GCE AS MARKING SCHEME

SUMMER 2023

AS
PSYCHOLOGY – COMPONENT 2
B290U20-1

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INTRODUCTION

This marking scheme was used by WJEC for the 2023 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.

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GCE AS PSYCHOLOGY – COMPONENT 2

SUMMER 2023 MARK SCHEME

Question Number	AO1	AO2	AO3
1			12
2			8
3	10		
4	6		
5	4		
6		16	
7		24	
	20	**40**	**20**

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Section A

1. Critically evaluate Kohlberg's (1968) research '*The child as a moral philosopher*'. [12]

Credit will be given for:

Use of semi-structured interviews

- Allowed Kohlberg to obtain more detailed information from each respondent than in a structured interview. Kohlberg could tailor the questions to the boys' responses, get deeper insights into the boys' thoughts about the hypothetical moral dilemmas and avoid asking irrelevant questions.
- It allowed Kohlberg to investigate morality which may vary greatly amongst participants, with more sensitivity.
- Semi-structured interviews required Kohlberg to show more skill than a structured interview because he had to develop new questions on the spot.
- Questions developed on the spot may lack objectivity more than predetermined ones because of their instantaneous nature, Kohlberg has little time to reflect on what to ask.

Use of hypothetical moral dilemmas

- Allowed Kohlberg to use the same stimulus materials with all of the boys, who may have had very different life experiences, ensuring his research was reliable.
- Might mean Kohlberg was really asking about moral thoughts rather than moral behaviour.

Use of an all-male sample group

- Allowed Kohlberg greater control over gender which may impact his findings and/or cloud any developmental stages.
- Was appropriate and acceptable scientific practice at the time in which Kohlberg conducted his research in the 1950's-1960's.
- Means his stages of moral development may not reflect the moral development of girls and hence may not be generalisable to half of the population.

Ethical issues

- Use of vulnerable individuals, as some participants were as young as ten at the start of the research.
- Socially sensitive research, as conclusions are drawn about different cultures in the article.

- Any other appropriate content.

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

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2. (a) Explain **two** strengths of using a longitudinal study in psychology. [2+2]

Credit will be given for:

Strengths:

- Longitudinal studies control for 'participant variables', as the same person is tested on a number of occasions and compared and therefore acts as their own control. They help us establish the order in which events occur.
- Cohort variables are not a problem as there is only one group of participants being studied.
- Reduces recall bias as participants are being researched as their life occurs, rather than thinking back to the experiences they may have had earlier in their lives.
- Helps us understand the order in which events may occur; links early life circumstances and later outcomes.
- Any other appropriate content.

Marks	AO3
2	• Thorough explanation of strength.
1	• Basic explanation of strength.
0	• Inappropriate answer given. • No response attempted.

(b) Explain **two** weaknesses of using a longitudinal study in psychology. [2+2]

Credit will be given for:

Weaknesses:

- Longitudinal studies can take years to produce useful data for analysis and are therefore inappropriate for immediate results.
- Sample attrition occurs when people move, die or decide they no longer want to participate.
- Participants may be less willing to take part if research is going to be conducted over a long time.
- More likely to become aware of the research hypothesis and possibly display demand characteristics.
- Any other appropriate content.

Marks	AO3
2	• Thorough explanation of weakness.
1	• Basic explanation of weakness.
0	• Inappropriate answer given. • No response attempted.

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3. Explain how you would calculate the following:

(a) Median. [2]

Exemplar answers: • If there is an odd number of scores, then arrange all of the scores in the data set in numerical order and the select the middle value. • If there is an even number of scores, then arrange all the scores in the data set in numerical order, add together the two middle values and then divide this by two. • Any other appropriate content.	
Marks	**AO1**
2	• Thorough explanation.
1	• Basic explanation.
0	• Inappropriate answer given. • No response attempted.

