GCE AS MARKING SCHEME

SUMMER 2022

AS
PSYCHOLOGY – COMPONENT 2
B290U20-1

INTRODUCTION

This marking scheme was used by WJEC for the 2022 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

GCE AS PSYCHOLOGY – COMPONENT 2

SUMMER 2022 MARK SCHEME

Mark allocation

Question	AO1	AO2	AO3
1	6		
2			2
3			6
4	8		
5	2		
6	4		12
7		19	
8		21	
TOTAL	**20**	**40**	**20**

Section A

1. (a) Define the term 'null hypothesis'. [2]

Exemplar answers:

A statement which predicts that any findings will be down to chance / other factors. [2 marks]

A hypothesis that suggests there will be no difference/relationship between variables, any that does occur does so by chance. [2 marks]

A prediction that the findings will not be statistically significant. [2 marks] The results will be down to chance. [1 mark]

- Any other appropriate content.

Marks	AO1
2	• Reasonable definition.
1	• Basic definition.
0	• Inappropriate answer given. • No response attempted.

(b) Give an example of a null hypothesis. [2]

Exemplar answers:

There will not be a significant relationship between time of day and concentration in lessons. [2 marks]

The difference between genders on sports performance will be down to chance. [1 mark]

- Any other appropriate content.

Marks	AO1
2	• Reasonable example.
1	• Basic example.
0	• Inappropriate answer given. • No response attempted.

(c) Explain why a psychologist would accept the null hypothesis. [2]

Exemplar answers:

- The findings from the inferential test did not reach significance at the minimum accepted level of $p<0.05$. [2 marks]
- The psychologist did not have a significant result. [1 mark]

- Any other appropriate content.

Marks	AO1
2	• Reasonable explanation.
1	• Basic explanation.
0	• Inappropriate answer given. • No response attempted.

2. Explain **one** advantage of using event sampling in psychological observations. [2]

Credit will be given for:

- Event sampling allows for all behaviour to be recorded which means that the findings could be more valid because the researcher does not miss anything.
- Allows for the study of events or behaviours that may be frequently or infrequently occurring.
- Any other appropriate content.

Marks	AO3
2	• Appropriate explanation of one advantage of event sampling.
1	• Basic explanation of one advantage of event sampling.
0	• Inappropriate answer given or answer. • No response attempted.

3. Evaluate the use of secondary sources in psychological research. [6]

Credit will be given for:

Strengths
- It allows the researcher to utilise data which is difficult or impossible to access, such as historical data.
- It can be less time consuming than primary research.

Weaknesses
- There may have been researcher bias in the original data which the current researcher cannot control.
- The data may have been collected for another reason and not be as relevant to the researcher's aims.

- Any other appropriate content.

Marks	AO3
5-6	• Thorough evaluation of appropriate strengths and weaknesses. • Depth and range.
3-4	• Basic evaluation of appropriate strengths and weaknesses. • Depth and range, but not in equal measure. OR • Thorough evaluation of either appropriate strengths or weaknesses. • Depth and range.
1-2	• Superficial evaluation of appropriate strengths and weaknesses. OR • Basic evaluation of either appropriate strengths or weaknesses. • Depth and range, but not in equal measure.
0	• Inappropriate answer given. • No response attempted.

4. Define the following terms:

(a) Target population. [2]

Exemplar answers: A group of people who are of interest to the researcher from where the sample is selected. [2 marks] The group of individuals that a researcher is interested in studying e.g. people in the UK. [2 marks] The people the researcher is interested in for the study. [1 mark] • Any other appropriate content.	
Marks	**AO1**
2	• Reasonable definition.
1	• Basic definition.
0	• Inappropriate answer given. • No response attempted.

(b) Systematic sampling. [2]

Exemplar answers: A sampling technique where every *n*th person on a list is selected by the researcher e.g. every 3rd house on a street, or 5th person on a register. [2 marks] A sample where every n^{th} person is selected. [1 mark] • Any other appropriate content.	
Marks	**AO1**
2	• Reasonable definition.
1	• Basic definition.
0	• Inappropriate answer given. • No response attempted.

