Cambridge Assessment International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/41**

Paper 4 Specialist Options: Application and Research Methods **May/June 2024**

1 hour 30 minutes

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You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **five** questions in total:
  - Answer questions from **two** options.
    - Section A: answer **four** questions.
    - Section B: answer **one** question.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.

INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **8** pages. Any blank pages are indicated.

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Section A

Answer questions from **two** options in this section.

Clinical Psychology

Answer **all** questions if you have studied this option.

1 The key study by Freeman et al. (2003), using virtual reality to investigate persecutory ideation, included a number of self-reports such as the VR-Paranoia questionnaire.

(a) **(i)** Give **two** examples of items (questions) included in the VR-Paranoia questionnaire. [2]

(ii) State **two** features of the scale used by participants to answer the VR-Paranoia questions. [2]

(b) Suggest **one** weakness of the type of data gathered by the VR-Paranoia questionnaire. [2]

(c) Explain **two** strengths of using virtual reality to treat schizophrenia. [4]

2 Covert sensitisation is a treatment for impulse control disorders.

(a) Outline how **one** study used covert sensitisation to treat a participant (e.g. Glover, 1985). [2]

(b) Suggest how the effectiveness of covert sensitisation could be measured using an online questionnaire. [2]

(c) Explain **two** strengths of psychological treatments, such as covert sensitisation, for kleptomania. [4]

Consumer Psychology

Answer **all** questions if you have studied this option.

3 From the key study by Becker et al. (2011) on food package design:

(a) Describe **two** of the dependent measures (variables) used in this study. [4]

(b) Suggest why 'sensitivity to the design' was controlled by Becker et al. [2]

(c) Explain **two** weaknesses of using a seven-point scale to measure food package design. [4]

4 **(a)** Outline **one** type of store interior design. [2]

(b) Suggest how store interior design can be investigated, other than by using virtual store layouts. [2]

(c) Explain **two** weaknesses of using virtual store layouts to study store interior design. [4]

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Health Psychology

Answer **all** questions if you have studied this option.

5 In the key study by Bridge et al. (1988), the 'profile of mood states' questionnaire was used to assess the effectiveness of their relaxation and imagery treatment programme on stress.

(a) **(i)** Explain why the study by Bridge et al. is longitudinal. [2]

(ii) Compare the results for total mood disturbance for any **two** groups. [2]

(b) Suggest how the results of total mood disturbance could be presented in a graph. [2]

(c) Explain **two** strengths of using a longitudinal study to assess the effectiveness of relaxation and imagery on stress. [4]

6 **(a)** Explain what is meant by an 'objective measure of adherence', in relation to medical advice. Include a biological measure as an example. [2]

(b) Suggest how adherence can be measured objectively, other than using a biological measure. [2]

(c) Explain **two** weaknesses of using biological measures of adherence to medical advice. [4]

Organisational Psychology

Answer **all** questions if you have studied this option.

7 From the key study by Cuadrado et al. (2008) on women's access to managerial positions:

(a) **(i)** State the **two** independent variables in this experiment. [2]

(ii) Outline **one** dependent variable in this experiment. [2]

(b) Suggest **one** method that could be used to study women's access to managerial positions, other than a laboratory experiment. [2]

(c) Explain **two** weaknesses of conducting a laboratory experiment to measure women's access to managerial positions. [4]

8 **(a)** Explain what is meant by the term 'workplace sabotage'. [2]

(b) Suggest **one** open question that workers could be asked about reasons for sabotage. [2]

(c) Explain **two** weaknesses of collecting data about workplace sabotage from workers using an interview. [4]

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Section B

Answer **one** question from this section.

Clinical Psychology

9 There can be problems with using electro-convulsive therapy (ECT) as a treatment for schizophrenia, for example side effects.

(a) Plan an experiment with a longitudinal design to investigate whether there are problems with ECT as a treatment for schizophrenia.

Your plan must include details about:
- controls
- a directional or non-directional hypothesis. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your experiment. [4]

(c) **(i)** Explain **one** reason for your choice of controls. [2]

(ii) Explain **one** weakness of the use of a longitudinal design in your study. [2]

(iii) Explain **one** reason for your choice of directional or non-directional hypothesis. [2]

Consumer Psychology

10 Shoppers' liking of a store exterior and intention to shop at that store can be influenced by window displays.

(a) Plan an interview to investigate the effectiveness of different window displays on intention to shop.

Your plan must include details about:
- interview format
- interview technique. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of interview format. [2]

(ii) Explain **one** weakness of your choice of interview format. [2]

(iii) Explain **one** reason for your choice of interview technique. [2]

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Health Psychology

11 **(a)** Plan a study using a postal questionnaire to investigate the reasons why people attend or fail to attend appointments with a medical practitioner.

Your plan must include details about:
- question format
- sampling technique. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of question format. [2]

(ii) Explain **one** weakness with conducting postal questionnaires in your study. [2]

(iii) Explain **one** reason for your choice of sampling technique. [2]

Organisational Psychology

12 Workers in assembly-line industries can sabotage machinery.

(a) Plan a study using a structured observation to investigate which is the **most** common way to sabotage machinery in assembly-line workers.

Your plan must include details about:
- behavioural categories
- steps for making the study reliable. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of behavioural categories. [2]

(ii) Explain **one** weakness of your choice of behavioural categories. [2]

(iii) Explain **one** reason for your choice of steps for making the study reliable. [2]

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Surname	StemUp Model Solution
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number

Answers for paper 9990/41

Section A: Clinical Psychology

1a(i) Item 1: "They were hostile towards me."

Item 2: "They were watching me."

1a(ii) It was a 4-point Likert-type scale scored 0 to 3, from 0 = do not agree, through agree a little and agree moderately, to 3 = totally agree. Participants rated each of the 15 questionnaire items on it.

1(b) The questionnaire gives quantitative data, so each participant's experience of the virtual train is reduced to a single number. This does not tell us why the participant gave that answer, e.g. why they believed an avatar "was laughing at me", so the reasons behind the persecutory thoughts are lost.

1(c) One strength is that virtual reality gives a controlled environment. The therapist can create exactly the situation needed, such as a crowded train carriage or a busy street, and gradually change it, so a range of situations and settings can be used with each patient with schizophrenia in a standardised way.

A second strength is that treatment takes place in a safe environment. If a patient becomes paranoid or distressed in the virtual scene, the session can be stopped at once, and there are no real strangers present, so both the patient and the public are protected, which would not be possible with exposure in a real place.

Question number	
2(a)	Glover (1985) treated a woman with kleptomania by pairing imagery of nausea and vomiting with the act of stealing. She imagined approaching an item in a supermarket that she intended to steal and feeling increasingly nauseous, then vomiting as she lifted it, with other shoppers looking at her. The unpleasant sensations stopped as soon as she imagined replacing the item, turning away and leaving the shop.
2(b)	An online questionnaire could be sent to people who have completed covert sensitisation, using closed and open questions, e.g. "Can you now resist the temptation to steal items? Always / sometimes / never" and "Describe how you feel now in a shop where you would previously have given way to temptation." The K-SAS could also be given online before, during and after treatment to compare scores.
2(c)	One strength is that the technique can be used by the patient anywhere and at any time. Once learned, the person can call up the unpleasant imagery themselves whenever they are in a shop and tempted to steal an item, so the treatment continues outside the therapy room. A second strength is that no medication is taken, so the patient cannot become addicted to the treatment or suffer drug side effects, unlike biochemical treatments such as SSRIs or naltrexone. This makes it more ethical and more acceptable to many patients with kleptomania.
	Section A: Consumer Psychology
3(a)	Taste intensity evaluation: participants rated how sharp, how bitter and how mild they expected the product to taste, each on a 7-point scale from "not at all" to "very much so".

Question number	
	Price expectation: participants were asked what they thought the price of the product would be, and gave their answer as an amount in euros, so expected price could be compared across the different package designs.
3(b)	To control for participant variables. Some people are highly sensitive to package design and others ignore it, so low-sensitivity and high-sensitivity participants could be analysed as separate groups. Otherwise their responses might cancel each other out, hiding the real effect of the design.
3(c)	One weakness is that a 7-point scale has a neutral mid-point (4). Participants who are unsure or bored could choose it as an opt-out for many packages, so the effect of the package design (e.g. angular versus round shape) on their ratings would not be measured. A second weakness is that the scale only gives quantitative data. A participant can rate a package as 6 for "bitter", but cannot give the reason for that rating, so the researchers do not find out which feature of the package design caused the expectation.
4(a)	The grid layout is a rectangular arrangement of displays with long aisles that run parallel to one another, as in most supermarkets. It makes efficient use of selling space and gives clear traffic aisles, but it forces customers to follow a set path through the store.
4(b)	A field experiment could be carried out in real stores: shoppers are randomly given one of two layouts (e.g. grid or freeform), asked to find a list of products, and the time taken is recorded. Afterwards they complete a short questionnaire rating their satisfaction with the layout.