(b) Mode. [2]

Exemplar answers: • Count the frequency of each score achieved in the data set; the score(s) with the highest frequency is/are the modal score(s). • Any other appropriate content.	
Marks	**AO1**
2	• Thorough explanation.
1	• Basic explanation.
0	• Inappropriate answer given. • No response attempted.

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(c) Standard deviation. [6]

AO1
Credit will be given for: • Recipe approach - descriptions of stages used in calculations – 1 mark per accurate step. • Actual calculations of a worked example – 1 mark per accurate step. • Standard deviation formula – With explanation – 1 mark per accurate step. Without explanation – 3 marks for a completely accurate formula; 2 marks for reasonably accurate formula; 1 mark for partially accurate formula. • Description of the use of appropriate tools and software (e.g. spreadsheet software, calculator functions etc). • Any other appropriate content. N.B. Where explanations are primarily descriptions or definitions of what standard deviation is, care should be taken to identify if any possible content could also be considered a step in how it could be calculated, e.g. discussion of the mean score.

Marks	AO1
6-5	• Thorough explanation.
4-3	• Reasonable explanation
2-1	• Basic explanation
0	• Inappropriate answer given. • No response attempted.

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Exemplar answers:

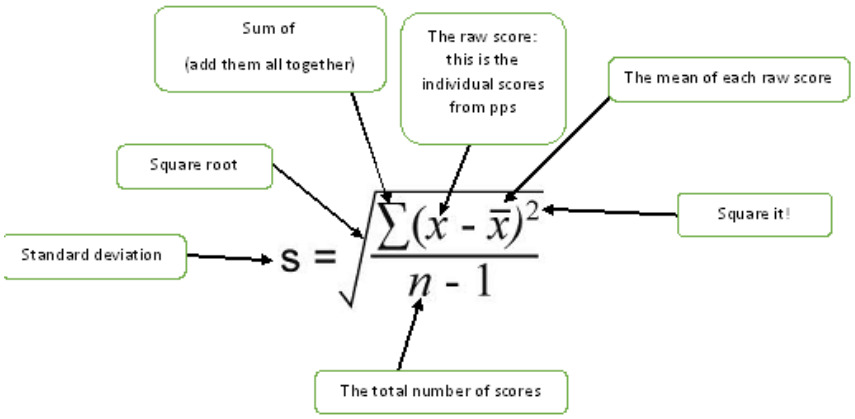
- 'Recipe approach'

I would calculate the standard deviation by completing the following steps:

1. Calculate the mean of the data set.
2. Take the mean away from each score in the data set.
3. Square each difference.
4. Add together each of the squared differences.
5. Divide this by N – 1 (the number of scores in your data set - 1).
6. Find the square root of this value and this is the standard deviation.

[6 marks]

- Standard deviation formula (explained)



[6 marks]

- Explanations of the use of appropriate tools and software

I would use the standard deviation button on my calculator. [1 mark]

I would use a spreadsheet, and firstly add the values I wanted to use into a column. So, if I had 10 values, I would add them to A1-A10. Then I would select a blank cell, use a function such as =STDEV.S(A1:A10) – which is the function for a standard deviation of a sample. I'd use =STDEV.P(A1:A10) as a function if I were looking for the standard deviation of a population. [6 marks]

- Explanations based on definitions.

I would find the mean score, so add all the scores together and divide by the number of scores, and then by calculating the standard deviation it would give me a single value that allows me to see the dispersion of scores around the mean score. [2 marks]

Standard deviation is a value that represents how dispersed the values are from the mean. [1 mark]

Standard deviation is a measure of dispersion, that identifies a value which represents how much the values in a population or sample vary from the mean (total of scores/number of scores). Low SD scores indicate the scores are narrowly dispersed; higher scores indicate the scores are more widely dispersed. Different formulas are used to calculate SD if a data set is a sample or a population. [3 marks]

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4. (a) Using an example, explain what is meant by the term ‘confounding variables’. [3]

Credit will be given for:

Examples of a confounding variable:
- Uncontrolled sound when completing a task may impact on some participant’s ability to concentrate.
- When the weather is sunny it may make some participants give a higher happiness score if they like sunny weather.
- When a questionnaire is written in a small font, some participants may have more difficulty reading it.

