

Out	line o	ne ad	vantage of having quantitative da	ta rather than qualitative data in thi	s study. [3]	
Que	estion		Answer		Marks	Guidance
22	(b)		Advantages include -Able to perform more descriptive statistics (e.g. calculate the mean of the tastiness of each brand of crisp) -More objective -Easier to analyse and present findings -Easier to compare results across conditions		Max 3	 -Context = crisps, premium and/or budget brand and tasty/tastiness -Accept any reference to study details (e.g. participant numbers) as context -For 3 marks must be some comparison with qualitative data in discussing strength -Cap at 1 mark if there is no reference to qualitative data at all in answer
			Clear and detailed outline of advantage in context		3	
		Clear outline of advantage, but not in contextOR attempt in contextBrief and/or weak attempt to outline advantage (whether not)	OR attempt in context	2		
			Brief and/or weak attempt to outline advantage (whether in context or not)		1	
			The candidate has not provided ar	y creditworthy information	0	(whether in context or not). However, candidates may refer to 'data being in words', rather than using the 'qualitative', and this IS acceptable.

Nan	Name the appropriate inferential statistical test to analyse the data in this study. Give reasons for your answer. [4]					
Que	stion		Answer	Marks	Guidance	
23	(a)		 The appropriate inferential statistical test is the Mann Whitney U test. This is because (i) It is a test of the difference between two conditions (and the study was investigating the difference in ratings for premium and budget crisps) (ii) It is a test that is used with independent measures designs (and the experiment had different people rating the premium crisps compared to rating the budget crisps), and (iii) It is a test that requires ordinal level data (ratings of the tastiness 		 Max 4 -Context = crisps, premium and/or budget brand and tasty/tastiness -Context needs to be expressed in relation to justifying choice of test (just saying as a standard lead sentence 'In this study about taste and crisps' is not acceptable for context here) 	
			of crisps on a scale 1 to 20 is ordinal because the outcomes can be ranked)		-If incorrect test named = zero, regardless of whether any justification	
			The candidate has not provided any creditworthy information	0	is provided or not (and regardless of	
			Appropriate test named and justified with more than one clear reason in context	4	whether the justification relates to the correct test)	
			Appropriate test named and justified with one clear reason in context	3		
			Appropriate test named and justified, but not in context	2	-Cap at 2 marks if correct test named	
			Appropriate test named and attempt to justify why (whether in context or not)	1	and reasons given, but one is incorrect (e.g. saying nominal rather than ordinal	
			The candidate has not provided any creditworthy information	0	data)	

Exp	Explain how you would find the critical value to compare the calculated value to after conducting this test. [2]							
Que	stion		Answer		Guidance			
23 (b) It would be obtaine participants in each use			It would be obtained from a table of critical values using the number of participants in each condition (12) to look up the appropriate figure to use	Max 2 -1 mark if just stating something 'use table of critical values'				
			Clear explanation of how to find the critical value		-Reference to tables of critical values			
			Attempt to explain of how to find the critical value	1	for the wrong test (e.g. Chi square) =			
			The candidate has not provided any creditworthy information	0	zero			
					-Reference to number of participants alone is not creditworthy			

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Out test	line one . [4]	conclusion that could be made abou	t this study if p<0.05 appeared in tl	he significa	nce statement after conducting this	
Question		Answer		Marks	Guidance	
23	23 (c) 2 marks for each conclusion In this study p<0.05 would mean that there is a less than 5%		Max 4	-Context = crisps, premium and/or budget brand and tasty/tastiness		
		probability that null hypothesis (which states there would be no difference in how premium and budget brand crisps tasted) was true. Therefore, we can conclude that people regard premium brand crisps as being tastier than budget brand crisps. This means that things other than actual taste of crisps can influence our perception of what they are like. Things such as the appearance of the packaging of the crisps and the labels used to describe them.			-For 4 marks must include reference to rejecting the null and accepting the alternative hypothesis in context -Reference to alternative and null	
					stating that there is a significant difference between the ratings of the	
	Clear and detailed conclusion outlined in context with correct reference to both the null and alternative hypothesis		ned in context with correct native hypothesis	4	two different brands of crisps (this is creditworthy as H ₁)	
		Clear and detailed conclusion outlined in context with correct reference to <i>either</i> the null or alternative hypothesis		3		
		Clear and detailed conclusion, but not outlined in context	OR attempt to outline conclusion in context	2		
		Brief and/or weak attempt to outline conclusion, whether in context on not		1		
		The candidate has not provided any creditworthy information		0		

The	Fhe range and standard deviation are both measures of dispersion. Outline one way that they are different. [2]					
Que	stion		Answer		Guidance	
24	(a)		The range only compares the highest and lowest value, subtracting one from the other, whereas the standard deviation compares each individual score with the mean.	Max 2	-For two marks some acknowledgement of the fact that SD	
			Clear outline of one way the range and standard deviation are different	2 takes in to account collected is require	takes in to account ALL the data collected is required	
			Attempt to outline of one way the range and standard deviation are different	1	-If just describing how to calculate one	
			The candidate has not provided any creditworthy information	0	 of the measures of dispersion, with no comparison of how this is different to the other (or if the point of comparison is incorrect) = zero marks Accept as a difference the difficulty of calculating the SD compared to the range 	

Out	Outline two conclusions that can be made about this experiment from the calculation of the range. [4]						
Que	Juestion Answer			Marks	Guidance		
24	(b)		Examples could include -People vary a lot in how they rate to budget brand crisps -There is more variation in peoples' budget crisps than the premium branch people seem to think they are very regard them as tasty at all 2 marks for each conclusion	the tastiness of premium and ratings of the tastiness of the and crisps. This means some tasty, whereas others do not	Max 4	 Context = crisps, premium and/or budget brand and tasty/tastiness Cap at 1 mark maximum out of 4 overall if only results / findings presented with no attempt to interpret what they suggest and no conclusion. If there is one finding and one clear conclusion in context = 3 marks, or 2 	
			Clear conclusion outlined in context 2 marks if the conclusio			marks if the conclusion is not in	
			Clear conclusion outlined but not in context	OR attempt to outline conclusion in context	1	context/attempted in context)	
			The candidate has not provided any	/ creditworthy information	0	 -Zero marks if findings presented which are incorrect (e.g. claiming that the range for the budget brand crisps was 16 which means people really liked the taste of them etc) -Range for 'Premium brand' 20 - 8 = 12 (also accept +1 in calculation, = 13) -Range for 'Budget brand' 18 - 2 = 16 (also accept +1 in calculation, = 17) 	

Explain how t	he choice of experimental design u	sed in this study could have affect	ted the valid	ity of the data collected. [4]
Question	Answer		Marks	Guidance
25	The experimental design used in this study was independent measures design. This could have lowered the validity of the data collected as the ratings given about the crisps may not have been based on brand, but individual differences between the participants in each condition in terms of simply whether they liked crisps or not in general (regardless of brand). The validity could also have been lowered as the different participants in each of the conditions may have interpreted and used the rating scale differently.		Max 4	 -Context = crisps, premium and/or budget brand and tasty/tastiness -Both strengths and weaknesses of the use of independent measures designs are creditworthy
	Clear and detailed explanation of h have influenced the validity of the c	ow the experimental design may lata collected	3-4	
	Clear and detailed outline of how the experimental design may have influenced the validity of the data collected not in context	OR clear brief outline of how the experimental design may have influenced the validity of the data collected in context	2	
	Brief and/or weak attempt to describe how the experimental design may have influenced the validity of the data collected (whether in context or not)		1	
	The candidate has not provided an	y creditworthy information	0	

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