Question number	
4(c)	One weakness is that virtual reality can cause simulator sickness, such as dizziness, nausea, headache and eyestrain. This does not happen in a real store, so a participant's low satisfaction with a layout may be caused by the equipment rather than the layout itself. A second weakness is that a virtual store is not real, so findings may not generalise. A virtual layout lacks idiothetic input (the feeling of really walking around a space) and cues such as smell, shape and size of products, which are all present in a real store whatever its layout.
	Section A: Health Psychology
5a(i)	It is longitudinal because the same patients were followed over time: they saw the researchers once a week for six weeks, and their stress was measured with the Leeds General Scale and the profile of mood states at the start and again after six weeks.
5a(ii)	At six weeks, total mood disturbance was significantly lower in the relaxation plus imagery group than in the control group (about 53.9 compared with about 61.4), so the combined intervention group was less stressed.
5(b)	A bar chart, with the three groups (control, relaxation only, relaxation plus imagery) on the x-axis and mean total mood disturbance score on the y-axis. Each group would have two bars side by side, one for the initial score and one for the score at six weeks.
5(c)	One strength is that change in the same person can be measured over time. In Bridge et al., each patient was assessed on the Leeds scale and the profile of mood states at the start and again at six weeks, so any fall in stress could be

Question number	
	seen as the effect of relaxation and imagery. A second strength is that many participant variables stay constant, because the same individuals are compared with themselves. Differences in personality or illness between patients do not affect the before and after comparison, so the conclusion about the treatment is more valid.
6(a)	An objective measure is factual and cannot be disputed, because it does not rely on the patient's own report. For example, if a drug is detected in a blood or urine sample, this is objective evidence that the patient has taken their medication.
6(b)	Pill counting with an electronic dispenser: Chung and Naya (2000) used a TrackCap, which records each time the medicine bottle is opened, so the number of pills taken (assumed from the openings) can be compared with the number prescribed.
6(c)	One weakness is that collecting the data may be invasive. Taking a blood sample to check drug levels involves a needle, which may cause pain or anxiety, so some patients may refuse and adherence cannot be measured for them. A second weakness is that the data collection may be embarrassing, e.g. giving a urine sample or spitting into a salivette. Patients may then not give informed consent, so biological data about their adherence is not collected and the sample becomes biased towards those willing to take part.
	Section A: Organisational Psychology
7a(i)	IV 1: the leader's sex (a male leader or a female leader). IV 2: the leadership style (male stereotypical, i.e. autocratic and task oriented, or female stereotypical, i.e. democratic and relationship oriented).

Question number	
7a(ii)	The leader's competence: after reading about the leader, participants rated how competent the leader was on a 7-point Likert scale from totally disagree to totally agree.
7(b)	A field experiment: workers in their own workplace read the description of the leader and completed the same rating questionnaires during their working day, so the study would take place in a real work environment.
7(c)	One weakness is demand characteristics. Participants know they are taking part in a study, and may guess it is about women in managerial positions, so they may rate the female leader more positively to appear unbiased. A second weakness is low ecological validity. The study takes place in an artificial laboratory at a university with students reading about an imaginary leader, not real workers judging a real manager at work, so people may behave differently from how they would in a real promotion decision.
8(a)	Workplace sabotage is any behaviour by an employee which is intended to cause a production or profit loss for the organisation, for example deliberately slowing work down or destroying machinery.
8(b)	"Explain what you do to release your frustrations when you are at work, and why." This is open, so the worker can describe their own reasons, e.g. revenge on a manager or release of frustration.
8(c)	One weakness is that the worker may not tell the truth, or may exaggerate or play down details, as sabotage is socially undesirable. This could lead the researcher to make inaccurate conclusions about the reasons for sabotage.

Question number

A second weakness is that the worker may be afraid that if they admit to sabotage in a face-to-face interview they will lose their job. What they say about the methods they used may therefore be false, which lowers the validity of the data.

Section B: Clinical Psychology

9(a) Aim: to investigate whether ECT causes problems (side effects) for patients with schizophrenia over six months.

Directional hypothesis: patients with schizophrenia who receive a course of ECT will have lower short-term memory scores and more confusion six months later than patients who do not receive ECT.

Design: a natural (quasi) experiment with an independent measures design. The IV is whether the patient receives ECT or not. ECT is only given where the patient's psychiatrist has already decided it is needed, so no one is denied or given treatment for the study. The DVs are (1) score on a short-term memory test (number of words recalled from a list of 20) and (2) a confusion rating made by a nurse on a scale of 1 to 10.

Sample: 40 adults aged 25 to 60 diagnosed with schizophrenia (ICD-11), from two psychiatric hospitals, selected by opportunity sampling: 20 starting ECT and 20 not receiving it.

Controls: each ECT patient is matched with a non-ECT patient on age, sex, length of illness and symptom severity. Both groups take the same type of antipsychotic medication and no other treatment. The memory test, instructions and testing room are standardised, and the researcher doing the testing does not know which group the patient is in (single blind).

Procedure (longitudinal): every patient is tested before treatment begins, then one week, three months and six months after the course of ECT ends (or at the same

Question number	
	times for the non-ECT group), using different but equivalent word lists each time. Ethics: informed consent from the patient, or a relative if the patient is not competent; right to withdraw at any time; data kept confidential using numbers not names; a debrief at the end. Analysis: mean and range of memory scores and median confusion ratings for each group at each time, shown on a line graph.
9b(i)	ECT is a biological treatment for schizophrenia. The patient is given a general anaesthetic and a muscle relaxant, then electrodes are placed on the head and electricity is applied either bilaterally (both sides) or unilaterally (one side). This causes a seizure, but the patient only twitches because of the muscle relaxant. The patient is unconscious, then wakes and recovers. ECT has problems. 20% to 50% of people who respond well to a course of ECT relapse within six months. Short-term memory loss is often reported, and immediately after treatment the patient is often confused, and this confusion may not be temporary. Many patients also perceive the treatment as terrifying and shameful.
9b(ii)	Feature 1: short-term memory loss and confusion are common side effects of ECT. I used these to choose my two DVs, so "problems" were measured as the number of words recalled from a 20-word list and a nurse's confusion rating, comparing the ECT group with the group without ECT. Feature 2: 20% to 50% of patients relapse within six months and confusion may not be temporary. This is why I used a longitudinal design with a final test six months after treatment, so I could see whether the problems lasted rather than only measuring them straight after ECT.
9c(i)	I matched the patients on age, sex, length of illness and severity of symptoms to

Question number	
	control participant variables. Memory naturally gets worse with age and severe illness, so matching makes it more likely that any difference in memory scores is caused by ECT (the IV) and not by the patients being different.
9c(ii)	Participant attrition: over six months some patients may drop out, e.g. leave hospital or relapse and refuse further testing. If those with the worst side effects drop out of the ECT group, the remaining sample would make ECT seem to cause fewer problems than it really does.
9c(iii)	I chose a directional hypothesis because previous research predicts the direction of the effect: short-term memory loss and confusion are often reported after ECT, so I expected the ECT group to score lower on the memory test, not just differently, from the group without ECT.
	Section B: Consumer Psychology
10(a)	Aim: to investigate whether different window displays affect shoppers' intention to shop in a store. Interview technique: face-to-face interviews in a quiet area of a shopping centre, carried out by one trained interviewer. Interview format: semi-structured. Every participant is asked the same fixed questions in the same order, and the interviewer can then ask follow-up questions to explore interesting answers. Materials: four large colour photographs of the same clothing store with different window displays: (A) a themed display with warm colours and lighting on key products, (B) a promotional "SALE" display only, (C) a small display, and (D) no display. The order is counterbalanced across participants. Questions for each photograph: closed, "How much do you like this store exterior?"

Question number	
	(1 = not at all to 5 = very much); "How likely are you to go into this store?" (1 = very unlikely to 5 = very likely). Open: "What is it about this window that makes you want, or not want, to go in?" Follow-up, e.g. "You mentioned the lighting, can you tell me more?"
	Sample: an opportunity sample of 40 shoppers aged 18 and over, 20 male and 20 female.
	Procedure: the interviewer explains the study, gains consent and asks the questions using a standardised script, recording answers on an answer sheet and audio recorder. Each interview lasts about 10 minutes.
	Ethics: informed consent, right to withdraw, no names recorded (confidentiality), and a debrief.
	Analysis: mean liking and intention ratings for each display shown in a bar chart; open answers analysed into themes, e.g. colour, theme, lighting.
10b(i)	Store exterior design includes the storefront, window displays and landscaping. The exterior is what customers first encounter, so it creates a first impression of the store and can attract customers inside. Mower et al. (2012) found that window displays and landscaping increased liking of the store exterior, which in turn increased intention to shop there.
	Research has found that window displays are more successful when they are congruent with the consumer's self-image, and less successful when they contain only promotional or style information. Larger windows attract more attention than smaller ones, and sales increase with a window display compared with none.
	Successful displays are aesthetically pleasing, have a theme, use warm colours and lighting to highlight key areas, and include accessories linked to the products.
10b(ii)	Feature 1: displays that only contain promotional information are less successful than themed displays with warm colours and lighting. I used this to design

Question number	
	photograph A (themed, warm colours, lighting) and photograph B (promotional "SALE" only), so I could compare them in my closed rating questions. Feature 2: larger windows attract more attention than smaller ones, and having a display increases sales compared with no display. So I included photograph C (small display) and D (no display) and asked the open question about why shoppers would or would not go in, to find the reasons behind their ratings.
10c(i)	I used a semi-structured format so all participants got the same fixed rating questions about the four window displays, which can be compared, but I could also ask follow-up questions, e.g. about lighting, that arose during the interview and so find out why a display increased intention to shop.
10c(ii)	Because follow-up questions are asked, some interviews may take much longer than 10 minutes, and shoppers in a busy shopping centre may become impatient or leave. Different follow-up questions also make the four window displays harder to compare across participants.
10c(iii)	I chose face-to-face interviews so that shoppers could look at the four photographs of window displays while answering, which is not possible on the telephone, and so I could note non-verbal responses such as smiling at the themed display.
	Section B: Health Psychology
11(a)	Aim: to investigate the reasons why people attend or fail to attend appointments with a doctor. Technique: a postal questionnaire, sent with an information sheet and a stamped, addressed return envelope.