Explanations of confounding variable:
- Variables in a study that are not being measured or manipulated by the researcher, that affect SOME participants’ behaviours but not others, having negative consequences for validity. [Thorough explanation]
- Uncontrolled variables that affect some participants. [Basic explanation]

- Any other appropriate content.

Marks	AO1
3	• Appropriate example and thorough explanation.
2	• Appropriate example and basic explanation. **OR** • Inappropriate example and thorough explanation.
1	• Inappropriate example and basic explanation.
0	• Inappropriate answer given. • No response attempted.

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(b) Using an example, explain what is meant by 'operationalisation of variables'.
[3]

Credit will be given for:

Examples of operationalisation:
- Measuring stress by using the SRRS scale.
- Measuring psychoticism by using Eysenck's personality scale.

Explanations of operationalisation of variables:
- Giving a precise definition of the behaviour being manipulated/observed/ measured (IV/DV). This allows for repetition and raises reliability as it is an agreed value that has been attributed to the measurement. [Thorough]
- Clarifying how something is measured. [Basic]

- Any other appropriate content.

Marks	AO1
3	• Appropriate example and thorough explanation.
2	• Appropriate example and basic explanation. **OR** • Inappropriate example and thorough explanation.
1	• Inappropriate example and basic explanation.
0	• Inappropriate answer given. • No response attempted.

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5. Identify whether the following hypotheses are either directional, non-directional, or null:

(a) There is no relationship between the number of hours spent revising and the exam result. [1]

Credit will be given for: • Null. • Any other appropriate content.	
Marks	**AO1**
1	• Appropriate identification.
0	• Inappropriate answer given. • No response attempted.

(b) There will be a difference in the response times of participants who have consumed an alcoholic drink and participants who have not consumed an alcoholic drink. [1]

Credit will be given for: • Non-directional. • Any other appropriate content.	
Marks	**AO1**
1	• Appropriate identification.
0	• Inappropriate answer given. • No response attempted.

(c) As the number of hours of sunshine decreases, the number of depressive symptoms increases. [1]

Credit will be given for: • Directional. • Any other appropriate content.	
Marks	**AO1**
1	• Appropriate identification.
0	• Inappropriate answer given. • No response attempted.

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(d) Participants who own dogs will have higher wellbeing scores than participants who do not own a dog. [1]

Credit will be given for: • Directional. • Any other appropriate content.	
Marks	**AO1**
1	• Appropriate identification.
0	• Inappropriate answer given. • No response attempted.

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Section B

6. A psychologist conducted a case study on her son to investigate how language skills developed. The son spoke his first three words at 12 months. The psychologist then recorded every word her son spoke on the first day of every month, until the son was 18 months old. The psychologist then presented this data in the frequency table below.

Fig.1. The number of words spoken on the first day of each month between the ages of 12 and 18 months.

Age (Months)	12	13	14	15	16	17	18
Number of words spoken	3	6	7	12	11	26	52

(a) Explain **two** reasons why a case study would be an appropriate method to use in this research. [2+2]

Exemplar answers:

This could be a good way for the psychologist to examine changes occurring as a result of psychological processes which occur over time, such as language skills development. [2 marks]

This would be appropriate way to collect potentially large amounts of data, in this case, the number of words spoken by her son. [2 marks]

It allows measurement of language over time [1 mark]

- Any other appropriate content.

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

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(b) (i) Explain why researcher bias may be an issue of validity in this research. [2]

Exemplar answers:

The psychologist could indirectly influence the number of words spoken by her son**,** through the process of designing the study or through the way the research is conducted/analysed. [2 marks]

The psychologist's preconceptions could colour their interactions with their son or it could influence the way in which they count the number of words spoken. [2 marks]

The psychologist might influence the baby [1 mark]

When a researcher is biased. [0 marks]

- Any other appropriate content.

