Surname	StemUp Model Solution	Centre Number	Candidate Number
Other Names			2

GCE A LEVEL

A290U20-1

S19-A290U20-1

PSYCHOLOGY – A level component 2
Psychology: Investigating Behaviour

FRIDAY, 7 JUNE 2019 – AFTERNOON

2 hours 15 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	3	
2.	5	
3.	10	
4.	6	
5.	6	
6.	10	
7.	13	
8.	17	
9.	19	
10.	11	
Total	100	

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ADDITIONAL MATERIALS

You may require a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

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

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

Answer **all** the questions.

Write your answers in the spaces provided in this booklet. If you run out of space, 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 necessity for good English and orderly, clear presentation in your answers.

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

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SECTION A – Principles of Research

Answer **all** *questions.*

1. Identify the measures of central tendency from the calculations presented below. [1+1+1]

(i) 3, 3, 3, 4, 5, 6, 7, 7, 9, 10.

$5 + 6 = 11$

$\frac{11}{2} = 5.5$

Median.

(ii) $3 + 3 + 3 + 4 + 5 + 6 + 7 + 7 + 9 + 10 = 57$

$\frac{57}{10} = 5.7$

Mean.

(iii) 3, 3, 3, 4, 5, 6, 7, 7, 9, 10.

Mode.

2. Describe the format for reporting psychological investigations. [5]

Psychological investigations are usually published in a peer-reviewed journal (print and/or online) using a standard format. Title: a short statement of what was studied. Abstract: a brief summary of the whole research (aims, method, key findings and conclusions). Introduction: a summary of relevant previous theories and research, leading to the aims and hypotheses. Method: the design chosen, participants and sampling, materials, and the procedure, i.e. the steps taken, in enough detail for replication. Results: the data gathered and analysed, with descriptive statistics, graphs and inferential tests. Discussion: interpretation of the results and conclusions, links to previous research, limitations and suggestions for future research. References: full details of all sources cited.

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3. *(a)* Explain the steps you would follow to calculate a standard deviation. [6]

$$\sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$$

1. Calculate the mean of the data set by adding all the scores together and dividing by the number of scores, e.g. for 2, 4, 6: 12 ÷ 3 = 4.
2. Take the mean away from each score in the data set (x – mean) to find each deviation, e.g. –2, 0, +2.
3. Square each difference, $(x - \text{mean})^2$, so the negative values become positive: 4, 0, 4.
4. Add together all the squared differences, $\Sigma(x - \text{mean})^2$: 4 + 0 + 4 = 8.
5. Divide this total by n – 1 (the number of scores in the data set minus 1): 8 ÷ 2 = 4. This gives the variance.
6. Find the square root of this value, and this is the standard deviation: √4 = 2.

(b) Explain **one** strength and **one** weakness of using standard deviations in psychology. [2+2]

Strength: the standard deviation is a more precise and informative measure of dispersion than the range, because it uses every score in the data set rather than just the highest and lowest, so it is less affected by one anomalous result and shows how far scores typically spread around the mean.

Weakness: it is more difficult and time consuming to calculate than the range, and it is only appropriate for data that is normally distributed and at least interval level; with skewed or nominal data it gives a misleading picture of the spread.

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4. Describe the following methodologies:

(a) Non-participant observations. [2]

A research method where the researcher watches and records participants' behaviour from a distance, without taking part in the group or interfering in any way, e.g. using a behaviour checklist.

(b) Case studies. [2]

An in-depth, holistic investigation of a single person, group or event, using a descriptive analysis and several methods (e.g. interviews, observations, tests), often longitudinal.

(c) Structured interviews. [2]

A research method using an interview schedule of standardised, pre-set questions (like a questionnaire) asked in the same order to every participant, usually face to face.

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5. Explain the strengths of longitudinal studies and the weaknesses of cross-sectional studies. [3+3]

Strengths of longitudinal studies: the same participants are studied on a number of occasions over a long period, so each person acts as their own control and participant variables are controlled. Cohort effects are not a problem. Recall bias is reduced because behaviour is measured as life occurs rather than asking people to remember events from long ago, and the order in which events occur can be seen, so links between early life circumstances and later outcomes can be established.