(c) Demand characteristics. [2]

Exemplar answers:

The participants guess the aim of the study and change their behaviour accordingly [2 marks]

A type of confounding variable where participants unconsciously work out the aim and act differently (either through social desirability or the screw you effect). [2 marks]

- Any other appropriate content.

Marks	AO1
2	• Reasonable definition
1	• Basic definition
0	• Inappropriate answer given • No response attempted

(d) Quasi experiment. [2]

Exemplar answers:

An experiment conducted in a controlled or natural environment where the independent variable is not manipulated by the researcher. [2 marks]

A research method where the IV arises naturally, although the DV can still be measured in a laboratory or any other location of the researcher's choice. This method would be used when it is unethical to directly manipulate the IV [2 marks].

An experiment where the IV is naturally occurring. [1 mark]

- Any other appropriate content.

Marks	AO1
2	• Reasonable definition.
1	• Basic definition.
0	• Inappropriate answer given. • No response attempted.

5. Describe what is meant by confidentiality in psychological research. [2]

Exemplar answers:

Information about the participant must not be shared or revealed; the data is kept locked away or in secure online files. [2 marks]

Third parties should not be able to trace information back to individual participants. This is usually achieved through providing anonymity e.g. using participant numbers not names. [2 marks]

The participants' data must be kept hidden. [1 mark]

- Any other appropriate content.

Marks	AO1
2	• Reasonable description.
1	• Basic description.
0	• Inappropriate answer given. • No response attempted.

6. (a) Briefly describe the sample and methodology used in Kohlberg's (1968) research 'The child as a moral philosopher'. [4]

Credit **could** be given for:

Methodology:
- Longitudinal study which followed the development of the same group of boys for 12 years.
- Use of interviews to assess moral reasoning; including the use of moral dilemmas.
- Cross-cultural comparison.

Sample:
- 75 American boys who started the research between the ages of 10 and 16.
- The boys were 22-28 at the end of the research.
- Additional sample from Great Britain, Canada, Mexico, Turkey and Taiwan were interviewed by Kohlberg or a colleague of Kohlberg.

- Any other appropriate content.

Marks	AO1
3-4	• Description and level of accuracy of **both** the methodology **and** sample is reasonable. • Good use of appropriate terminology.
1-2	• Description and level of accuracy of **both** the methodology **and** sample is basic. OR • Description and level of accuracy of **either** the methodology **or** sample is reasonable. • Very little use of appropriate terminology.
0	• Inappropriate answer given. • No response attempted.

(b) Critically evaluate the sample and methodology used in Kohlberg's (1968) research 'The child as a moral philosopher'. [12]

Credit will be given for:

Sample issues:

- Sample age ranged from 10-28 years old during research and the youngest boy was ten years old at the start of the research, but there is little evidence base for how moral development occurs before that age.

- Kohlberg used an all-male sample which means he was unable to generalise to females; however, this was acceptable scientific practice at the time Kohlberg started his research and Kohlberg controlled for the effect of gender, which may influence moral development.

- There is cultural diversity in the sample group, but the main findings are based on the 75 American boys and men interviewed by Kohlberg. Little is known/published about the characteristics of the participants from Great Britain, Canada, Mexico, Turkey and Taiwan making generalisability limited to other cultures.

Methodological issues

- Use of interviews allowed Kohlberg to ask supplementary questions if necessary and was an appropriate method for investigating children who may be less competent with written questionnaires, however, the children may be more prone to researcher bias.

- Use of hypothetical moral dilemmas examined what the boys say they would do not what they actually would do but this may have been the only way to study this construct ethically.

- The scenarios may not be relevant to the participant's life, e.g. can a 10-year-old boy really relate to the Heinz scenario, but different hypothetical moral dilemmas were used with different children, allowing for an objective comparison across the sample group.

- The use of a longitudinal method allowed Kohlberg to track the actual development of the boys over 12 years, but the sample was more likely to suffer from sample attrition.