Question number	
	Sampling technique: random sampling. A medical practice gives every adult patient (aged 18 and over) on its list a number, and a random number generator selects 300 patients, so everyone has an equal chance of being chosen. Question format: mainly closed questions, 20 in total. Section 1: "Have you missed a medical appointment in the last 12 months? Yes / No." Section 2 lists reasons based on the Health Belief Model and rational non-adherence, each rated 1 (strongly disagree) to 5 (strongly agree), e.g. "I do not attend if I think my illness is not serious", "I attend because I believe treatment will help me", "The cost of travel stops me attending", "I forget my appointments". One open question at the end: "Describe any other reason why you have missed or attended an appointment." Procedure: questionnaires are posted with a return date of four weeks; a reminder letter is sent after two weeks. Ethics: consent is given by returning the questionnaire, there is no name on it (anonymity), data are confidential, participants can withdraw by not returning it, and there are contact details for a debrief. Reliability and validity: the questionnaire is piloted with 10 patients to check the questions are clear; standardised written instructions; anonymity reduces social desirability; test-retest with 30 participants two weeks later. Analysis: percentage who missed appointments, mean (and mode) rating for each reason, shown on a bar chart; open answers grouped into themes.
11b(i)	The Health Belief Model says whether a person attends appointments depends on their perceived susceptibility to the illness, its perceived seriousness, the perceived benefits of action compared with the perceived barriers (e.g. cost, time, pain), and cues to action such as a reminder letter. Rational non-adherence means the patient makes a logical decision not to follow medical advice, for example because they think the treatment will be worse than

Question number	
	the illness, or the cost and side effects outweigh the benefits. Laba et al. (2012) found that people weigh up features such as cost, side effects and effectiveness when deciding whether to adhere.
11b(ii)	Feature 1: perceived seriousness from the Health Belief Model. I turned this into the closed rating item "I do not attend if I think my illness is not serious" (1 to 5), so I could measure how far low perceived seriousness explains missed appointments. Feature 2: rational non-adherence is a logical weighing up of costs and benefits. I wrote items such as "The cost of travel stops me attending" and "I attend because I believe treatment will help me", so the questionnaire measures both reasons for failing to attend and reasons for attending.
11c(i)	I used closed questions with a 1 to 5 scale because answers are in the same format for all 300 participants, so they are quick to score and the mean rating for each reason for missing appointments can be compared to find the most common reason.
11c(ii)	A postal questionnaire may be treated like junk mail and thrown away, or started and then forgotten. People who miss medical appointments may also be the people least likely to return it, so the response rate would be low and the sample biased towards those who attend.
11c(iii)	I chose a random sample from the practice list because every adult patient has an equal chance of being chosen, so the sample is not biased by me, and it is more likely to include both people who attend and people who fail to attend, making it more representative.

Question number

Section B: Organisational Psychology

12(a)

Aim: to find the most common way assembly-line workers sabotage machinery.

Type: a structured, naturalistic, non-participant, covert observation using the factory's existing CCTV in a car parts assembly-line factory, over four weeks.

Behavioural categories (based on Giacalone and Rosenfeld): (1) work slowdown: deliberately running a machine slower than the set speed; (2) destruction of machinery: hitting, jamming or inserting objects into a machine; (3) "forgetting": leaving a switch on or off, or not doing safety checks; (4) causing chaos: changing machine settings without permission; (5) dishonesty: removing machine parts or tools.

Sampling of behaviour: event sampling, so a tally is made each time a behaviour in a category happens.

Steps for reliability: two trained observers each watch the same footage separately using the same tally chart and written definitions of each category; they practise in a pilot study on one day of footage first. Inter-rater reliability is checked by correlating their tallies, which should be +0.8 or more. The same shifts (two day and two night shifts each week) are coded each week.

Ethics: permission from the factory manager and workers' representatives; workers already know CCTV is used; no worker is identified to management, so no one can lose their job; footage destroyed after coding.

Analysis: total frequency of each category, presented in a bar chart; the mode is the most common way of sabotaging machinery.

12b(i)

Giacalone and Rosenfeld (1987) studied workplace sabotage. They identified four main types (forms) of sabotage: work slowdown; destruction of machinery, premises or products; dishonesty; and causing chaos. They listed 29 forms of sabotage, such as creating work slowdowns, "forgetting" to turn a switch on or off,

Question number	
	and stealing to make up for poor pay. They also identified 11 reasons for sabotage, including revenge, release of frustration and protecting one's job, and found that workers saw some reasons, such as protecting themselves, as more justifiable than others.
12b(ii)	Feature 1: the four types of sabotage. I used these as my behavioural categories (work slowdown, destruction of machinery, causing chaos, dishonesty) and made them specific to machinery, e.g. jamming a machine, so each act seen on the CCTV could be coded. Feature 2: the 29 forms include "forgetting" to turn a switch on or off. I added this as its own category, because on an assembly line it would be a hidden way to stop a machine, and two observers tallied it so I could see if it was the most common method.
12c(i)	I used behavioural categories because they could be agreed and defined before the observation started, so both observers knew exactly what counted as, for example, "destruction of machinery", which reduces ambiguity when tallying acts seen on the CCTV.
12c(ii)	Some acts of sabotage seen on the CCTV may not fit any category, e.g. a new method not listed, so they would have to be excluded. Also, an act such as a slow machine may be ambiguous, as it could be accidental, so it is hard to decide whether it is sabotage.
12c(iii)	I used two observers so inter-rater reliability could be checked. If both observers' tallies for each category of machinery sabotage correlate highly, the categories are being applied consistently, so the most common method found is not just one observer's opinion.

Cambridge Assessment International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/42**

Paper 4 Specialist Options: Application and Research Methods **May/June 2024**

1 hour 30 minutes

9093271195

You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **five** questions in total:
  - Answer questions from **two** options.
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Section A

Answer questions from **two** options in this section.

Clinical Psychology

Answer **all** questions if you have studied this option.

1 From the key study by Lovell et al. (2006) on the treatment of obsessive-compulsive disorder:

(a) **(i)** Identify **two** criteria that were necessary for participants to meet to be included in the study. [2]

(ii) Outline **two** reasons why some participants were excluded from the study. [2]

(b) Suggest why Lovell et al. did **not** include a control group in their study. [2]

(c) Explain **two** strengths of excluding some participants from studies on obsessive-compulsive disorder (OCD). [4]

2 Kleptomania can be assessed using the Kleptomania Symptom Assessment Scale (K-SAS).

(a) State **one** question used on the K-SAS. [2]

(b) Suggest **one** way that the reliability of the K-SAS could be tested. [2]

(c) Explain **two** weaknesses of the K-SAS. [4]

Consumer Psychology

Answer **all** questions if you have studied this option.

3 From the key study by Snyder and DeBono (1985) on consumer personality and advertising:

(a) Describe the procedure of study 3. [4]

(b) Suggest how **one** ethical guideline was broken in study 3. [2]

(c) Explain **one** strength and **one** weakness of using a telephone interview to investigate 'consumer personality and advertising'. [4]

4 The central gaze cascade effect in positioning a product has been investigated using eye-tracking.

(a) Outline the findings of **one** study that has used eye-tracking to investigate the central gaze cascade effect (e.g. Atalay et al., 2012). [2]

(b) Suggest **one** way to investigate the central gaze cascade effect, other than using eye-tracking. [2]

(c) Explain **two** weaknesses of using eye-tracking to investigate the central gaze cascade effect. [4]

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Health Psychology

Answer **all** questions if you have studied this option.

5 From the key study by Brudvik et al. (2016) on pain assessments by doctors, parents and children:

(a) **(i)** Outline **one** rating scale completed by the 3–8-year-old children. [2]

(ii) Outline **one** rating scale completed by the 9–15-year-old children. [2]

(b) Suggest **one** way in which a child's pain can be assessed, other than using a rating scale. [2]

(c) Explain **two** weaknesses with the rating scales used by the 3–8-year-old children. [4]

6 Stress can be measured using sample tests for salivary cortisol, e.g. in the study by Evans and Wener (2007).

(a) Outline the procedure of **one** study that measured stress using salivary cortisol. [2]

(b) Collecting saliva to test from some groups of participants, such as children, can be difficult.

