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

GCE AS/A LEVEL

2290U20-1

Z22-2290U20-1

THURSDAY, 26 MAY 2022 – AFTERNOON

PSYCHOLOGY – AS unit 2
Using Psychological Concepts

1 hour 15 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**3**	
2.	**4**	
3.	**6**	
4.	**4**	
5.	**3**	
6.	**17**	
7.	**10**	
8.	**13**	
Total	**60**	

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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 gel pen or correction fluid.

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. 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 presentation in your answers.

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

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Answer **all** questions.

Principles of Research

1. Using an example, describe 'event sampling'. [3]

Event sampling is an observational sampling technique in which the researcher decides in advance on a specific behaviour (event) to be recorded, and records it every time it occurs during the observation period, giving a tally or total score. For example, a psychologist observing children in a school playground for one hour could tally every instance of an aggressive act, such as hitting or pushing, to give each child an overall aggression score.

2. Using examples from Milgram's (1963) *'Behavioral study of Obedience'*, explain the term 'deception'. [4]

Deception means deliberately misleading participants, or falsely informing them, about the nature or aims of the research, or withholding (omitting) important information, so that they cannot give fully informed consent.

Milgram (1963) deceived his participants in several ways. He told them the study was about the effect of punishment on learning, deliberately hiding the true aim, which was to test obedience to authority. The draw to decide who would be teacher and who would be learner was rigged, so the real participant was always the teacher and the confederate Mr Wallace was always the learner. Participants also believed they were giving real electric shocks of up to 450 volts, when in fact no shocks were given and Mr Wallace's protests were pre-recorded. The experimenter was also an actor (a biology teacher) rather than a genuine scientist.

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3. Discuss the strengths **and** weaknesses of a repeated measures experimental design. [6]

Strengths: in repeated measures the same participants do every condition, so participant variables such as IQ or personality are controlled, because each person is compared with themselves, so differences in the DV are more likely due to the IV. Also, fewer participants are needed: independent groups or matched pairs would need twice as many people to gain the same amount of data, so it is more economical.

Weaknesses: order effects. Practice effects may improve performance in the second condition because participants are more familiar with the task, while boredom and fatigue may worsen it as repeating similar tasks becomes tedious. Also, as participants experience both conditions they are more likely to guess the aim, so demand characteristics or social desirability bias may reduce validity. Counterbalancing (ABBA) only reduces order effects.

4. Using an example, explain what is meant by 'conducting research in the field'. [4]

Conducting research in the field means carrying out research in a natural, everyday environment for the participants, rather than in a laboratory, e.g. a school, hospital or workplace. The procedure can still be standardised and an IV may still be manipulated, but there is less control over extraneous and confounding variables than in a lab. Behaviour is more natural, giving higher ecological validity.

For example, Piliavin et al. (1969) studied helping on the New York subway by staging a man collapsing in a carriage.

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5. (a) Define 'secondary sources'. [1]

Secondary sources are data or information that have not been collected first-hand by the researcher, e.g. government statistics.

(b) Briefly explain **one** disadvantage of using secondary sources in research. [2]

The data was not collected with the aims of the current study in mind, so it may not measure exactly the variables the researcher is interested in, and the researcher cannot check how accurately or validly it was collected, reducing the validity of conclusions.

6. A group of psychologists were interested in whether there was a relationship between attitudes to climate change and recycling behaviour.

Participants were asked to respond to a series of questions including:

'How concerned are you about climate change?'

An additional nine questions were asked on subjects including social and political issues, recycling behaviour, plastic pollution and global warming.

(a) (i) Identify a methodology that could be used by the psychologists to collect participants' responses to the questions in this research. [1]

A questionnaire (using closed, rating-scale questions).

(ii) Justify why the methodology you identified in part (a)(i) could be considered appropriate in this research. [2]

A questionnaire has a standardised format, so every participant answers the same 10 questions on climate change and recycling in the same way, removing researcher bias that could occur in an interview. It also gives quantitative scores that can be correlated.

(b) Responses to the question 'How concerned are you about climate change?' were measured on a scale of 1–7. Identify the level of measurement used to record the participants' responses. [1]

Ordinal data.

