Surname	StemUp Model Solution	Centre Number	Candidate Number
First name(s)			2

GCE AS

S23-B290U20-1

B290U20-1

MONDAY, 22 MAY 2023 – AFTERNOON

PSYCHOLOGY – AS component 2
Psychology: Investigating Behaviour

1 hour 45 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**12**	
2.	**8**	
3.	**10**	
4.	**6**	
5.	**4**	
6.	**16**	
7.	**24**	
Total	**80**	

B290U201
01

ADDITIONAL MATERIALS

In addition to this paper you may require a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. Additional space is provided for some questions within the booklet (if required). If further space is required for any question, you should use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the need for good English and orderly, clear presentation in your answers.

Assessment will take into account the quality of written communication used in your answers.

JUN23B290U20101

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

Section A

Answer **all** questions.

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

Kohlberg (1968) studied 75 American boys aged 10 to 16 at the start, using semi-structured interviews based on hypothetical moral dilemmas such as the Heinz dilemma, and re-interviewed them every three years in a longitudinal design, alongside cross-cultural samples (e.g. Taiwan, Mexico, Turkey).

A strength is the use of semi-structured interviews. Because Kohlberg could tailor follow-up questions to each boy's answers, he obtained far more detailed, qualitative information about the reasoning behind each decision than a structured interview would allow, giving deeper insight into the boys' thoughts about the dilemmas and letting him avoid irrelevant questions. This was important because moral reasoning varies greatly between individuals, so it could be explored with more sensitivity. However, this approach required much more skill, as Kohlberg had to develop new questions on the spot. Such questions have little time for reflection and may be less objective than pre-set ones, so researcher bias could enter, and different boys effectively received slightly different interviews, which reduces reliability.

A second strength is the use of hypothetical moral dilemmas. Every boy received the same standardised stimulus materials even though the boys had very different life experiences (middle and lower class, urban and rural, different cultures), which makes the research more reliable and replicable and allowed fair comparison of stages across ages and cultures. On the other hand, the dilemmas measure moral thinking rather than moral behaviour: what a boy says Heinz should do may be very different from what he would actually do in a real situation. The dilemmas were also artificial and unfamiliar to young boys, so the research may lack ecological validity.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

Additional space for question **1** only:

A weakness is the all-male sample. Using only boys gave Kohlberg greater control over gender, a variable which could have affected his findings and clouded the developmental stages, and this was acceptable scientific practice in the 1950s and 1960s. However, it means his stages may not reflect the moral development of girls, so they may not be generalisable to half of the population. Gilligan argued that the stages are androcentric: they are based on a male 'justice' orientation, so women, who may reason more with an 'ethic of care', can wrongly appear to be at a lower stage (e.g. stage 3).

The longitudinal design is a strength, as following the same boys controls participant variables and shows the order in which stages appear, supporting an invariant sequence. However, attrition over the years and the boys becoming familiar with the dilemmas could reduce validity.

There are also ethical issues. The boys were vulnerable participants, as some were only ten at the start, so parental consent and protection from distress during difficult dilemmas were needed. The research is also socially sensitive, as conclusions are drawn about different cultures: for example, people from rural villages in Turkey or Taiwan seemed to reach lower stages, which could imply some cultures are less morally developed, when the dilemmas may reflect Western values (culture bias).

In conclusion, Kohlberg's research was methodologically strong for its time: the standardised dilemmas, semi-structured interviews and longitudinal, cross-cultural design gave rich and reliable evidence of a sequence of moral stages. However, the all-male sample, the focus on moral thinking rather than behaviour and the Western bias of the dilemmas mean his conclusions cannot be generalised to all people without caution.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

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

1. Longitudinal studies control participant variables, because the same person is tested on several occasions and compared with themselves, so they act as their own control. This means changes, e.g. in moral reasoning, are more likely to be due to development than to individual differences.

2. They reduce recall bias, because participants are studied as their lives happen rather than having to think back to earlier experiences. This makes the data more accurate and helps us establish the order in which events occur, linking early life circumstances to later outcomes.

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

1. Longitudinal studies can take many years to produce useful data, so they are expensive and inappropriate when results are needed quickly; by the time results appear, the research question or society may have changed.

2. Sample attrition occurs as participants move away, die or decide they no longer want to take part. Those who drop out may differ from those who remain (e.g. be less motivated), so the final sample is biased and the findings are less generalisable. Participants may also become aware of the hypothesis over time and show demand characteristics.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

3. Explain how you would calculate the following:

(a) Median. [2]

Arrange all the scores in numerical order and select the middle value. If there is an even number of scores, add the two middle values together and divide by two.