Suggest how salivary cortisol tests could be conducted with children.
Your suggestion **must** be ethical. [2]

(c) Explain **two** strengths of using a biological measure, such as salivary cortisol, to measure stress. [4]

Organisational Psychology

Answer **all** questions if you have studied this option.

7 The key study by Landry et al. (2019) on applying self-determination theory to motivational rewards included a 'manipulation check' as part of the procedure in study 1.

(a) Describe the conditions of the independent variable used in study 1. [4]

(b) Suggest **one** effect on the results if a manipulation check had **not** been included in study 1. [2]

(c) Explain **one** strength and **one** weakness of the experimental design as used in study 1. [4]

8 Muczyk and Reimann proposed four styles of leader behaviour.

(a) Outline the 'directive autocrat' style of leader behaviour proposed by Muczyk and Reimann. [2]

(b) Suggest **one** closed question that a leader could be asked to investigate whether they have a directive autocrat style of leader behaviour. [2]

(c) Explain **two** strengths of using a structured observation to investigate the behaviour of a directive autocrat leader. [4]

Section B

Answer **one** question from this section.

Clinical Psychology

9 **(a)** Plan a study using a questionnaire with closed questions to investigate the effectiveness of using imaginal desensitisation for treating pyromania.

Your plan must include details about:
- questionnaire technique
- rating scale. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of questionnaire technique. [2]

(ii) Explain **one** weakness of your choice of questionnaire technique. [2]

(iii) Explain **one** reason for your choice of rating scale. [2]

Consumer Psychology

10 **(a)** Plan a study using a face-to-face interview to investigate the effectiveness of the 'disrupt-then-reframe' sales technique.

Your plan must include details about:
- question format
- sampling technique. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of question format. [2]

(ii) Explain **one** weakness of your choice of question format. [2]

(iii) Explain **one** reason for your choice of sampling technique. [2]

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Health Psychology

11 **(a)** Plan a study using a semi-structured interview to investigate whether stress inoculation training is effective.

Your plan must include details about:
- interview technique
- type(s) of data. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of interview technique. [2]

(ii) Explain **one** strength of a semi-structured interview in your study. [2]

(iii) Explain **one** reason for your choice of **one** type of data. [2]

Organisational Psychology

12 **(a)** Plan a study using an online questionnaire to investigate which type of achievement motivation is more likely to motivate workers.

Your plan must include details about:
- question format
- the sample of participants. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of sample of participants. [2]

(ii) Explain **one** weakness of your choice of sample of participants. [2]

(iii) Explain **one** reason for your choice of question format. [2]

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Surname	StemUp Model Solution
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number

Answers for paper 9990/42

Section A: Clinical Psychology

1a(i) Criterion 1: a diagnosis of obsessive-compulsive disorder.

Criterion 2: a score of 16 or more on the Yale-Brown Obsessive Compulsive Scale (Y-BOCS).

1a(ii) Reason 1: the patient had severe depression or suicidal intent.

Reason 2: the patient had been taking antidepressants or anxiolytics for less than three months.

1(b) A control group was not needed because the aim was to see whether CBT by telephone was as effective as face-to-face CBT. Both groups received CBT, so each acted as a comparison for the other, and it would be unethical to leave patients with OCD untreated.

1(c) One strength is protection from psychological harm. Patients with severe depression or suicidal intent may not be suitable for the treatment, and it may do more harm than good, so excluding them keeps the study ethical.

A second strength is that the treatment is only given to suitable participants. Telephone treatment sessions were about 50% shorter than face-to-face sessions, so they should not be given to people with OCD who need longer face-to-face help (e.g. with obsessional slowness), and this also makes the comparison more valid.

Question number	
2(a)	"During the past week, how many times did you experience urges to steal?" The patient answers on a scale scored from 0 (none) to 4 (daily or more often).
2(b)	Test-retest: the K-SAS is given to the same participants on two occasions, e.g. a week apart with no treatment in between. If the two sets of scores correlate strongly, the K-SAS is reliable.
2(c)	One weakness is that some questions are ambiguous. Question 6 asks "approximately" how many hours were spent thinking about stealing, and its answer options of 1 to 4 hours and 4 to 10 hours overlap, so a patient who spent 4 hours could choose either. A second weakness is that it only gathers quantitative data. A patient can score their urges as 3, but cannot explain why the urges happen, so the K-SAS does not show the reasons behind the kleptomania.
	Section A: Consumer Psychology
3(a)	Participants were telephoned by a researcher who said they worked for a marketing research firm and were testing a new shampoo. Each participant was then randomly allocated to hear one of two advertising messages about the shampoo, either an image-oriented message or a quality-oriented message. They were then asked two questions: first, how willing they would be to use the shampoo, on a 5-point scale from "definitely not" to "definitely yes", and second, how willing they would be to try the shampoo, as a percentage from 0% (not at all) to 100% (definitely willing).
3(b)	Deception: the researchers gave a false name and claimed to be working for a marketing research firm testing a shampoo, so participants could not give fully

Question number	
	informed consent because the real aim was not about shampoo.
3(c)	A strength is that a telephone allows a potentially more representative sample to be contacted, as people anywhere can be phoned at home, so the advertising preferences of a diverse sample of consumers can be investigated. A weakness is that the interviewer cannot see non-verbal responses, such as a facial expression of interest when the image message is read out, which could give useful information about the person's reaction to the advertisement. Questions must also be short and simple.
4(a)	Atalay et al. (2012) found that brands in the horizontal centre of a shelf receive more visual attention and are chosen more often. There is an initial central fixation bias (people look at the centre first) and a central gaze cascade effect, where attention to the central option increases just before the decision.
4(b)	An experiment in a mock store: participants are asked to choose one item from a shelf of five brands of the same product, and the position of each brand is rotated, so the researcher can record how often the brand in the central position is chosen.
4(c)	One weakness is that participants know their eye movements are being tracked, so they may choose to look in unusual directions, e.g. deliberately at the edges of the shelf, so the data on central gaze would be false. A second weakness is that eye-tracking shows where the participant looked but not why. A long fixation on the central brand may mean interest or confusion, so it gives no explanation of why people look centrally before they choose.
	Section A: Health Psychology

Question number	
5a(i)	The Wong-Baker FACES Pain Rating Scale: the child points to one of 6 faces showing increasing levels of pain, from a happy face (0, no hurt) to a crying face (10, hurts worst).
5a(ii)	The Coloured Analogue Scale (CAS): a line with pain severity ranging from 0 (green, no pain) to 100 (red, most pain), and the child slides a marker to show how much pain they are in.
5(b)	By observing the child's behaviour: a nurse records whether the child is crying, limping or holding a part of their body, and how often, using a checklist.
5(c)	One weakness is that a young child may not understand what they have to do, so they might point to the face they like best, or the one the doctor is pointing at, rather than the face matching their pain. A second weakness is validity: a cartoon face may not translate into the actual pain or type of pain the child is experiencing. A child in severe pain may also be in too much pain to want to complete the Wong-Baker scale at all.
6(a)	Evans and Wener (2007) studied 139 men and women commuting from home to work by train. Salivary cortisol was collected at the end of the journey, and again at the participant's home at the weekend, by the participant dribbling saliva into a salivette.
6(b)	With parental consent and the child's agreement, the child could chew on a cotton swab (salivette) as part of a game, e.g. "who can hold it in their mouth until the timer finishes", so it does not cause distress and they can stop at any time.

Question number	
6(c)	One strength is that it gives objective, factual data. The cortisol level in the saliva is measured by a laboratory, not judged by the participant or researcher, so the stress level cannot be faked or biased by social desirability. A second strength is reliability: the same standardised test is carried out on every person's sample in the same way, so accurate cortisol numbers can be compared between participants and situations, e.g. a long or short commute.
	Section A: Organisational Psychology
7(a)	Autonomy supporting condition: the monetary reward was presented in an informational and encouraging way, e.g. as "a token of appreciation for their contribution". This was expected to lead to need satisfaction and higher intrinsic motivation. Autonomy threatening (controlling) condition: the reward was presented in a pressuring way with a controlling meaning, e.g. "as a means to reinforce the performance standards for the task at hand". This was expected to lead to need frustration and more extrinsic motivation.
7(b)	The conditions of the IV may not have been valid. Without the check, the researchers could not be sure that participants in the autonomy supporting condition actually felt supported, and those in the controlling condition felt controlled, so any difference in motivation might not be caused by the IV.
7(c)	A strength of the independent groups design is that each participant only did one condition, either the supporting or the controlling one, so there were no order effects, and they were less likely to guess the aim from seeing both versions. A weakness is that participant variables may affect the DV. People in the supporting condition may simply be more intrinsically motivated people than those

Question number	
	in the controlling condition, so the difference in results may be due to differences between people rather than the IV.
8(a)	A directive autocrat is low in participation and high in direction. The leader makes decisions alone (unilaterally), which subordinates must carry out without involvement, and closely supervises workers, telling them how to do tasks and checking progress.
8(b)	"Do you make decisions without consulting your workers?" Answer: always / sometimes / never.
8(c)	One strength is that behavioural categories can be defined before the study begins, e.g. "supervises workers closely" and "makes decisions without consulting", so observers know exactly what directive autocrat behaviour to record. A second strength is that two observers can use the same categories and their tallies can be compared. Good inter-rater reliability would confirm that the leader really does supervise workers at frequent intervals, so the data are reliable.
	Section B: Clinical Psychology
9(a)	Aim: to investigate whether imaginal desensitisation is effective in treating pyromania. Participants: 30 adults (aged 18 to 60) diagnosed with pyromania using ICD-11, who are about to receive imaginal desensitisation at three clinics; an opportunity sample. Repeated measures design: the same participants complete the questionnaire before treatment, straight after it, and three months later. Questionnaire technique: paper and pencil, completed alone in a private room at the clinic, with standardised written instructions. The researcher waits outside and the

Question number

participant seals it in an envelope.