- By using several countries, cross-cultural comparison could be made to assess if moral development is universal or culturally specific but different techniques in questioning across the cultures meant that reliable comparisons could not be drawn.

- Any other appropriate content.

N.B. Description of the sample and methodological issues will be limited to the 1-3 marks band.

Marks	AO3
10-12	• Thorough evaluation of both the sample and methodology in Kohlberg's research. • Evaluative comments are evidently relevant to the context. • Structure is logical throughout. • Depth and range included. • An appropriate conclusion is reached.
7-9	• Reasonable evaluation of both the sample and methodology in Kohlberg's research • Evaluative comments show some relevance to the context. • Structure is mostly logical. • Depth and range, but not in equal measure. • A reasonable conclusion is reached.
4-6	• Basic evaluation of both the sample and methodology in Kohlberg's research. • Evaluative comments are generic and not appropriately contextualised. • Structure is reasonable. • Depth or range. • A basic conclusion is reached. OR • Thorough evaluation of either the sample or methodology in Kohlberg's research. • Evaluative comments are evidently relevant to the context. • Structure is logical throughout. • Depth and range included. • An appropriate conclusion is reached.
1-3	• Superficial evaluation of both the sample and methodology in Kohlberg's research • Evaluative comments are superficial. • Answer lacks structure. • No conclusion OR • Reasonable evaluation of either the sample or methodology in Kohlberg's research. • Evaluative comments show some relevance to the context. • Structure is mostly logical. • Depth and range, but not in equal measure. • A reasonable conclusion is reached.
0	• Inappropriate answer given. • No response attempted.

Section B

7. A Biology teacher noted that one of her year 11 classes did not do well on tests. She believed this was due to a lack of enthusiasm for the content of the lessons. The headteacher suggested teaching the class outdoors and asked the Biology teacher to investigate the success of this strategy.

Ten students with a range of abilities were selected for the investigation. For one week, the students were taught in their usual classroom on Monday but on the Wednesday their lesson took place on the school sports field. The teacher gave the students a knowledge test (marked out of 10) after each lesson in the two learning environments and the results are shown below:

Fig.1. – Knowledge test scores collected after a lesson in each learning environment (Classroom and Sports field).

Participant	Classroom	Sports field
1	6	9
2	2	1
3	5	9
4	3	5
5	3	5
6	4	4
7	2	5
8	6	9
9	3	6
10	3	5

(a) Write a fully operationalised directional hypothesis for this research. [2]

Exemplar answers:

Students who have their lesson on the sports field will score higher in the knowledge test than students who have their lesson in the classroom. [2 marks]

The scores on the test will be better when the students are outside. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Appropriate directional hypothesis with both independent variable and dependent variable fully operationalised and linked to the research.
1	• Appropriate directional hypothesis with partial/no operationalisation of the variables and linked to the research.
0	• Inappropriate answer given. • No response attempted.

(b) (i) Calculate the median score for the knowledge test following lessons on the sports field. Show your workings. [2]

Exemplar answers: 1 4 5 5 5 5 6 9 9 9 - middle value is 5. [2 marks] 5 [1 mark] 1 4 5 5 5 5 6 9 9 9 - middle value is 5.5 [1 mark]	
Marks	**AO2**
2	• Correct workings and correct median score.
1	• Correct workings or correct median score.
0	• Inappropriate answer given. • No response attempted.

(ii) Calculate the mean score for the knowledge test following lessons in the sports field. Show your calculations. [2]

Exemplar answers: 9 + 1 + 9 + 5 + 5 + 4 + 5 + 9 + 6 + 5 = 58 / 10 = 5.8 [2 marks] Mean is 5.8 [1 mark] 9 + 1 + 9 + 5 + 5 + 4 + 5 + 9 + 6 + 5 = 58 / 10 = 5 [1 mark]	
Marks	**AO2**
2	• Correct workings and correct mean score.
1	• Correct workings or correct mean score.
0	• Inappropriate answer given. • No response attempted.