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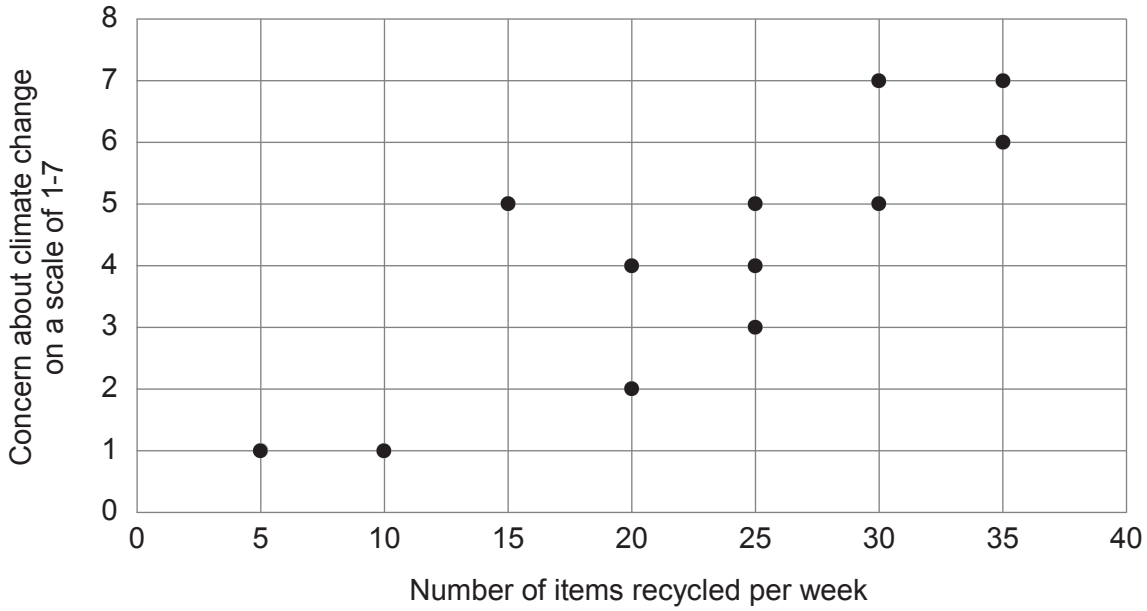
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The psychologists correlated the results for participants to see if there was a relationship between concern about climate change and recycling behaviour.

Results are displayed in the diagram below (Figure 1).

Figure 1: A correlation of concern about climate change and recycling behaviour



(c) (i) State the strength **and** direction of the correlation displayed in this research. [2]

A strong positive correlation: as the number of items recycled per week increases, concern about climate change also increases.

(ii) Using the data from the diagram (Figure 1), describe **one** conclusion about the ratings for concern compared to the number of items recycled. [3]

Participants who recycled a higher number of items per week (30 to 35 items) also had the highest concern about climate change scores (5 to 7 out of 7), whereas participants who recycled the fewest items (5 to 10 per week) had the lowest concern score of 1. So the more concerned people are about climate change, the more items they tend to recycle.

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(d) With reference to the scenario, briefly discuss **one** weakness of a correlational study. [2]

A correlation cannot show cause and effect. Although concern and recycling are positively related, we cannot say high concern causes people to recycle more, or vice versa; a third variable, e.g. access to recycling bins, could explain both.

One question from the research asked 'How concerned are you about rising global temperatures?'

The results from the first five participants can be seen below.

Participant number	Concern score (x)
1	6
2	2
3	4
4	6
5	3

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

(e) Using this data, calculate the standard deviation of the concern score. Show your workings. [6]

Mean = (6 + 2 + 4 + 6 + 3) ÷ 5 = 21 ÷ 5 = 4.2

x - mean: 6 - 4.2 = 1.8, 2 - 4.2 = -2.2, 4 - 4.2 = -0.2, 6 - 4.2 = 1.8, 3 - 4.2 = -1.2

$(x - mean)^2$: $1.8^2 = 3.24$, $(-2.2)^2 = 4.84$, $(-0.2)^2 = 0.04$, $1.8^2 = 3.24$, $(-1.2)^2 = 1.44$

$\Sigma(x - mean)^2 = 3.24 + 4.84 + 0.04 + 3.24 + 1.44 = 12.8$

$n - 1 = 5 - 1 = 4$

$12.8 \div 4 = 3.2$

Standard deviation = $\sqrt{3.2} = 1.79$ (to 2 d.p.)

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7. Past research suggested that most adults completed four to eight sleep cycles of around 90 minutes each night. To look more closely at this, a researcher conducted a study in a university sleep laboratory on volunteers whose night's sleep lasted between six and nine hours.

(a) Explain what is meant by 'conducting research in a laboratory environment'. [3]

A laboratory is an artificial, controlled environment where the researcher can control extraneous variables (e.g. noise, light and temperature in a sleep lab) so that the effect of the variables being studied can be measured accurately. Standardised procedures are used, allowing replication, and specialist equipment that would be hard to transport into the field, such as EEG machines to record sleep cycles, can be used.

(b) Explain how the psychologist could have collected a self-selected sample at the start of the study. [3]

The psychologist could place advertisements on notice boards and the website of the university, asking for adults willing to spend a night in the sleep laboratory for a study on sleep. Participants would volunteer by responding to the advert, and the psychologist would select suitable volunteers from those who came forward, e.g. those whose sleep normally lasts six to nine hours and who have no sleep disorders.