Questions: 10 closed questions, each with the same 4-point rating scale, e.g. "In the past week, my urges to set a fire have been: very strong (4) / strong (3) / weak (2) / very weak (1)". Other items: "How often have you thought about fire?", "How much did you watch or look for fires?", "How tense did you feel before an urge to set a fire?" One yes/no question: "Have you set a fire in the past month?" The scores are added (10 to 40); a lower score shows fewer symptoms.

Hypothesis: participants' total scores will be lower after imaginal desensitisation than before it.

Ethics: informed consent; right to withdraw without affecting treatment; confidentiality (numbers not names); debrief; questionnaires do not ask for details of crimes.

Reliability and validity: pilot study; same questions and instructions each time; test-retest on a subsample one week apart before treatment.

Analysis: mean and median total score at each time, shown in a bar chart; percentage answering "yes" to setting a fire.

9b(i) Pyromania is an impulse control disorder. The ICD-11 criteria include a recurrent failure to control strong impulses to set fires, resulting in multiple acts of, or attempts at, setting fire to property; no apparent motive for the fire setting; and a persistent fascination or preoccupation with fire, e.g. watching fires or fire-fighting equipment.

Imaginal desensitisation (e.g. Blaszczynski and Nower, 2003) is a cognitive-behavioural therapy. The person is first taught progressive muscle relaxation, then visualises themselves in the situation that triggers the urge to carry out the impulsive behaviour while staying relaxed, so the urge and tension decrease.

Question number	
9b(ii)	Feature 1: the ICD-11 criteria. I used "failure to control strong impulses" and "fascination with fire" to write closed questions such as "In the past week, my urges to set a fire have been very strong / strong / weak / very weak" and "How much did you watch or look for fires?" Feature 2: imaginal desensitisation aims to reduce the tension felt before the impulsive act. So I included the item "How tense did you feel before an urge to set a fire?" and compared scores before and after treatment to see if the therapy had reduced tension.
9c(i)	I used paper and pencil completed at the clinic because the participants are already there for treatment, so they are more likely to complete it at all three times, and the environment is controlled, as every participant completes it in the same private room.
9c(ii)	Because the questionnaire is given at the clinic where they are treated, participants may respond to demand characteristics and report weaker urges to set fires than they really have, to please the researcher or their therapist.
9c(iii)	I used a 4-point scale with no middle option so participants could not opt out with a neutral answer. They had to say whether their urges to set fires were strong or weak, so any change after imaginal desensitisation could be detected and compared.
	Section B: Consumer Psychology
10(a)	Aim: to investigate whether the disrupt-then-reframe (DTR) technique increases sales. Design: a field study in a stationery shop. On alternate days, sales assistants state

Question number	
	the price of a box of greeting cards either normally ("These are £3, a bargain") or using DTR ("These are 300 pence... that's £3, a bargain"). Sampling technique: opportunity sampling. Every customer aged 18 and over who has spoken to an assistant about the cards is approached as they leave the shop, until 50 customers per condition agree. Interview: face-to-face, semi-structured, about 5 minutes, carried out by a trained interviewer near the exit. Question format: closed and open questions. Closed: "Did you buy the cards? Yes / No"; "How clear was the price when it was explained to you?" (1 = very confusing to 5 = very clear); "How good value do you think they were?" (1 to 5). Open: "Describe your thoughts about the way the sales assistant told you the price." "Explain why you decided to buy, or not buy, the cards." Ethics: the customer is asked for consent before the interview; right to withdraw; no names recorded; debrief explaining the technique, with the offer to return the cards if they wish. Validity and reliability: the interviewer does not know which condition the customer was in; the same questions in the same order; assistants practise the scripts. Analysis: percentage of customers buying in each condition and mean ratings (bar chart); open answers analysed into themes.
10b(i)	The disrupt-then-reframe technique (Kardes et al., 2007) involves deliberately confusing the consumer with a disruptive message, then rewording (reframing) it in a much clearer way so the consumer understands and is happy. This reduces the number of counter-arguments the consumer thinks of, and can close a sale. It is said to work because consumers have a need for cognitive closure: they want to resolve the ambiguity quickly rather than leave it unresolved, so they accept the clear reframe. People higher in need for cognitive closure should be more affected.

Question number	
10b(ii)	Feature 1: the disruption followed by a reframe. I used this to write the DTR script ("300 pence... that's £3, a bargain") and compared it with the normal price, then asked the closed question "Did you buy the cards? Yes / No" to see if DTR increased sales. Feature 2: the disruption causes confusion that the consumer wants to resolve (need for cognitive closure). So I asked "How clear was the price when it was explained to you?" and the open question about their thoughts on how the price was given, to see whether confusion was felt and then resolved.
10c(i)	I used closed questions such as "Did you buy the cards? Yes / No" because answers are in the same format for all 100 customers, so the percentage buying in the DTR and normal conditions can be easily compared.
10c(ii)	The closed questions give customers no opportunity to explain their behaviour, e.g. a "yes" to buying does not show whether they bought because of the reframe or because they needed a card anyway.
10c(iii)	I used an opportunity sample because a large number of customers (50 per condition) can be obtained quickly as they leave the shop, and they are the people who have actually just experienced the sales technique.
	Section B: Health Psychology
11(a)	Aim: to investigate whether stress inoculation training (SIT) is effective in reducing stress. Participants: 20 adults who have just completed a course of SIT at a workplace health centre, using a volunteer sample from a notice in the centre. Interview technique: face-to-face, in a quiet private room at the centre, by one

Question number	
	trained interviewer, about 20 minutes, audio-recorded with consent.
	Format: semi-structured: 8 fixed questions asked to everyone in the same order, with follow-up questions where useful.
	Types of data: quantitative and qualitative. Closed: "Before the training, how stressed did you feel at work, from 1 (not at all) to 10 (extremely)?" and the same question "now". "Did you find the training excellent / good / not good / useless?" Open: "Explain why you chose that answer." "Describe a stressful situation since the training and what you said to yourself." "Which stage of the training helped you most, and why?" Follow-up, e.g. "Can you give an example?"
	Procedure: interviews take place one week after the final session, and again three months later to see if effects last.
	Ethics: informed consent, right to withdraw, confidentiality, debrief, and support offered if they are upset.
	Analysis: mean before and after stress ratings (bar chart) and mode for the training rating; thematic analysis of qualitative answers, e.g. "coping statements", "relaxation".
11b(i)	Meichenbaum (1985) developed stress inoculation training. He believed stress is caused by people thinking about events in catastrophising ways. SIT replaces these maladaptive statements with positive coping statements and teaches relaxation, so the person responds to stress more positively.
	It has three stages: conceptualisation, where the person learns about stress and how they think about it; skill acquisition (and rehearsal), where coping skills such as positive self-statements and relaxation are learned and practised; and application and follow-through, where the skills are used in increasingly stressful real situations.
11b(ii)	Feature 1: SIT replaces catastrophising thoughts with coping statements. I used

Question number	
	this for the open question "Describe a stressful situation since the training and what you said to yourself", to check whether participants now use coping statements. Feature 2: the three stages ending in application and follow-through. I interviewed participants after this final stage and again three months later, and asked "Which stage of the training helped you most, and why?" to see which stage made the training effective.
11c(i)	I used face-to-face interviews so that the interviewer could note non-verbal responses, such as signs of tension when a participant describes a stressful situation, and it is more personable, so participants may feel comfortable talking about their stress.
11c(ii)	The interviewer can ask fixed questions to everyone, such as the 1 to 10 stress ratings, so results can be compared, and also ad hoc follow-up questions, e.g. asking for an example of a coping statement, to explore why SIT worked for that person.
11c(iii)	Qualitative data allows participants to give reasons for their answers, e.g. explaining that relaxation helped them stay calm in meetings, which shows how SIT reduced their stress, not just whether their rating fell.
	Section B: Organisational Psychology
12(a)	Aim: to investigate which of McClelland's needs (achievement, affiliation or power) motivates workers most. Technique: an online questionnaire, sent as a link by email. Sample of participants: 200 workers from a large food factory, 100 male and 100

Question number

female, aged 18 to 60, who have worked there for at least one year, from all departments and levels. Volunteer sample: all workers are emailed and the first 200 who respond are used.