Weaknesses of cross-sectional studies: different people are in each age group, so any difference found may be due to participant variables other than age. Cohort effects may occur, as people born in the same period share historical experiences (e.g. a war or new technology), so differences may reflect the era, not development. It is also hard to establish cause and effect.

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6. *(a)* Explain ethical issues that may arise in Social Psychological research, such as Milgram's (1963) research *'Behavioural Study of Obedience'*. [5]

Deception is often used in social research to avoid demand characteristics and see genuine behaviour. Milgram told his 40 male volunteers the study was about the effect of punishment on learning when it was really about obedience, and the 'learner' was a confederate receiving no real shocks, so they could not give valid informed consent.

Social research may also expose participants to stress to see how people really behave. In Milgram's study participants sweated, trembled and some had seizures, yet the prods (e.g. 'you must go on') made the right to withdraw unclear.

Milgram did debrief participants and meet the 'learner', and 84% later said they were glad to have taken part.

(b) Explain ethical issues that may arise in Developmental Psychological research, such as Kohlberg's (1968) research *'The child as a moral philosopher'*. [5]

There is a risk of stress, anxiety or humiliation. Kohlberg's youngest participants were boys aged 10, exposed to emotionally challenging hypothetical moral dilemmas (e.g. Heinz stealing a drug for his dying wife) and may have worried their answers were 'wrong'. Children may also struggle to understand a debrief, so harm may not be removed.

There is also a lack of valid consent: children may not understand the aim or procedures: Kohlberg's boys may not have realised they were committing to being re-interviewed every three years for 12 years. Even with consent from parents, as with the infants in Gibson and Walk's visual cliff study, it is questionable whether this is ethical, and children may not feel able to withdraw.

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SECTION B – Personal Investigations

You should answer **all** *the questions in this section with reference to the investigations carried out in your study of psychology.*

INVESTIGATION ONE: An experiment on the Chameleon effect.

7. *(a)* Identify the location of research used in your experiment on the Chameleon effect and explain why this location was the most appropriate for your research. [1+3]

A classroom in my school, during lunchtime (a field setting).

This was most appropriate as the participants (Year 12 students) were in a familiar, everyday setting chatting to a confederate, so their mannerisms were natural and they did not suspect they were being observed, giving higher ecological validity than a laboratory, where the artificial setting could have made them self-conscious and stiff. Yet a classroom still let me control distractions, keep the seating identical and film from the same angle, which a busy common room would not.

(b) (i) Explain how you operationalised your independent variable. [2]

The IV was whether the confederate mirrored a mannerism or not: in one condition she touched her face every 30 seconds while talking for 5 minutes; in the other she kept her hands still in her lap.

(ii) Explain how you operationalised your dependent variable. [2]

The DV was the number of times the participant touched their own face during the 5-minute conversation, counted from the video recording using a tally chart.

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(c) A psychologist wants to replicate your research. Suggest improvements that they could make. [5]

Standardisation: my confederate's conversation was not scripted and her face touching was not precisely timed, so she should use scripted questions and a silent timer to touch her face exactly every 30 seconds, making every participant's experience the same and the results more reliable.

Operationalise the DV: 'face touching' was open to interpretation (does scratching an ear count?), so define it as 'a hand touching the face between chin and hairline' and have two raters code the videos to check inter-rater reliability.

Validity: increase control by using the same room and seating for all, and use a larger sample of strangers, not my friends, who may have guessed the aim.

INVESTIGATION TWO: A questionnaire on relationships.

8. (a) (i) Describe the sampling technique used in your research. [2]

I used opportunity sampling: I asked the 16 to 18-year-old students who happened to be in the sixth form common room at lunchtime to complete my questionnaire on relationships.

(ii) Explain **one** advantage and **one** disadvantage of using this sampling technique in your research. [2+2]

Advantage: it was quick and easy, as I could hand my questionnaire to the students already in the common room at my college, rather than needing a full list of all 16 to 18-year-olds as stratified or random sampling would have required.

Disadvantage: my sample was unrepresentative, as students in the common room at lunch were mostly Year 13 friends of mine, and I chose who to approach, so my results on relationships cannot be generalised to all 16 to 18-year-olds.