Marks	AO2
2	• Explanation of researcher bias is appropriate and clearly linked to this research.
1	• Explanation of researcher bias is appropriate; but not clearly linked to this research.
0	• Inappropriate answer given. • No response attempted.

(ii) Explain what could be done to deal with the researcher bias in this research. [2]

Exemplar answers:

The psychologist could record their son's words so that another researcher could verify the number of words spoken in a day. [2 marks]

Get another psychologist to collect the data on the baby. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Explanation of a way of dealing with researcher bias is appropriate and clearly linked to this research.
1	• Explanation of a way of dealing with researcher bias is appropriate, not clearly linked to this research.
0	• Inappropriate answer given. • No response attempted.

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(c) (i) Explain why a line graph is an appropriate graphical representation to display the data from the frequency table (Fig.1.). [2]

Exemplar answers:

- A line graph would allow her to show any changes in the number of words spoken by her son over time (7 months). [2 marks]
- A line graph allows you to plot the frequency of continuous data e.g. words. [1 mark]
- Any other appropriate content.

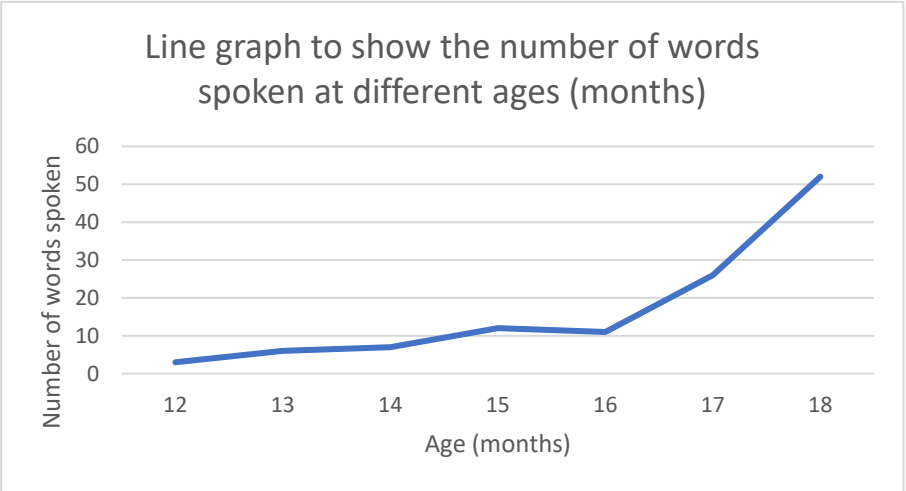
Marks	AO2
2	• Appropriate explanation clearly linked to this research.
1	• Appropriate explanation, but not clearly linked to this research.
0	• Inappropriate answer given. • No response attempted.

(ii) On the graph paper below, plot a line graph to represent the data in the frequency table (Fig.1.). [4]

AO2

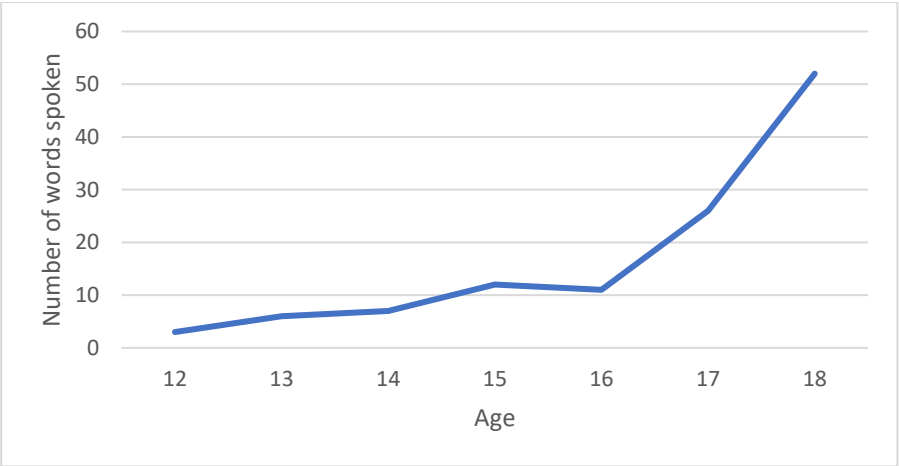
One mark for each of the following:

- Appropriate title.
- Appropriate X axis label.
- Appropriate Y axis label.
- Accurate plotting of data.