Question format: closed and open questions, 15 in total. Closed rating items, each from 1 (strongly disagree) to 5 (strongly agree): achievement, "I work hard to master difficult tasks"; affiliation, "Being liked by my colleagues makes me work harder"; power, "I am motivated by having influence over others". Five items for each need, scored 5 to 25. A forced-choice question: "What motivates you most at work? Achievement / affiliation / power." Open: "Explain why you chose that answer option."

Procedure: workers complete it in their own time within two weeks; it takes about 10 minutes.

Ethics: informed consent page before the questions; right to withdraw by closing the page; anonymous, and managers do not see individual answers; a debrief page at the end.

Reliability and validity: pilot study; standardised instructions; anonymity reduces social desirability.

Analysis: mean score for each need; mode of the forced choice, shown in a bar chart; open answers analysed into themes.

12b(i) McClelland's achievement motivation theory (1961) suggests we have three work-related needs. Need for achievement is the need to get a job done, master a task and be successful, based on hard work and effort rather than luck.

Need for affiliation is the need to be liked and accepted by other people, so effort goes into creating and maintaining social relationships and friendships. Need for power is the need to be influential in the lives of others and to control others, where discipline is important.

Question number	
12b(ii)	Feature 1: need for achievement is about mastering tasks through effort rather than luck. I used this to write rating items such as "I work hard to master difficult tasks", so each worker gets an achievement score from 5 to 25 to compare with the other two needs. Feature 2: need for affiliation is the need to be liked and accepted. I wrote items such as "Being liked by my colleagues makes me work harder" and included affiliation as an option in the forced-choice question, so I could see which need workers chose most.
12c(i)	I chose workers from all departments and levels of the factory, from line workers to managers, because a need such as power may be more common in managers, so including all levels means the most motivating need is found for workers in general, not just one type.
12c(ii)	The sample came from only one food factory in one location, so the most motivating need found may reflect the culture of that factory and may not generalise to other industries or countries, e.g. more collectivist cultures where affiliation may be more important.
12c(iii)	I used closed rating items because the answers are in the same format for all 200 workers, so a total score for each need can be calculated and compared statistically to find which need motivates workers most.

Cambridge Assessment International Education

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PSYCHOLOGY **9990/43**

Paper 4 Specialist Options: Application and Research Methods **May/June 2024**

1 hour 30 minutes

121140468 3

You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **five** questions in total:
  - Answer questions from **two** options.
    - Section A: answer **four** questions.
    - Section B: answer **one** question.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.

INFORMATION

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **8** pages. Any blank pages are indicated.

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Section A

Answer questions from **two** options in this section.

Clinical Psychology

Answer **all** questions if you have studied this option.

1 The key study by Freeman et al. (2003), using virtual reality to investigate persecutory ideation, included a number of self-reports such as the VR-Paranoia questionnaire.

(a) **(i)** Give **two** examples of items (questions) included in the VR-Paranoia questionnaire. [2]

(ii) State **two** features of the scale used by participants to answer the VR-Paranoia questions. [2]

(b) Suggest **one** weakness of the type of data gathered by the VR-Paranoia questionnaire. [2]

(c) Explain **two** strengths of using virtual reality to treat schizophrenia. [4]

2 Covert sensitisation is a treatment for impulse control disorders.

(a) Outline how **one** study used covert sensitisation to treat a participant (e.g. Glover, 1985). [2]

(b) Suggest how the effectiveness of covert sensitisation could be measured using an online questionnaire. [2]

(c) Explain **two** strengths of psychological treatments, such as covert sensitisation, for kleptomania. [4]

Consumer Psychology

Answer **all** questions if you have studied this option.

3 From the key study by Becker et al. (2011) on food package design:

(a) Describe **two** of the dependent measures (variables) used in this study. [4]

(b) Suggest why 'sensitivity to the design' was controlled by Becker et al. [2]

(c) Explain **two** weaknesses of using a seven-point scale to measure food package design. [4]

4 **(a)** Outline **one** type of store interior design. [2]

(b) Suggest how store interior design can be investigated, other than by using virtual store layouts. [2]

(c) Explain **two** weaknesses of using virtual store layouts to study store interior design. [4]

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Health Psychology

Answer **all** questions if you have studied this option.

5 In the key study by Bridge et al. (1988), the 'profile of mood states' questionnaire was used to assess the effectiveness of their relaxation and imagery treatment programme on stress.

(a) **(i)** Explain why the study by Bridge et al. is longitudinal. [2]

(ii) Compare the results for total mood disturbance for any **two** groups. [2]

(b) Suggest how the results of total mood disturbance could be presented in a graph. [2]

(c) Explain **two** strengths of using a longitudinal study to assess the effectiveness of relaxation and imagery on stress. [4]

6 **(a)** Explain what is meant by an 'objective measure of adherence', in relation to medical advice. Include a biological measure as an example. [2]

(b) Suggest how adherence can be measured objectively, other than using a biological measure. [2]

(c) Explain **two** weaknesses of using biological measures of adherence to medical advice. [4]

Organisational Psychology

Answer **all** questions if you have studied this option.

7 From the key study by Cuadrado et al. (2008) on women's access to managerial positions:

(a) **(i)** State the **two** independent variables in this experiment. [2]

(ii) Outline **one** dependent variable in this experiment. [2]

(b) Suggest **one** method that could be used to study women's access to managerial positions, other than a laboratory experiment. [2]

(c) Explain **two** weaknesses of conducting a laboratory experiment to measure women's access to managerial positions. [4]

8 **(a)** Explain what is meant by the term 'workplace sabotage'. [2]

(b) Suggest **one** open question that workers could be asked about reasons for sabotage. [2]

(c) Explain **two** weaknesses of collecting data about workplace sabotage from workers using an interview. [4]

Section B

Answer **one** question from this section.

Clinical Psychology

9 There can be problems with using electro-convulsive therapy (ECT) as a treatment for schizophrenia, for example side effects.

(a) Plan an experiment with a longitudinal design to investigate whether there are problems with ECT as a treatment for schizophrenia.

Your plan must include details about:
- controls
- a directional or non-directional hypothesis. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your experiment. [4]

(c) **(i)** Explain **one** reason for your choice of controls. [2]

(ii) Explain **one** weakness of the use of a longitudinal design in your study. [2]

(iii) Explain **one** reason for your choice of directional or non-directional hypothesis. [2]

Consumer Psychology

10 Shoppers' liking of a store exterior and intention to shop at that store can be influenced by window displays.

(a) Plan an interview to investigate the effectiveness of different window displays on intention to shop.

Your plan must include details about:
- interview format
- interview technique. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of interview format. [2]

(ii) Explain **one** weakness of your choice of interview format. [2]

(iii) Explain **one** reason for your choice of interview technique. [2]

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Health Psychology

11 **(a)** Plan a study using a postal questionnaire to investigate the reasons why people attend or fail to attend appointments with a medical practitioner.

Your plan must include details about:
- question format
- sampling technique. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of question format. [2]

(ii) Explain **one** weakness with conducting postal questionnaires in your study. [2]

(iii) Explain **one** reason for your choice of sampling technique. [2]

Organisational Psychology

12 Workers in assembly-line industries can sabotage machinery.

(a) Plan a study using a structured observation to investigate which is the **most** common way to sabotage machinery in assembly-line workers.

Your plan must include details about:
- behavioural categories
- steps for making the study reliable. [10]

(b) For **one** piece of psychological knowledge on which your plan is based:

(i) Describe this psychological knowledge. [4]

(ii) Explain how you used **two** features of this psychological knowledge to plan your study. [4]

(c) **(i)** Explain **one** reason for your choice of behavioural categories. [2]

(ii) Explain **one** weakness of your choice of behavioural categories. [2]

(iii) Explain **one** reason for your choice of steps for making the study reliable. [2]

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Surname	StemUp Model Solution
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number

Answers for paper 9990/43

Section A: Clinical Psychology

1a(i) Item 1: "They were hostile towards me."

Item 2: "They were watching me."

1a(ii) It was a 4-point Likert-type scale scored 0 to 3, from 0 = do not agree, through agree a little and agree moderately, to 3 = totally agree. Participants rated each of the 15 questionnaire items on it.

1(b) The questionnaire gives quantitative data, so each participant's experience of the virtual train is reduced to a single number. This does not tell us why the participant gave that answer, e.g. why they believed an avatar "was laughing at me", so the reasons behind the persecutory thoughts are lost.

1(c) One strength is that virtual reality gives a controlled environment. The therapist can create exactly the situation needed, such as a crowded train carriage or a busy street, and gradually change it, so a range of situations and settings can be used with each patient with schizophrenia in a standardised way.

A second strength is that treatment takes place in a safe environment. If a patient becomes paranoid or distressed in the virtual scene, the session can be stopped at once, and there are no real strangers present, so both the patient and the public are protected, which would not be possible with exposure in a real place.