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(b) Explain how you chose to display and analyse the data from your research. You should include your justification for choosing the graphical representations and descriptive statistics that you used to display the data collected from your questionnaire. [6]

My questionnaire had closed questions with four options, e.g. 'What is most important in a partner? (looks, humour, kindness, money)'. I displayed the answers to each of these using pie charts, because the data was nominal and pie charts show exactly the proportion of my sample choosing each option as a percentage (e.g. 45% chose kindness), and I used the mode, the only suitable average for nominal categories.

For 'How many boyfriends or girlfriends have you had?' I calculated the mean, median and mode. I decided the mode of 2 was most appropriate, because the mean (2.3) was a nonsense value no one could actually report and was distorted by one participant who said 9. I displayed this in a bar chart of frequencies, as the scores were discrete, so the bars must not touch as a histogram would. I also gave the range (0 to 9) to show the spread.

(c) Apart from weaknesses of your chosen sampling technique, explain **one** other weakness of your research and explain how this weakness could be improved. [2+3]

Weakness: participants completed the questionnaire under different conditions, some alone and some with friends in a noisy common room, so some did not take it seriously or copied answers about their relationships, which reduced the reliability and validity of my data.

Improvement: standardise the procedure by having all participants complete it individually in a quiet classroom, with the same standardised written instructions, and posting it anonymously in a sealed box. This would remove the influence of friends and make conditions identical, so answers would be more honest and consistent, increasing reliability and validity.

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SECTION C – Application of research methods to a novel scenario

Answer **all** *questions.*

9. A psychologist is concerned about the impact that playing violent computer games is having on the development of school children; specifically the concern that school children are becoming too aggressive. He decided to investigate the issue using a quasi-experiment and a matched pairs experimental design. The IV was 'whether the participant regularly plays on violent computer games or not'. The psychologist then assessed the aggression level by identifying the number of incidents recorded by the children's schools which indicated aggression (such as fighting, bullying etc.). One of the findings that he reported was the range scores of both conditions.

	Participants who regularly play on violent computer games	**Participants who do not regularly play on violent computer games**
Range score	6	3

(a) Explain why the researcher may have chosen to use a quasi-experiment in this research. [2]

Because the IV (whether a child regularly plays violent computer games) is naturally occurring, so the children cannot be randomly allocated; also it would be unethical to expose children to violent games.

(b) Suggest an appropriate directional hypothesis for this research. [2]

School children who regularly play violent computer games will have a higher number of incidents indicating aggression recorded by their schools than school children who do not regularly play violent computer games.

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(c) Give **two** advantages of using a matched pairs design in this research. [2+2]

1. There are no order effects, because each school child is only in one condition: they either regularly play violent computer games or do not, so practice or fatigue cannot affect their aggression scores.

2. Participant variables are reduced, because each child who plays violent games is matched with a non-player on characteristics such as age and gender, so differences in recorded aggressive incidents are more likely to be due to the games.

(d) Explain **one** factor that the researcher may have used to match the participants in this research. [2]

Age: the children could be matched for age, as otherwise a higher number of aggressive incidents might simply be because one group is younger and less mature, not because of violent games.

(e) Identify **one** ethical issue and explain why it may have been an issue in this research. [1+2]

Valid consent.

The participants are school children, so they may not fully understand the aims and procedures; their parents must consent, and it is unclear whether consent was gained to examine their school records.

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(f) (i) Draw **one** conclusion from the range scores in this research. [2]

The children who regularly play violent computer games had a range of aggressive incidents (6) that was twice that of the children who do not (3), so their scores were more widely dispersed.

(ii) Explain **one** weakness of using the range scores in this research. [2]

The range is a crude measure based only on the highest and lowest scores, so the range of 6 for the violent games group may have been distorted by just one anomalous child with many recorded incidents.

(g) Explain why a peer reviewer might consider researcher bias to be an issue in this research. [2]

The psychologist already believed violent games make children too aggressive, and he judged himself which school incidents 'indicated aggression', so his interpretation of the records may be subjective and biased towards his hypothesis.