[4 marks]

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[3 marks]

N.B. Candidates that have age on the y axis rather than the x axis, and number of words on the x axis rather than the y axis can still receive credit for accurate plotting of data if their plotting is accurate, but not for X and Y labels.

- Any other appropriate content.

(iii) Draw **one** conclusion from the line graph you have drawn in (c)(ii). [2]

Exemplar answers:

The number of words spoken shows some gradual increases between 12 months and 16 months, but then the number of words rises steeply between 16 months and 18 months. [2 marks].

The number of words spoken increases over the seven months [1 mark].

- Any other appropriate content.

Marks	AO2
2	• Thorough conclusion.
1	• Basic conclusion. • ~~Inferential interpretation.~~
0	• Inappropriate answer given. • No response attempted.

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7. A university professor was interested in why people wear make-up. Her friend claimed that wearing make-up improved their confidence. The professor randomly selected 20 students who were studying at the university where she worked. She asked the participants to record their confidence score at midday on one day when they were wearing make-up and one day when they were not wearing make-up. The participant's rated their confidence score using a 11 point scale (0 = no confidence to 10 = extremely confident). The professor's research hypothesis was:

Participants will record a higher confidence score when wearing make-up than when not wearing make-up.

(a) (i) Explain why the professor's choice of using a directional hypothesis may be inappropriate in this research. [2]

Exemplar answers:

The selection of a directional hypothesis is normally based on previous research not the opinions of friends and so a directional hypothesis might be inappropriate. [2 marks]

The professor did not conduct a pilot study, and so has no indication as to whether the confidence ratings of the students would be higher with or without make-up. [2 marks]

It's inappropriate as there doesn't seem to be any previous research into confidence on which to base the directional hypothesis. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Appropriate explanation clearly linked to this research.
1	• Appropriate explanation, ~~it is~~ not clearly linked to this research.
0	• Inappropriate answer given. • No response attempted.

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(ii) State an operationalised null hypothesis that the professor might use in this research. [2]

Exemplar answer:

Any difference in the confidence ratings (0-10) of participants when wearing make-up and when not wearing make-up will be due to chance factors. [2 marks]

There will be no significant difference in the confidence ratings (0-10) of participants when wearing make-up and when not wearing make-up. [2 marks]

There is no difference in confidence when wearing make-up and not wearing make-up. [1 mark]

- Any other appropriate content.

Marks	AO2
2	• Fully operationalised null hypothesis.
1	• Partially operationalised null hypothesis.
0	• Inappropriate answer given. • No response attempted.

(b) (i) Explain how the professor could have used random sampling in this research. [2]

Exemplar answers:

The professor could have assigned all of the students at the university a number and then used a random number generator to select the 20 students she wanted to use in the sample. [2 marks]

She could have put the names of all of the students at the university into a hat and selected 20 names. These 20 names would be the names of students who would be participants in her sample. [2 marks]

The professor could put all of the names from her sampling frame into a hat and then draw the names of participants who would be in the sample from the hat. [1 mark]

- Any other appropriate content.

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

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(ii) Explain **one** strength of using random sampling in this research. [2]

Exemplar answers:

The professor cannot be accused of being biased in their selection of students to participate in the research into confidence levels.
[2 marks]

The professor is not demonstrating bias in their selection technique.
[1 mark]

- Any other appropriate content.