(iii) Explain which measure of central tendency is the most appropriate representation for the knowledge test scores following the lesson on the sports field. [2]

Exemplar answers:

The mean is the most appropriate measure of central tendency because it gives a statistically accurate representation of the average of the scores on the knowledge test [2 marks]
The median is the most appropriate measure of central tendency because it is not affected by anomalous results such as the child who scored 1 on the knowledge test [2 marks]
The mean is better as it takes into account anomalous scores on the test [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Reasonable explanation clearly linked to the research.
1	• Basic explanation clearly linked to the research. OR • Reasonable explanation but not clearly linked to the research.
0	• Inappropriate answer given. • No response attempted.

(c) (i) Identify the experimental design in this research. [1]

Exemplar answers:

- Repeated measures. [1 mark]
- Repeated groups. [1 mark]

- Any other appropriate content.

Marks	AO1
1	• Accurate experimental design is identified.
0	• Inappropriate answer given. • No response attempted.

(ii) Justify why the experimental design used in this research is appropriate. [2]

Exemplar answers:

The students take part in both conditions (learning in classroom and sports field) and therefore the findings are not subject to participant variables. [2 marks]

Individual differences between the students such as revision skills should not affect the data because they do the same test twice. [2 marks]

Participant variables will not affect the data because they do the same test twice. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Appropriate justification clearly linked to this research.
1	• Appropriate justification not clearly linked to this research.
0	• Inappropriate answer given. • No response attempted.

(d) (i) Explain one issue of validity which may occur in this research. [2]

Exemplar answers:

The students do the knowledge test twice so they may do better on the second attempt because they already know the questions, which makes the results invalid. [2 marks]

The students may have been affected by extraneous variables that cannot be controlled when learning outdoors, such as hay fever. [2 marks]

By doing both conditions, the participants may show order effects and do better in the second condition. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Appropriate issue explained and clearly linked to this research.
1	• Appropriate issue explained but not clearly linked to this research.
0	• Inappropriate answer given. • No response attempted.

(ii) Explain what could be done to deal with the issue of validity explained in (d) (i). [2]

Exemplar answers:

- The students could be allocated into two groups, so they only do the knowledge test once and this may eliminate demand characteristics. [2 marks]
- The students could be matched for factors which may create individual difference, such as hay fever, to reduce the effect of this extraneous variable on the findings. [2 marks]
- The researcher could change the design from repeated measures to avoid order effects/participant variables. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Appropriate way of dealing with the issue explained and clearly linked to this research.
1	• Appropriate way of dealing with the issue explained but not clearly linked to this research.
0	• Inappropriate answer given. • No response attempted.

(e) A researcher wants to investigate the reasons why the knowledge test scores were lower in the classroom. Explain how the researcher could have used an alternative method to produce qualitative data to explore these reasons. [4]

Exemplar answers

The researcher could have asked the students to come one by one to the common room during the Biology lesson. They could then carry out unstructured interviews with the students and ask them directly for their reasons why they did not pay attention in class. The researcher could use open questions such as 'Why do you find it difficult to stay focused in this lesson?' to gain insight into the students' reasons. The student would be able to answer freely to give as much depth to their answer as they choose. [4 marks]

The researcher could have given the student open questions to answer in a questionnaire. The student would be able to provide their reasons why they did not pay attention in the classroom in depth [3 marks]

Open questions could be asked to gain an understanding of the reasons why there was a difference in the two conditions. The answers would allow more elaboration and depth. [2 marks]

They could have carried out unstructured interviews with each participant to gain insight into the reasons why. [1 mark]

- Any other appropriate content.

Marks	AO2
4	• Reasonable explanation clearly linked to the research.
3	• Basic explanation clearly linked to the research.
2	• Reasonable explanation not clearly linked to this research.
1	• Basic explanation not clearly linked to this research.
0	• Inappropriate answer given. • No response attempted.

8. A supermarket manager read that job satisfaction was linked to quality of interactions with people's supervisors. The manager conducted a structured interview with the staff where they rated the quality of the interactions with their supervisor, and he compared this data to the scores of job satisfaction given in a recent staff survey. The findings are displayed in the table below:

Fig.2. – Participant job satisfaction scores and ratings of the quality of interactions with the supervisor.