(c) After conducting the research, the psychologist was talking to a colleague about their findings. The colleague claimed that 'sleep studies lack external validity'. Explain why the colleague is correct, referring to the scenario in your answer. [2]

The colleague is correct because a university sleep laboratory does not represent real-life sleeping conditions: the volunteers slept in an unfamiliar bed, attached to monitoring equipment and knowing they were being observed. They may sleep differently than in their own beds at home, e.g. for a shorter time or with fewer sleep cycles, so the findings may not generalise to everyday sleep.

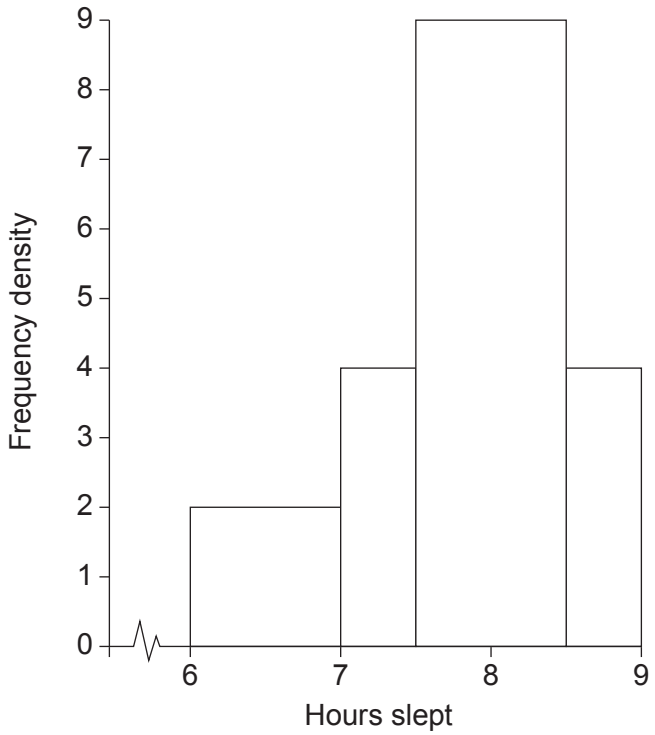
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(d) The psychologist displayed the data below.

Figure 2: Graphical representation to show frequency of hours slept between 6 and 9 hours



(i) Identify the graphical representation for this research (Figure 2). [1]

A histogram.

(ii) Give **one** reason why it would be appropriate to choose this graphical representation for this research. [1]

Hours slept is continuous data, measured on a continuous scale of time (6 to 9 hours), so the bars touch with no gaps.

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8. A group of researchers aimed to find out whether people begin to believe fake news when it is repeated. The researchers asked participants to read news articles, over a five-week period, and rate how much they believed each article to be true (on a scale of 1–10) after each session. Articles of fake news were repeated in every other week. They compared the ratings from the start and end of the research to see the influence of repetition.

The results can be seen in the table below.

Figure 3: Table to show ratings of belief (1–10) for the fake news article at the start and the end of the study.

Participant	Rating at start of research	Rating at end of research
A	3	4
B	5	10
C	2	4
D	1	3
E	1	5
F	3	6
G	3	6

(a) (i) Calculate the median rating for the start of the research. Show your workings. [2]

Ratings in order: 1, 1, 2, 3, 3, 3, 5

Middle (4th) value: median = 3

(ii) Calculate the mean rating for the end of the research. Show your workings. [2]

Mean = (4 + 10 + 4 + 3 + 5 + 6 + 6) ÷ 7 = 38 ÷ 7

= 5.43 (to 2 d.p.)

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

Participants will give higher belief ratings (on a scale of 1 to 10) for the fake news articles at the end of the five-week study than at the start of the study.

(c) The researchers were worried about demand characteristics from their participants. Explain how they could deal with this validity issue within this research. [2]

They could use a single blind procedure, not telling participants that the aim was to see whether repeating fake news increases belief in it, e.g. saying the study is about news reading habits, so participants cannot deliberately change their ratings across the five weeks.

(d) Explain why it would be important to debrief the participants in this research. [2]

Participants may leave still believing the repeated fake news articles are true, risking embarrassment or harm. A debrief would explain the true aim and reveal which articles were fake, so they leave in the same state as they arrived.

(e) Explain the role of an ethics committee. [3]

An ethics committee is a group of people, e.g. at a university, who vet research proposals before the research is allowed to go ahead, judging them against ethical guidelines such as the BPS Code of Ethics and Conduct and weighing the costs to participants against the benefits of the research. They can reject the research or suggest changes so it can be carried out ethically, e.g. adding a full debrief, and for socially sensitive research they may advise on how best to publish the results.

END OF PAPER

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