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

GCE AS/A LEVEL

S24-2290U20-1

2290U20-1

TUESDAY, 21 MAY 2024 – AFTERNOON

PSYCHOLOGY – AS unit 2
Using Psychological Concepts

1 hour 30 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**20**	
2.	**3**	
3.	**2**	
4.	**2**	
5.	**6**	
6.	**2**	
7.	**2**	
8.	**13**	
9.	**12**	
10.	**18**	
Total	**80**	

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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.

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 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 in Section A **and** Section B.

SECTION A – Contemporary Debate

1. With reference to psychological research and/or theories, critically consider whether eye-witness testimony is reliable. [20]

Eye-witness testimony (EWT) is the evidence given in court by a person who saw a crime. Juries find it very persuasive, but cognitive psychologists argue that memory is not a recording; it is reconstructive and can be distorted at encoding, storage and retrieval.

Bartlett (1932) showed that memory is reconstructive. When British participants reproduced the Native American story 'The War of the Ghosts', it became shorter and more conventional (e.g. 'canoes' became 'boats') because unfamiliar details were changed to fit their schemas. This suggests witnesses may unknowingly fill gaps in their memory of a crime with what they expect to happen.

Loftus and Palmer (1974) demonstrated the effect of leading questions. 45 students watched films of car crashes and were asked 'About how fast were the cars going when they ____ each other?'. The verb 'smashed' produced a mean estimate of 40.5 mph compared with 31.8 mph for 'contacted'. In a second experiment with 150 students, a week later 32% of the 'smashed' group falsely reported seeing broken glass compared with 14% of the 'hit' group and 12% of controls, showing that post-event information altered the memory itself. Loftus and Zanni (1975) found that asking about 'the' broken headlight rather than 'a' broken headlight led 17% rather than 7% of participants to report seeing one, although none was shown.

Characteristics of the event and the witness also matter. Research on weapon focus (e.g. Loftus et al., 1987; Kramer et al., 1990) shows that when a weapon is visible, attention narrows onto it, reducing accurate recall of the culprit's face. Coxon and Valentine (1997) found that children and older adults gave less

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accurate answers than young adults and children were more affected by misleading questions, raising doubts about child witnesses. Social and cultural factors also distort EWT. Allport and Postman (1945) showed white participants a picture of a white man holding a razor in an argument with a black man; when the description was passed on, over half the final reports placed the razor in the black man's hand, showing how racial stereotypes act as schemas. People are also less accurate at identifying faces of another ethnic group (cross-race identification bias, e.g. Cohen, 1966; Meissner and Brigham, 2001).

However, other research suggests EWT can be reliable. Yuille and Cutshall (1986) interviewed 13 of the 21 real witnesses to a gun-shop shooting in Vancouver four to five months later. Their accounts were highly accurate and they resisted two misleading questions, suggesting that in real crimes, where events are personally important, memory is less vulnerable than lab studies imply. Christianson and Hubinette (1993) also found that people threatened in real bank robberies recalled more accurately than bystanders.

A major criticism of the evidence for unreliability is its low ecological validity. Loftus and Palmer's participants were students watching film clips, so there was no emotional arousal and no consequences for their answers; they may also have shown demand characteristics, guessing what the researcher wanted. Real witnesses know that someone's liberty depends on their account. On the other hand, laboratory experiments have high control, so cause and effect between leading questions and distorted recall can be established, and the findings have been replicated many times, so they are reliable. Field studies such as Yuille and Cutshall lack control: the researchers could not check exactly what happened and the sample was small, so the findings may not generalise.

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The practical and ethical implications of unreliable EWT are serious. The Innocence Project reports that mistaken eye-witness identification contributed to around 70% of wrongful convictions later overturned by DNA evidence. Ronald Cotton was confidently identified by the victim, Jennifer Thompson, and spent over ten years in prison before DNA cleared him, a clear miscarriage of justice. As well as the human cost, there are economic implications: re-trials and compensation for the wrongly convicted cost taxpayers large sums.