Question number	
2(a)	Glover (1985) treated a woman with kleptomania by pairing imagery of nausea and vomiting with the act of stealing. She imagined approaching an item in a supermarket that she intended to steal and feeling increasingly nauseous, then vomiting as she lifted it, with other shoppers looking at her. The unpleasant sensations stopped as soon as she imagined replacing the item, turning away and leaving the shop.
2(b)	An online questionnaire could be sent to people who have completed covert sensitisation, using closed and open questions, e.g. "Can you now resist the temptation to steal items? Always / sometimes / never" and "Describe how you feel now in a shop where you would previously have given way to temptation." The K-SAS could also be given online before, during and after treatment to compare scores.
2(c)	One strength is that the technique can be used by the patient anywhere and at any time. Once learned, the person can call up the unpleasant imagery themselves whenever they are in a shop and tempted to steal an item, so the treatment continues outside the therapy room. A second strength is that no medication is taken, so the patient cannot become addicted to the treatment or suffer drug side effects, unlike biochemical treatments such as SSRIs or naltrexone. This makes it more ethical and more acceptable to many patients with kleptomania.
	Section A: Consumer Psychology
3(a)	Taste intensity evaluation: participants rated how sharp, how bitter and how mild they expected the product to taste, each on a 7-point scale from "not at all" to "very much so".

Question number	
	Price expectation: participants were asked what they thought the price of the product would be, and gave their answer as an amount in euros, so expected price could be compared across the different package designs.
3(b)	To control for participant variables. Some people are highly sensitive to package design and others ignore it, so low-sensitivity and high-sensitivity participants could be analysed as separate groups. Otherwise their responses might cancel each other out, hiding the real effect of the design.
3(c)	One weakness is that a 7-point scale has a neutral mid-point (4). Participants who are unsure or bored could choose it as an opt-out for many packages, so the effect of the package design (e.g. angular versus round shape) on their ratings would not be measured. A second weakness is that the scale only gives quantitative data. A participant can rate a package as 6 for "bitter", but cannot give the reason for that rating, so the researchers do not find out which feature of the package design caused the expectation.
4(a)	The grid layout is a rectangular arrangement of displays with long aisles that run parallel to one another, as in most supermarkets. It makes efficient use of selling space and gives clear traffic aisles, but it forces customers to follow a set path through the store.
4(b)	A field experiment could be carried out in real stores: shoppers are randomly given one of two layouts (e.g. grid or freeform), asked to find a list of products, and the time taken is recorded. Afterwards they complete a short questionnaire rating their satisfaction with the layout.

Question number	
4(c)	One weakness is that virtual reality can cause simulator sickness, such as dizziness, nausea, headache and eyestrain. This does not happen in a real store, so a participant's low satisfaction with a layout may be caused by the equipment rather than the layout itself. A second weakness is that a virtual store is not real, so findings may not generalise. A virtual layout lacks idiothetic input (the feeling of really walking around a space) and cues such as smell, shape and size of products, which are all present in a real store whatever its layout.
	Section A: Health Psychology
5a(i)	It is longitudinal because the same patients were followed over time: they saw the researchers once a week for six weeks, and their stress was measured with the Leeds General Scale and the profile of mood states at the start and again after six weeks.
5a(ii)	At six weeks, total mood disturbance was significantly lower in the relaxation plus imagery group than in the control group (about 53.9 compared with about 61.4), so the combined intervention group was less stressed.
5(b)	A bar chart, with the three groups (control, relaxation only, relaxation plus imagery) on the x-axis and mean total mood disturbance score on the y-axis. Each group would have two bars side by side, one for the initial score and one for the score at six weeks.
5(c)	One strength is that change in the same person can be measured over time. In Bridge et al., each patient was assessed on the Leeds scale and the profile of mood states at the start and again at six weeks, so any fall in stress could be

Question number	
	seen as the effect of relaxation and imagery. A second strength is that many participant variables stay constant, because the same individuals are compared with themselves. Differences in personality or illness between patients do not affect the before and after comparison, so the conclusion about the treatment is more valid.
6(a)	An objective measure is factual and cannot be disputed, because it does not rely on the patient's own report. For example, if a drug is detected in a blood or urine sample, this is objective evidence that the patient has taken their medication.
6(b)	Pill counting with an electronic dispenser: Chung and Naya (2000) used a TrackCap, which records each time the medicine bottle is opened, so the number of pills taken (assumed from the openings) can be compared with the number prescribed.
6(c)	One weakness is that collecting the data may be invasive. Taking a blood sample to check drug levels involves a needle, which may cause pain or anxiety, so some patients may refuse and adherence cannot be measured for them. A second weakness is that the data collection may be embarrassing, e.g. giving a urine sample or spitting into a salivette. Patients may then not give informed consent, so biological data about their adherence is not collected and the sample becomes biased towards those willing to take part.
	Section A: Organisational Psychology
7a(i)	IV 1: the leader's sex (a male leader or a female leader). IV 2: the leadership style (male stereotypical, i.e. autocratic and task oriented, or female stereotypical, i.e. democratic and relationship oriented).

Question number	
7a(ii)	The leader's competence: after reading about the leader, participants rated how competent the leader was on a 7-point Likert scale from totally disagree to totally agree.
7(b)	A field experiment: workers in their own workplace read the description of the leader and completed the same rating questionnaires during their working day, so the study would take place in a real work environment.
7(c)	One weakness is demand characteristics. Participants know they are taking part in a study, and may guess it is about women in managerial positions, so they may rate the female leader more positively to appear unbiased. A second weakness is low ecological validity. The study takes place in an artificial laboratory at a university with students reading about an imaginary leader, not real workers judging a real manager at work, so people may behave differently from how they would in a real promotion decision.
8(a)	Workplace sabotage is any behaviour by an employee which is intended to cause a production or profit loss for the organisation, for example deliberately slowing work down or destroying machinery.
8(b)	"Explain what you do to release your frustrations when you are at work, and why." This is open, so the worker can describe their own reasons, e.g. revenge on a manager or release of frustration.
8(c)	One weakness is that the worker may not tell the truth, or may exaggerate or play down details, as sabotage is socially undesirable. This could lead the researcher to make inaccurate conclusions about the reasons for sabotage.

Question number

A second weakness is that the worker may be afraid that if they admit to sabotage in a face-to-face interview they will lose their job. What they say about the methods they used may therefore be false, which lowers the validity of the data.

Section B: Clinical Psychology

9(a) Aim: to investigate whether ECT causes problems (side effects) for patients with schizophrenia over six months.

Directional hypothesis: patients with schizophrenia who receive a course of ECT will have lower short-term memory scores and more confusion six months later than patients who do not receive ECT.

Design: a natural (quasi) experiment with an independent measures design. The IV is whether the patient receives ECT or not. ECT is only given where the patient's psychiatrist has already decided it is needed, so no one is denied or given treatment for the study. The DVs are (1) score on a short-term memory test (number of words recalled from a list of 20) and (2) a confusion rating made by a nurse on a scale of 1 to 10.

Sample: 40 adults aged 25 to 60 diagnosed with schizophrenia (ICD-11), from two psychiatric hospitals, selected by opportunity sampling: 20 starting ECT and 20 not receiving it.

Controls: each ECT patient is matched with a non-ECT patient on age, sex, length of illness and symptom severity. Both groups take the same type of antipsychotic medication and no other treatment. The memory test, instructions and testing room are standardised, and the researcher doing the testing does not know which group the patient is in (single blind).

Procedure (longitudinal): every patient is tested before treatment begins, then one week, three months and six months after the course of ECT ends (or at the same

Question number	
	times for the non-ECT group), using different but equivalent word lists each time.
	Ethics: informed consent from the patient, or a relative if the patient is not competent; right to withdraw at any time; data kept confidential using numbers not names; a debrief at the end.
	Analysis: mean and range of memory scores and median confusion ratings for each group at each time, shown on a line graph.
9b(i)	ECT is a biological treatment for schizophrenia. The patient is given a general anaesthetic and a muscle relaxant, then electrodes are placed on the head and electricity is applied either bilaterally (both sides) or unilaterally (one side). This causes a seizure, but the patient only twitches because of the muscle relaxant. The patient is unconscious, then wakes and recovers.
	ECT has problems. 20% to 50% of people who respond well to a course of ECT relapse within six months. Short-term memory loss is often reported, and immediately after treatment the patient is often confused, and this confusion may not be temporary. Many patients also perceive the treatment as terrifying and shameful.
9b(ii)	Feature 1: short-term memory loss and confusion are common side effects of ECT. I used these to choose my two DVs, so "problems" were measured as the number of words recalled from a 20-word list and a nurse's confusion rating, comparing the ECT group with the group without ECT.
	Feature 2: 20% to 50% of patients relapse within six months and confusion may not be temporary. This is why I used a longitudinal design with a final test six months after treatment, so I could see whether the problems lasted rather than only measuring them straight after ECT.
9c(i)	I matched the patients on age, sex, length of illness and severity of symptoms to

Question number	
	control participant variables. Memory naturally gets worse with age and severe illness, so matching makes it more likely that any difference in memory scores is caused by ECT (the IV) and not by the patients being different.
9c(ii)	Participant attrition: over six months some patients may drop out, e.g. leave hospital or relapse and refuse further testing. If those with the worst side effects drop out of the ECT group, the remaining sample would make ECT seem to cause fewer problems than it really does.
9c(iii)	I chose a directional hypothesis because previous research predicts the direction of the effect: short-term memory loss and confusion are often reported after ECT, so I expected the ECT group to score lower on the memory test, not just differently, from the group without ECT.
	Section B: Consumer Psychology
10(a)	Aim: to investigate whether different window displays affect shoppers' intention to shop in a store. Interview technique: face-to-face interviews in a quiet area of a shopping centre, carried out by one trained interviewer. Interview format: semi-structured. Every participant is asked the same fixed questions in the same order, and the interviewer can then ask follow-up questions to explore interesting answers. Materials: four large colour photographs of the same clothing store with different window displays: (A) a themed display with warm colours and lighting on key products, (B) a promotional "SALE" display only, (C) a small display, and (D) no display. The order is counterbalanced across participants. Questions for each photograph: closed, "How much do you like this store exterior?"