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

(iii) Explain **one** weakness of using random sampling in this research. [2]

Exemplar answers:

The professor may end up selecting a sample that does not reflect the various subgroups of students at the university, making the findings less valid / generalisable. [2 marks]

The sample may contain some students who do not typically wear make-up and therefore they may refuse to take part and the sampling will have to start again. [2 marks]

The sample could be unrepresentative of the general population of students. [1 mark].

- Any other appropriate content.

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

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(c) A colleague of the professor is concerned that the confidence scores may not be reliable. Explain how the professor could use test-retest to assess the reliability of her findings in this research. [2]

Exemplar answers:

The professor would test the same students about their confidence levels with and without make-up and then, after a period of time, the same students would be asked to rate their confidence levels with and without make-up again. If the two sets of confidence scores for each of the conditions are very similar or highly correlated, the research is deemed reliable. [2 marks]

Test re-test is where the participants are given the confidence test once and then tested again. If the scores are similar the research is deemed reliable. [1 mark]

- Any other appropriate content.

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

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(d) (i) Explain **one** strength of conducting this research in the field. [2]

Exemplar answers:

By conducting research in a more natural environment, the participants' confidence scores may be more valid as they are having to rate confidence when wearing make-up or not wearing make-up in their real lives. [2 marks]

It had to be conducted in the field as in a laboratory the set-up of wearing make-up or not wearing make-up might have proven too artificial. [2 marks]

Research in the field might have higher external validity as it is taking place in the student's natural environment. [1 mark]

- Any other appropriate content.

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

(ii) Explain **one** weakness of conducting this research in the field. [2]

Exemplar answers:

It is more difficult for the professor to control for confounding or extraneous variables which may affect the confidence ratings of the participants. [2 marks]

It is more difficult for the professor to control for outside factors [1 mark]

- Any other appropriate content.

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

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(e) (i) Explain why the risk of stress, anxiety, humiliation or pain, may be an ethical issue in this research. [2]

Exemplar answers:

This might be an issue as the students may feel humiliated if they go out in public and people make negative comments about their lack of make-up, or they may get stressed if they are used to wearing make-up all of the time. [2 marks]

The students may feel humiliated by their confidence scores if they are not very high and this may also cause them anxiety. [2 marks]

The students may suffer from stress when taking part in the research. [1 mark]

- Any other appropriate content.

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

(ii) Explain **one** way in which the professor could deal with the ethical issue of risk of stress, anxiety, humiliation or pain in this research. [2]

Exemplar answers:

The students could be fully informed of what they would be expected to do in the research (i.e. rate confidence when wearing and not wearing make-up) before giving their consent to participate. [2 marks]

The students could submit their confidence scores with and without make-up anonymously or they could use a pseudonym. [2 marks]

The students could be reminded that they have the right to withdraw from the research at any time. [1 mark]

- Any other appropriate content.

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

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(f) Identify and fully justify an inferential statistical test that could be used to analyse the data in this research. [1+3]

Marks	AO2
1	• Wilcoxon matched pairs signed ranks test. • Wilcoxon. • Any other appropriate test.
0	• Inappropriate answer given. • No response attempted.

Credit will be given for:

One mark for each appropriate element that has been linked to the research:

Appropriate elements
- Test of difference.
- Data is ordinal level or above OR data is ordinal.
- Data is related OR repeated measures design.

Exemplar answers

A Wilcoxon is appropriate as the professor is looking for a difference in confidence levels when wearing and no wearing make-up; the confidence scores are at least ordinal level data; all of the students have rated confidence with and without make-up, so the data is related. [1+3 marks]

A Wilcoxon as they are looking for a difference between wearing makeup and not and it is a repeated measures design. [1+1 mark]

A Wilcoxon test because the research is looking for a difference, because the data is ordinal level and the research has a repeated measures design. [1+0 marks]

- Any other appropriate content.

Marks	AO2
3	• Three appropriate elements that have all been linked.
2	• Two appropriate elements that have been linked.
1	• One appropriate element has been linked.
0	• Inappropriate answer given. • No response attempted.

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