Research has influenced political and legal decisions. Following the Devlin Report (1976) and the Turnbull guidelines, judges must warn juries about the dangers of relying on identification evidence. Child witnesses are now protected by special measures such as video-recorded interviews and live links, reducing distress (an ethical issue of protection from harm) and limiting leading questions. Increased

Additional space for question **1** only:

CCTV reduces reliance on memory but raises 'Big Brother' privacy concerns. Much research is also historical: Bartlett used an unusual story from 1932, so it may not be valid today. More recently, the Cognitive Interview (Geiselman et al., 1985), which uses context reinstatement, reporting everything, changing order and changing perspective, produced around 35% more correct information than a standard police interview without more errors, showing that the reliability of EWT can be improved.

In conclusion, EWT is not completely reliable: there is strong, replicated evidence that leading questions, schemas, weapon focus, age and stereotyping can distort it, and DNA exonerations show the real consequences. However, field research suggests real witnesses are often accurate, so EWT should not be dismissed. It is best treated with caution and supported by other evidence, with techniques such as the Cognitive Interview used to improve its reliability.

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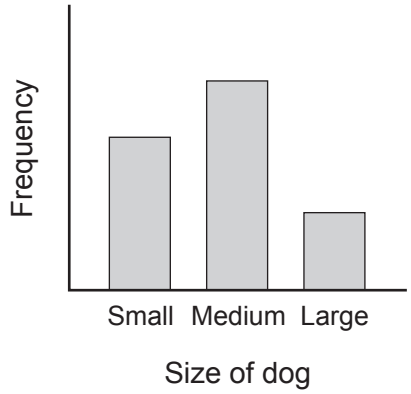
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SECTION B – Principles of Research

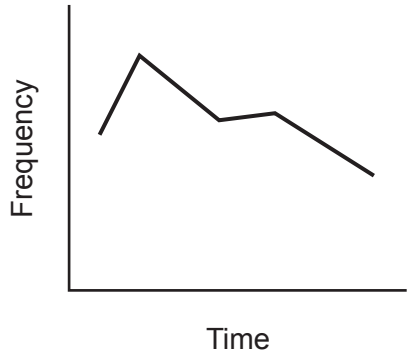
2. Identify the graphical representations shown in the figures below:

(a) [1]



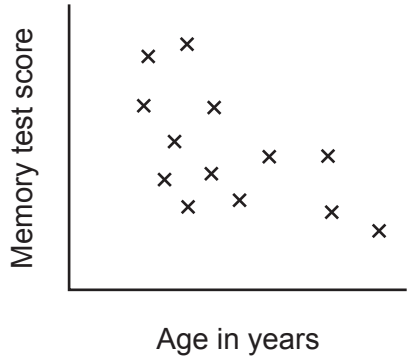
Bar chart

(b) [1]



Line graph

(c) [1]



Scattergram (scatter graph)

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3. Define what is meant by the term 'confounding variables'. [2]

Confounding variables are variables, other than the independent variable, that are not being manipulated by the researcher but that change systematically with the IV and affect the results (DV) of some participants or conditions. Because they are inconsistent and difficult to control, we cannot be sure the IV caused the change in the DV.

4. Identify **two** features of the participants selected by Kohlberg (1968) in his research *'The child as a moral philosopher'*. [2]

1. All of the participants were male (boys).

2. They were adolescents, aged between 10 and 16 at the start of the study, and came from a range of cultures (USA, Great Britain, Canada, Mexico, Taiwan and Turkey).

5. Critically consider the strengths and weaknesses of quasi-experiments. [6]

A quasi-experiment studies the effect of an IV that occurs naturally, such as gender or age, which the researcher cannot manipulate or randomly allocate. One strength is high ecological validity: because the IV is a real difference between people, the study can paint a true picture of how behaviour differs in real life. A second strength is that it allows socially sensitive topics to be studied, such as the effects of having a disability, where deliberately manipulating the IV would be unethical or impossible. Quasi-experiments can still be done in controlled settings with standardised procedures, so they keep some of the advantages of laboratory experiments.

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However, participants cannot be randomly allocated to conditions, so there may be sample bias and confounding variables: groups may differ in other ways (e.g. IQ, upbringing) that affect the DV. This means that, unlike a true laboratory experiment, cause and effect cannot be firmly established. The lack of control over the IV also makes exact replication difficult, so reliability may be low. Overall, quasi-experiments are valuable when manipulation is impossible, but conclusions must be treated with more caution than those from laboratory experiments.