Participant	Score of job satisfaction on a scale of 1-5	Rating of the quality of interactions with the supervisor on a scale of 1-5
1	3	4
2	2	1
3	3	5
4	1	2
5	2	3
6	2	3
7	4	5
8	4	4
9	1	2
10	2	1

(a) (i) Identify a graphical representation that could be used to display the data in this research (Fig.2.). [1]

Exemplar answers:

Scattergram. [1 mark]
Scattergraph. [1 mark]

- Any other appropriate content.

Marks	AO1
1	• Appropriate graphical representation is identified.
0	• Inappropriate answer given. • No response attempted.

(ii) Explain why the graphical representation you identified in (a) (i) was appropriate for this research. [2]

Exemplar answers:

The data is correlational because it is looking for a relationship between scores of job satisfaction and ratings of the quality of interactions with the supervisor. [2 marks]
The data is correlational. [1 mark]

- Any other appropriate content

Marks	AO2
2	• Appropriate justification clearly linked to the research.
1	• Appropriate justification not clearly linked to the research.
0	• Inappropriate answer given. • No response attempted.

(iii) Using an appropriate graphical representation, display the data from this research (Fig.2.). [4]

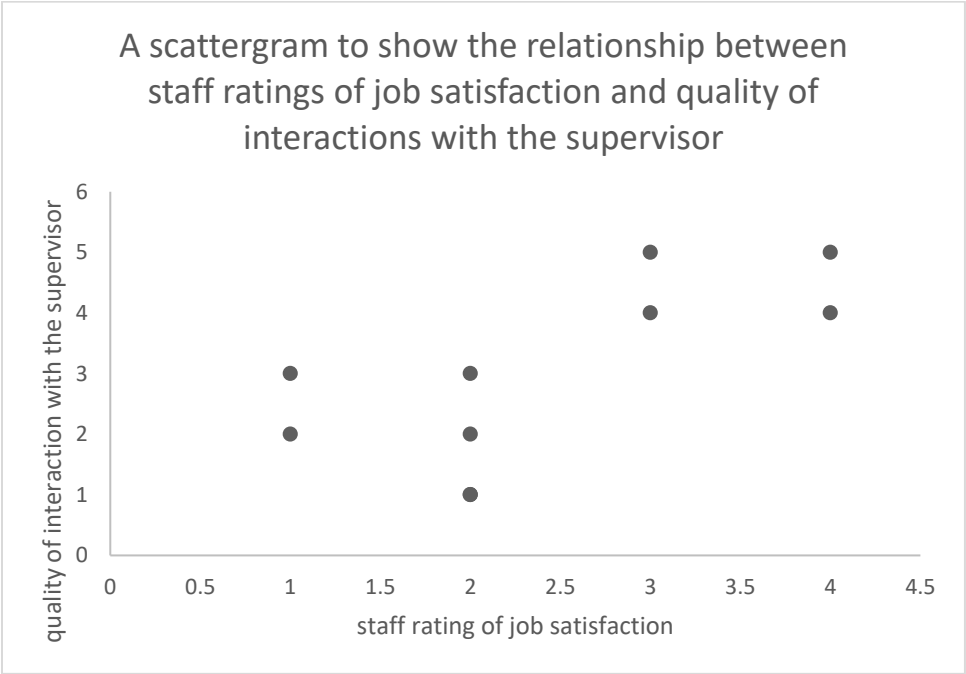
Credit can be given for:

- Appropriate graphical representation; e.g. scattergram
- Features (1 mark per feature, up to a maximum of 4 marks):
- Appropriate title for graphical representation.
- Appropriate label and scale of x-axis.
- Appropriate label and scale of y-axis.
- Appropriate and accurate plotting of data.

- Any other appropriate content

Marks	AO2
4	• All four features above are accurately displayed.
3	• Three features above are accurately displayed.
2	• Two features above are accurately displayed.
1	• One feature above is accurately displayed.
0	• Inappropriate answer given. • No response attempted.