Question number	
	(1 = not at all to 5 = very much); "How likely are you to go into this store?" (1 = very unlikely to 5 = very likely). Open: "What is it about this window that makes you want, or not want, to go in?" Follow-up, e.g. "You mentioned the lighting, can you tell me more?"
	Sample: an opportunity sample of 40 shoppers aged 18 and over, 20 male and 20 female.
	Procedure: the interviewer explains the study, gains consent and asks the questions using a standardised script, recording answers on an answer sheet and audio recorder. Each interview lasts about 10 minutes.
	Ethics: informed consent, right to withdraw, no names recorded (confidentiality), and a debrief.
	Analysis: mean liking and intention ratings for each display shown in a bar chart; open answers analysed into themes, e.g. colour, theme, lighting.
10b(i)	Store exterior design includes the storefront, window displays and landscaping. The exterior is what customers first encounter, so it creates a first impression of the store and can attract customers inside. Mower et al. (2012) found that window displays and landscaping increased liking of the store exterior, which in turn increased intention to shop there.
	Research has found that window displays are more successful when they are congruent with the consumer's self-image, and less successful when they contain only promotional or style information. Larger windows attract more attention than smaller ones, and sales increase with a window display compared with none.
	Successful displays are aesthetically pleasing, have a theme, use warm colours and lighting to highlight key areas, and include accessories linked to the products.
10b(ii)	Feature 1: displays that only contain promotional information are less successful than themed displays with warm colours and lighting. I used this to design

Question number	
	photograph A (themed, warm colours, lighting) and photograph B (promotional "SALE" only), so I could compare them in my closed rating questions. Feature 2: larger windows attract more attention than smaller ones, and having a display increases sales compared with no display. So I included photograph C (small display) and D (no display) and asked the open question about why shoppers would or would not go in, to find the reasons behind their ratings.
10c(i)	I used a semi-structured format so all participants got the same fixed rating questions about the four window displays, which can be compared, but I could also ask follow-up questions, e.g. about lighting, that arose during the interview and so find out why a display increased intention to shop.
10c(ii)	Because follow-up questions are asked, some interviews may take much longer than 10 minutes, and shoppers in a busy shopping centre may become impatient or leave. Different follow-up questions also make the four window displays harder to compare across participants.
10c(iii)	I chose face-to-face interviews so that shoppers could look at the four photographs of window displays while answering, which is not possible on the telephone, and so I could note non-verbal responses such as smiling at the themed display.
	Section B: Health Psychology
11(a)	Aim: to investigate the reasons why people attend or fail to attend appointments with a doctor. Technique: a postal questionnaire, sent with an information sheet and a stamped, addressed return envelope.

Question number	
	Sampling technique: random sampling. A medical practice gives every adult patient (aged 18 and over) on its list a number, and a random number generator selects 300 patients, so everyone has an equal chance of being chosen. Question format: mainly closed questions, 20 in total. Section 1: "Have you missed a medical appointment in the last 12 months? Yes / No." Section 2 lists reasons based on the Health Belief Model and rational non-adherence, each rated 1 (strongly disagree) to 5 (strongly agree), e.g. "I do not attend if I think my illness is not serious", "I attend because I believe treatment will help me", "The cost of travel stops me attending", "I forget my appointments". One open question at the end: "Describe any other reason why you have missed or attended an appointment." Procedure: questionnaires are posted with a return date of four weeks; a reminder letter is sent after two weeks. Ethics: consent is given by returning the questionnaire, there is no name on it (anonymity), data are confidential, participants can withdraw by not returning it, and there are contact details for a debrief. Reliability and validity: the questionnaire is piloted with 10 patients to check the questions are clear; standardised written instructions; anonymity reduces social desirability; test-retest with 30 participants two weeks later. Analysis: percentage who missed appointments, mean (and mode) rating for each reason, shown on a bar chart; open answers grouped into themes.
11b(i)	The Health Belief Model says whether a person attends appointments depends on their perceived susceptibility to the illness, its perceived seriousness, the perceived benefits of action compared with the perceived barriers (e.g. cost, time, pain), and cues to action such as a reminder letter. Rational non-adherence means the patient makes a logical decision not to follow medical advice, for example because they think the treatment will be worse than

Question number	
	the illness, or the cost and side effects outweigh the benefits. Laba et al. (2012) found that people weigh up features such as cost, side effects and effectiveness when deciding whether to adhere.
11b(ii)	Feature 1: perceived seriousness from the Health Belief Model. I turned this into the closed rating item "I do not attend if I think my illness is not serious" (1 to 5), so I could measure how far low perceived seriousness explains missed appointments. Feature 2: rational non-adherence is a logical weighing up of costs and benefits. I wrote items such as "The cost of travel stops me attending" and "I attend because I believe treatment will help me", so the questionnaire measures both reasons for failing to attend and reasons for attending.
11c(i)	I used closed questions with a 1 to 5 scale because answers are in the same format for all 300 participants, so they are quick to score and the mean rating for each reason for missing appointments can be compared to find the most common reason.
11c(ii)	A postal questionnaire may be treated like junk mail and thrown away, or started and then forgotten. People who miss medical appointments may also be the people least likely to return it, so the response rate would be low and the sample biased towards those who attend.
11c(iii)	I chose a random sample from the practice list because every adult patient has an equal chance of being chosen, so the sample is not biased by me, and it is more likely to include both people who attend and people who fail to attend, making it more representative.

Question number

Section B: Organisational Psychology

12(a)

Aim: to find the most common way assembly-line workers sabotage machinery.

Type: a structured, naturalistic, non-participant, covert observation using the factory's existing CCTV in a car parts assembly-line factory, over four weeks.

Behavioural categories (based on Giacalone and Rosenfeld): (1) work slowdown: deliberately running a machine slower than the set speed; (2) destruction of machinery: hitting, jamming or inserting objects into a machine; (3) "forgetting": leaving a switch on or off, or not doing safety checks; (4) causing chaos: changing machine settings without permission; (5) dishonesty: removing machine parts or tools.

Sampling of behaviour: event sampling, so a tally is made each time a behaviour in a category happens.

Steps for reliability: two trained observers each watch the same footage separately using the same tally chart and written definitions of each category; they practise in a pilot study on one day of footage first. Inter-rater reliability is checked by correlating their tallies, which should be +0.8 or more. The same shifts (two day and two night shifts each week) are coded each week.

Ethics: permission from the factory manager and workers' representatives; workers already know CCTV is used; no worker is identified to management, so no one can lose their job; footage destroyed after coding.

Analysis: total frequency of each category, presented in a bar chart; the mode is the most common way of sabotaging machinery.

12b(i)

Giacalone and Rosenfeld (1987) studied workplace sabotage. They identified four main types (forms) of sabotage: work slowdown; destruction of machinery, premises or products; dishonesty; and causing chaos. They listed 29 forms of sabotage, such as creating work slowdowns, "forgetting" to turn a switch on or off,

Question number	
	and stealing to make up for poor pay. They also identified 11 reasons for sabotage, including revenge, release of frustration and protecting one's job, and found that workers saw some reasons, such as protecting themselves, as more justifiable than others.
12b(ii)	Feature 1: the four types of sabotage. I used these as my behavioural categories (work slowdown, destruction of machinery, causing chaos, dishonesty) and made them specific to machinery, e.g. jamming a machine, so each act seen on the CCTV could be coded. Feature 2: the 29 forms include "forgetting" to turn a switch on or off. I added this as its own category, because on an assembly line it would be a hidden way to stop a machine, and two observers tallied it so I could see if it was the most common method.
12c(i)	I used behavioural categories because they could be agreed and defined before the observation started, so both observers knew exactly what counted as, for example, "destruction of machinery", which reduces ambiguity when tallying acts seen on the CCTV.
12c(ii)	Some acts of sabotage seen on the CCTV may not fit any category, e.g. a new method not listed, so they would have to be excluded. Also, an act such as a slow machine may be ambiguous, as it could be accidental, so it is hard to decide whether it is sabotage.
12c(iii)	I used two observers so inter-rater reliability could be checked. If both observers' tallies for each category of machinery sabotage correlate highly, the categories are being applied consistently, so the most common method found is not just one observer's opinion.