6. Describe **one** difference between qualitative and quantitative data. [2]

Quantitative data are numerical (e.g. scores or totals), which makes them easy to analyse statistically and compare objectively, whereas qualitative data are descriptive, in the form of words, thoughts and feelings, which are richer and more detailed but harder to analyse and more open to subjective interpretation.

7. Explain **one** way in which Milgram's (1963) *'Behavioral study of Obedience'* may have posed a 'risk to the participants' values, beliefs, relationships, status or privacy'. [2]

Participants' values and beliefs about their own morality were put at risk. 65% of participants went to the maximum 450 volts, believing they were giving dangerous shocks to Mr Wallace, who had fallen silent. Afterwards they may question their identity as a 'good person', knowing they were willing to harm, or even kill, an innocent man just because an experimenter told them to.

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8. A criminal psychologist sent a questionnaire to every fifth driver who had been issued a speeding fine. Each questionnaire included questions designed to measure whether the drivers were high thrill-seeking or low thrill-seeking. The researcher aimed to establish whether high thrill-seeking drivers drove faster in miles per hour (m.p.h.).

(a) Write an appropriate null hypothesis for this research. [2]

There will be no difference in the driving speed (in m.p.h.) of high thrill-seeking drivers and low thrill-seeking drivers; any difference that does occur will be due to chance.

(b) (i) The researcher used a systematic sample. Briefly explain how they did this. [1]

From a list of all drivers issued with a speeding fine, they selected every fifth driver and sent them the questionnaire.

(ii) Briefly evaluate **one** strength of the sampling technique used in this research. [2]

It avoids researcher bias, because every fifth driver is selected objectively from the list of fined drivers. The psychologist cannot, for example, choose drivers they think look more or less thrill-seeking, which would bias the results in favour of their hypothesis.

(iii) Briefly evaluate **one** weakness of the sampling technique used in this research. [2]

It may not be representative, because not every fined driver has an equal chance of selection. If the list was ordered in some way (e.g. by date or area), every fifth driver might be mostly young or male drivers, so the results may not generalise to all drivers caught speeding.

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Figure 1. Average speed (m.p.h.) for high and low thrill-seeking groups

	High thrill-seeking group	Low thrill-seeking group
Average speed (mean)	96.7 m.p.h.	79.2 m.p.h.

(c) Using the data in **Figure 1**, describe **one** conclusion from this research. [2]

The high thrill-seeking drivers had a mean speed of 96.7 m.p.h., which was 17.5 m.p.h. faster than the mean speed of the low thrill-seeking drivers (79.2 m.p.h.). This suggests that high thrill-seeking drivers drive faster than low thrill-seeking drivers.

(d) Give **one** strength and **one** weakness of using the mean as the measure of central tendency in this research. [2+2]

Strength: the mean is the most sensitive measure of central tendency because it uses every driver's speed in the calculation. This makes it the most representative and reliable measure for comparing the average speeds of the high and low thrill-seeking groups, and because speed in m.p.h. is interval/ratio data the mean is appropriate.

Weakness: the mean can be distorted by anomalous (extreme) scores. For example, if one driver in the high thrill-seeking group was caught at 140 m.p.h., the group's mean would be pulled upwards and the 17.5 m.p.h. difference may exaggerate how much faster typical high thrill-seekers drive.

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9. Two psychologists undertook research into human-cat relationships. This involved the 'secure base' test with 45 cat owners, where both the cat and owner were placed in a room (in a laboratory) and the behaviour of the cat was observed under three stages:

Stage 1 – The cat and owner are together in the room.
Stage 2 – The cat is alone in the room.
Stage 3 – The cat and owner are reunited in the room.

(a) Describe the main features of research conducted in a laboratory environment. [3]

Laboratory research takes place in an artificial, controlled environment, such as the room used for the 'secure base' test. The researcher has high control over extraneous variables (e.g. noise, lighting, layout of the room), and procedures are standardised so all 45 cats and owners experience the same three stages in the same way. This makes the research easier to replicate, so it is more reliable. However, the unfamiliar setting lacks mundane realism, so behaviour may be unnatural. Labs often use quantitative methods such as controlled observations and experiments.