A scattergram to show the relationship between staff ratings of job satisfaction and quality of interactions with supervisor.



(iv) State **one** conclusion that can be drawn from the graphical representation in (a) (iii). [2]

Exemplar answer:

As the scores for job satisfaction on a scale of 0-5 increased so did the scores for ratings of the relationship with the supervisor on a scale of 0-10. [2 marks]
As the scores for one increased so did the scores for the other. [1 mark]

- Any other appropriate conclusion.

NB. Inferential conclusions (e.g. there is a significant positive relationship between ratings of supervisor and job satisfaction) receive maximum of 1 mark.

Marks	AO2
2	• Appropriate conclusion clearly linked to the research
1	• Appropriate conclusion not clearly linked to the research • Inferential conclusion is drawn
0	• Inappropriate answer given • No response attempted

(b) (i) Describe two ethical issues that may arise when conducting this research. [2+2]

Credit could be given for:

- confidentiality
- deception
- risk of stress, anxiety, humiliation or pain
- risk to the participants' values, beliefs, relationships, status or privacy
- valid consent

Exemplar answers:

One issue may be that the supermarket employees have not given consent for their job satisfaction scores to be used in this research as they completed the staff survey at a different time for a different purpose. [2 marks]

One issue may be that the employee may feel worried about how this data could be used against them in future if they have said that they do not have a good relationship with their supervisor. [2 marks]

One issue may be stress as the person might worry about who will see their answers. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Appropriate ethical issue clearly linked to the research.
1	• Appropriate ethical issue not clearly linked to the research.
0	• Inappropriate answer given. • No response attempted.

(ii) Suggest how the risk posed by the **two** ethical issues in (b) (i) could be managed in this research. [2+2]

Exemplar answers:

The employee could have been asked if they are happy to share their responses to the staff survey which they completed earlier. [2 marks]

The researcher could have made sure that valid consent was gained for all of the data used. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Appropriate way of dealing with the ethical issue clearly linked to the research.
1	• Appropriate way of dealing with the ethical issue not clearly linked to the research.
0	• Inappropriate answer given. • No response attempted.

(c) Identify and fully justify which inferential statistic would be most appropriate to analyse the data in this research (Fig.2). [4]

Exemplar answers:

A Spearman's rho is appropriate because it is a correlational study to compare job satisfaction with interaction with the supervisor. As each worker has a job satisfaction score and interaction with the supervisor rating, this means the data is related. The data is at least ordinal as the measurements were self-reported ratings of satisfaction and interaction on a scale of 1-5. [4 marks]

Using a Kendall Tau correlation test would be appropriate as the job satisfaction and quality of interactions scores are paired scores, so the data is related. Also because the researcher is investigating the correlation between each supermarket worker's scores and not a difference between groups of supermarket workers. [3 marks]

Spearman test.
- Correlation, not difference.
- The job satisfaction score and interaction rating are both ordinal or above level of measurement.
- Related data. [2 marks]

Spearman's Rho,
- Test of correlation.
- Uses at least ordinal level data.
- Data is related. [1 mark]

N.B. No credit can be awarded to an element of justification if the element is not clearly linked to the data in this research.

Marks	AO2
4	• Appropriate inferential statistic is identified. The justification contains **three** correct elements needed to justify the use of the identified inferential statistic, and all elements are clearly linked to the data in this research.
3	• Appropriate inferential statistic is identified. The justification contains **two** correct elements needed to justify the use of the identified inferential statistic, and both are clearly linked to the data in this research.
2	• Appropriate inferential statistic is identified. The justification contains one correct element needed to justify the use of the identified inferential statistic, and this element is clearly linked to the data in this research.
1	• Appropriate inferential statistic is identified but no justification is given. OR • Appropriate inferential statistic is identified but an incorrect justification is given. OR • Appropriate inferential statistic is identified. The justification contains correct element(s) needed to justify the use of the identified inferential statistic, but none of the element(s) are clearly linked to the data in this research.
0	• Inappropriate answer given • No response attempted