(b) Mode. [2]

Count the frequency of each score in the data set; the score that occurs most often (highest frequency) is the mode. If two scores tie, the data is bimodal.

(c) Standard deviation. [6]

1. Calculate the mean of the data set: add all the scores together and divide by the number of scores (N).
2. Take the mean away from each score to find each deviation (x - mean).
3. Square each of these differences, $(x - \text{mean})^2$, so that negative values become positive.
4. Add together all of the squared differences, $\Sigma(x - \text{mean})^2$.
5. Divide this total by N - 1 (the number of scores minus one), as the data comes from a sample. This gives the variance.
6. Find the square root of this value: this is the standard deviation.

Formula: $s = \sqrt{\left(\Sigma(x - \text{mean})^2 / (N - 1) \right)}$

Alternatively, enter the scores in cells A1 to A10 of a spreadsheet and use =STDEV.S(A1:A10), or use the SD button on a calculator.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

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

A confounding variable is a variable in a study that is not being manipulated or measured by the researcher but which affects some participants' behaviour and not others, so it varies with the IV and it is unclear whether the IV or this variable caused the change in the DV. This has negative consequences for validity.

For example, in a study of memory, uncontrolled noise from roadworks outside during one condition may affect some participants' ability to concentrate, lowering their recall scores regardless of the IV.

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

Operationalisation means giving a precise definition of the variable being manipulated or measured (IV/DV), stating exactly how it will be measured, so that the study can be repeated and reliability raised, as an agreed value is attributed to the measurement.

For example, 'stress' could be operationalised as the life change unit score on Holmes and Rahe's Social Readjustment Rating Scale (SRRS).

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

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]

Null

(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]

Non-directional

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

Directional

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

Directional

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

Section B

Answer **all** questions.

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:

Figure 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]

1. Language develops gradually over time, so a case study lets the psychologist study her son in depth over seven months (12 to 18 months) and track changes in his language skills as they happen.

2. As she lives with her son, she can collect large amounts of detailed data, such as every word he speaks on the first day of each month, which would be difficult with a large sample.

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

As she is his mother, her expectations about his language could influence how she interacts with her son or how she counts his words (e.g. counting babbling as words), so the data may not truly measure his language.

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

She could audio record her son's speech on each day so that another independent researcher, unaware of the aim, could also count the words and verify the number spoken.

© WJEC CBAC Ltd.