(b) Briefly describe **one** ethical guideline that must be followed by psychologists when working with animals. [2]

Number of animals (reduction): psychologists should use the smallest number of animals necessary to achieve the aims of the research, and they must not cause the animals any unnecessary pain, distress or harm, following legislation such as the Animals (Scientific Procedures) Act 1986.

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(c) Explain how the psychologists in this research could have collected their participants via snowball sampling. [3]

The psychologists could first find a small group of cat owners through friends and family or by approaching people buying cat food in the pet food aisle of a supermarket and asking them to take part. They would then ask these owners whether they know other cat owners who would be willing to bring their cats to the laboratory. These new participants would in turn be asked to recruit other cat owners they know, and so on, until the sample of 45 cat owners was reached.

(d) Briefly explain why this research may lack internal validity. [2]

Extraneous variables may have affected the cats' behaviour. For example, unfamiliar smells or noises from outside the laboratory may have made a cat more stressed when left alone in Stage 2, so the stress observed may not be due to the owner's absence. Order effects are also possible, as Stage 2 always followed Stage 1.

Researchers found that cats left alone in the room showed a stress response and were less willing to explore the room unaccompanied than when their owners were present.

(e) Explain **one** reason why operationalising 'stress response' would be important in this research. [2]

There are two psychologists, so they must agree in advance exactly what counts as a 'stress response' (e.g. meowing, clawing at the door, hiding, pacing). This turns the abstract concept of stress into measurable behavioural categories, so both observers record the cats' behaviour in the same way (inter-rater reliability) and stress can be compared across the three stages.

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10. A cognitive psychologist was interested in studying 'photo-taking memory impairment'. This is the idea that people have a poorer memory of something if they take a photo of it, rather than just observing it.

To test this idea, participants were taken to an art gallery to look at ten sculptures. They were then split into one of two groups:

Group one participants were not allowed to take any photos.
Group two participants were allowed to take five photos of each sculpture.

All participants were then asked two questions about each of the sculptures they had seen. Results for the two groups were as follows:

Figure 2. Results for participants in group one

Participant	Number of questions answered correctly /20
A	18
B	15
C	17
D	13
E	12
F	17
G	16
H	14
I	13

Figure 3. Results for participants in group two

Participant	Number of questions answered correctly /20
J	13
K	12
L	10
M	11
N	9
O	13
P	10
Q	11
R	10

(a) Identify and explain the experimental design that has been used in this research. [2]

An independent groups design was used, because different participants took part in each condition. The participants in group one (no photos) were different people from the participants in group two (five photos of each sculpture), so each person only experienced one level of the IV.

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(b) Explain how the psychologist in this research may have gained valid consent from their participants. [3]

Before the gallery visit, the psychologist could give participants a briefing sheet explaining what they will be asked to do: look at ten sculptures, possibly take photos, and then answer questions that test their memory, which will be compared between groups. They would be told they can withdraw at any time, and they would sign a consent form. Because the full hypothesis may not be shared, a debrief would explain the aim (testing photo-taking memory impairment), and participants would be asked to confirm they are happy for their data to be used, which makes their consent valid.

(c) (i) Using the data in **Figure 2**, calculate the range of scores for group one. Show your workings. [2]

Highest score - lowest score

= 18 - 12

Range = 6

(ii) Using the data in **Figure 3**, calculate the modal score for group two. Show your workings. [2]

Tally: 13 = II (2), 12 = I (1), 11 = II (2), 10 = III (3), 9 = I (1)

The most frequent score is 10 (it occurs 3 times)

Mode = 10

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(iii) Briefly evaluate **one** advantage of using the mode as a measure of central tendency. [2]

The mode is not distorted by anomalous scores. For example, if one participant in group two scored 20/20, the mean would be pulled upwards, but the mode would still be 10. However, it can be less useful if there are several modes or if it does not reflect the data as a whole.