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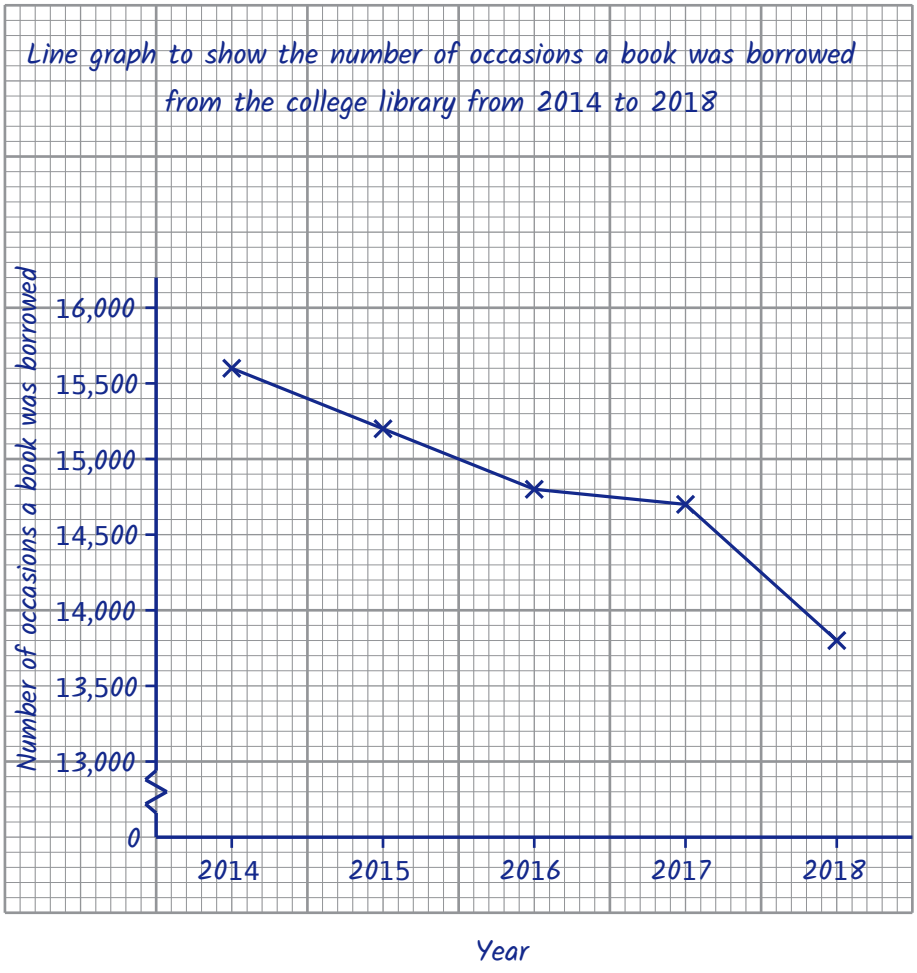
10. A librarian is concerned about the low numbers of college students borrowing books from the college library. To investigate his concerns he wanted to plot the number of occasions where a book had been borrowed from the college library in the last five years onto a graph.

Year	2014	2015	2016	2017	2018
No. of occasions where a book had been borrowed from the College Library (to the nearest hundred)	15,600	15,200	14,800	14,700	13,800

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

A line graph.

(ii) Using the graphical representation that you identified in *(a)* (i) display the data in this research. [4]



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(b) The librarian also wanted to collect some qualitative data about why the college students are borrowing fewer books from the college library. As you study research methods in A Level Psychology, he asks you to do this. Identify and justify your choices of methodology and sampling technique in this research. [6]

Methodology: semi-structured interviews. These collect rich, detailed qualitative data on students' reasons for borrowing fewer books, as they use some set questions but the interviewer can ask follow-up questions to explore unexpected answers. Open questionnaires would be quicker, but brief written answers cannot be probed, and structured interviews are too rigid to reveal why.

Sampling: stratified sampling. Using the college register, I would identify the proportion of students in each year group and subject area and randomly select that proportion for my sample of 20. This makes the sample representative of all college students, including those who never use the library, so the reasons can be generalised. Opportunity sampling in the library would be easier, but would only include students who already borrow books, giving biased data.

END OF PAPER

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