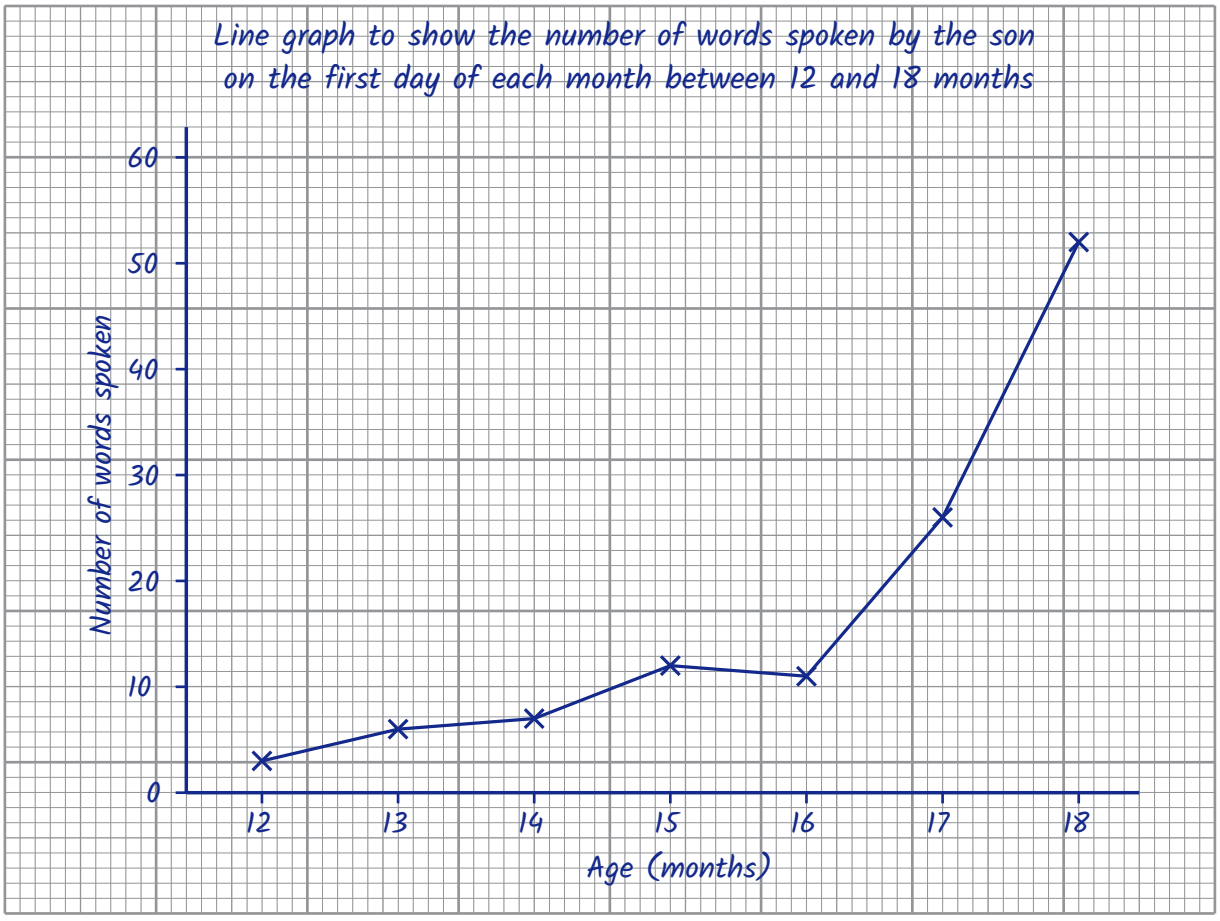
stemup.co.uk

Examiner only

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

A line graph shows changes in one variable over time, so it clearly shows how the number of words spoken by her son changed across the seven months, as age (months) is continuous.

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



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

The number of words spoken increased gradually from 12 to 16 months (3 to 11 words, with a slight dip at 16 months), then rose steeply between 16 and 18 months, from 11 to 52 words.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

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 participants 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]

A directional hypothesis should normally be based on previous research, but the professor based it only on her friend's opinion that make-up improved their confidence. She also did not conduct a pilot study, so she has no evidence whether the students' confidence would be higher with or without make-up, so a non-directional hypothesis would be more appropriate.

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

There will be no significant difference in the confidence ratings (on the 0 to 10 scale, recorded at midday) of university students on a day when they are wearing make-up and on a day when they are not wearing make-up; any difference will be due to chance.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

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

She could obtain a list of all the students at her university (the sampling frame), assign each a number, then use a random number generator to select 20 students, so every student has an equal chance of being chosen.

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

The professor cannot be accused of bias in choosing which students take part, e.g. picking students she thinks are confident or wear lots of make-up, so the sample is more likely to be representative and the confidence findings more valid.

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

She may by chance select a sample that does not reflect the subgroups of students at the university, or select students who never wear make-up, who may refuse to take part, so sampling must start again and the findings are less generalisable.

(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]

She would ask the same 20 students to rate their confidence (0 to 10) with and without make-up again after a period of time, e.g. two weeks later. If the two sets of scores for each condition are highly positively correlated, the findings are reliable.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

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

The students rate their confidence while going about their normal university day, wearing make-up or not in their real lives, rather than in an artificial lab, so their confidence scores are likely to be more valid (higher ecological validity).

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

It is more difficult for the professor to control extraneous or confounding variables, such as one day being a stressful exam day or receiving a compliment, which could affect the students' confidence ratings at midday rather than the make-up.

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

Students who usually wear make-up all the time may feel anxious or stressed about going out without it, and could be humiliated if other people make negative comments about their appearance or if their confidence scores are very low.

(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]

Before consenting, the students could be fully informed that they would have to spend a day without make-up and rate their confidence, and reminded of their right to withdraw. Their scores could also be submitted anonymously.

© WJEC CBAC Ltd.

stemup.co.uk

Examiner only

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

Wilcoxon matched pairs signed ranks test.

1. The professor is looking for a difference in confidence scores between the two conditions, wearing make-up and not wearing make-up, so a test of difference is needed.

2. The confidence scores are rated on a 0 to 10 scale, which is subjective, so the data is ordinal level (or at least ordinal).

3. All 20 students rated their confidence both with and without make-up, so this is a repeated measures design and the data is related.

END OF PAPER

© WJEC CBAC Ltd.

stemup.co.uk

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

Examiner only

© WJEC CBAC Ltd.

stemup.co.uk

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

Examiner only

© WJEC CBAC Ltd.

stemup.co.uk

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.

Examiner only

© WJEC CBAC Ltd.

stemup.co.uk