(d) Explain **one** issue of validity that may have arisen in this research. [2]

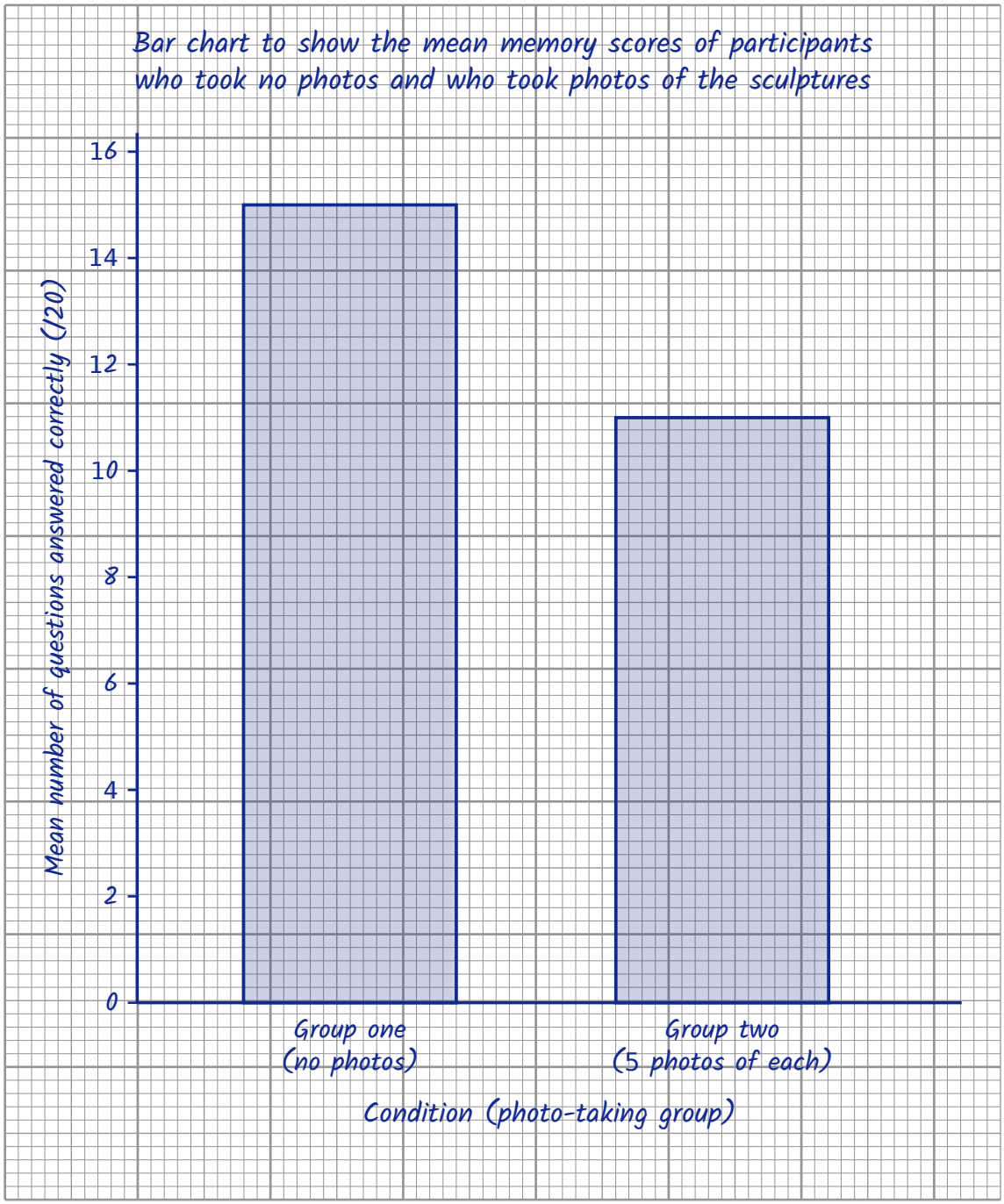
The two groups may not have spent the same amount of time looking at each sculpture. Group two were taking five photos of each one, so they may have spent less time actually looking at the details. Time spent viewing, rather than taking photos, may explain their lower scores, so the research may lack internal validity.

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(e) The mean memory score was 15 for group one (no photos taken), and 11 for group two (five photos taken). Draw and label a bar chart to display the mean scores for each group. [5]



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