Cambridge Assessment International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/42**

Paper 4 Specialist Options: Application and Research Methods **February/March 2024**

1 hour 30 minutes

5122724452

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 From the key study by Grant et al. (2008) on treating gambling disorder with drugs and placebo:

(a) Explain what is meant by a double-blind, placebo-controlled trial as used in this study. [4]

(b) Suggest **one** effect if a double-blind trial had **not** been used in this study. [2]

(c) Explain **two** strengths of conducting placebo-controlled trials in studies of gambling disorder. [4]

2 Generalised anxiety disorder can be assessed using the GAD-7.

(a) Outline how answers are scored on the GAD-7 scale. [2]

(b) Suggest how the validity of the GAD-7 could be tested. [2]

(c) Explain **one** strength and **one** weakness of the GAD-7 scale. [4]

Consumer Psychology

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

3 From the key study by North et al. (2003) on musical style and restaurant customers' spending:

(a) **(i)** Outline **two** variables within the restaurant that were controlled, other than the music CDs. [2]

(ii) Describe how counterbalancing was used in this study. [2]

(b) Suggest **one** effect if counterbalancing had **not** been used in this study. [2]

(c) Explain **two** strengths of controlling the music CDs. [4]

4 Menu item choice can be affected by both primacy and recency.

(a) Explain what is meant by primacy in relation to menu item choice. [2]

(b) Suggest **one** feature of a menu that might affect item choice, other than primacy or recency. [2]

(c) Explain **one** strength and **one** weakness of conducting a study on menu item choice in a laboratory. [4]

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Health Psychology

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

5 From the key study by Yokley and Glenwick (1984) on improving medical adherence using community interventions:

(a) **(i)** Describe **one** cause of confounding identified by Yokley and Glenwick. [2]

(ii) Explain what was done in the study by Yokley and Glenwick to prevent confounding. [2]

(b) Suggest **one** strategy for promoting health that could be used to improve medical adherence, other than the strategy used by Yokley and Glenwick. [2]

(c) Explain **two** strengths of conducting field experiments to study participation in immunisation interventions in communities. [4]

6 **(a)** Explain what is meant by 'mirror treatment' for phantom limb pain. [2]

(b) Suggest **one** biological/biochemical way in which phantom limb pain can be treated. [2]

(c) Explain **two** strengths of mirror treatment for phantom limb pain. [4]

Organisational Psychology

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

7 From the key study by Claypoole and Szalma (2019) on electronic performance monitoring:

(a) Describe how the **two** forms of electronic presence were used in this study. [4]

(b) Suggest **one** way in which worker performance could be monitored, other than electronic presence. [2]

(c) Explain **one** strength and **one** weakness of conducting a study on electronic performance monitoring, using students as participants. [4]

8 **(a)** Describe how data was collected in **one** study about the impact of the design of the work environment on people who work in open plan offices (e.g. Oldham and Brass, 1979). [2]

(b) Suggest how **one** job characteristic might be affected by a move to a different type of office. [2]

(c) Explain **one** strength and **one** weakness of the way that data was collected in the study you described in part **(a)**. [4]

Section B

Answer **one** question from this section.

Clinical Psychology

9 **(a)** Plan a covert observation to investigate the effectiveness of covert sensitisation for treating kleptomania.

Your plan must include details about:
- structured observation or unstructured observation
- 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 structured observation or unstructured observation. [2]

(ii) Explain **one** strength of using covert observation in your study. [2]

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

Consumer Psychology

10 Wayfinding is affected by factors such as signs and 'you are here' maps.

(a) Plan a study using a questionnaire to investigate whether the use of signs is more effective than 'you are here' maps when wayfinding in a shopping mall.

Your plan must include details about:
- sampling technique
- question format. [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 sampling technique. [2]

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

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

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Health Psychology

11 **(a)** Plan a field experiment to investigate which psychological treatment is the **most** effective for managing pain.

Your plan must include details about:
- experimental design
- 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 experimental design. [2]

(ii) Explain **one** weakness of your choice of experimental design. [2]

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

Organisational Psychology

12 Within each 24-hour period, workers in different offices have different work patterns: workers in Office A work 8 hours (9 am–5 pm); workers in Office B work 8 hours flexitime.

(a) Plan a study using an interview to investigate which work pattern gives workers more job satisfaction.

Your plan must include details about:
- interview technique
- question scoring/interpretation. [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** weakness of your choice of interview technique. [2]

(iii) Explain **one** reason for your choice of question scoring/interpretation. [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

Section A: Clinical Psychology

1(a) Double-blind means that neither the participants nor the researchers giving the capsules and measuring the gambling symptoms knew which condition each participant was in. So a participant with gambling disorder could be in a nalmefene group or in the placebo group, and neither they nor the researcher would know which.

Placebo-controlled means that a control group received a placebo, a capsule that looked the same as the nalmefene but contained no active drug, so it had no real effect. These participants could believe they were taking the medication, so their improvement could be compared with that of the drug groups.

1(b) There could be participant bias. If a participant knew they were in the placebo group rather than the nalmefene group, they might expect no change and report stronger urges to gamble, or try to please the researcher, so differences in symptom scores would not be due to the drug alone.

1(c) One strength is that the placebo group gives a baseline. The gambling symptom scores of the nalmefene groups can be compared with the placebo group, so the real effectiveness of the drug on gambling disorder, beyond any improvement over time, can be revealed.

A second strength is that participants in the placebo group take an identical capsule, so they behave as if they were in the drug group because they do not know whether they are taking nalmefene or the placebo. This means expectation effects are equal in both groups, so any difference is due to the drug itself.

Question number	
2(a)	Each of the 7 items is answered on a four-point scale: 0 = not at all, 1 = several days, 2 = more than half the days, 3 = nearly every day (over the last two weeks). The item scores are added to give a total from 0 to 21, with higher scores showing more severe anxiety.
2(b)	Criterion validity could be tested by giving a group of people both the GAD-7 and another established measure of generalised anxiety, or a clinician's diagnosis. If the two sets of scores show a strong positive correlation, the GAD-7 could be said to be valid.
2(c)	Strength: it is easy to use and not complex, as there are only 7 questions and the same 0 to 3 scoring is used for every item, so it can be completed and scored quickly, e.g. by a doctor in a short appointment. Weakness: the wording is ambiguous. A term such as "several days" may mean two days to one person and five days to another, so two people with the same level of anxiety could give different answers and get different scores.
	Section A: Consumer Psychology
3a(i)	The lighting in the restaurant was kept at the same level throughout the study. The menu was not changed, e.g. there was no change in prices or items.
3a(ii)	A Latin square design was used, so each music condition (classical, pop and no music) was played on each day of the week across the weeks of the study. This meant no type of music was always played on the same day.
3(b)	The day of the week could have confounded the results. If classical music had

Question number	
	always been played on a Saturday, customers might have spent more because people spend more at weekends, not because of the music.
3(c)	One strength is that no customer heard the same piece of music twice, because two 76-minute CDs were prepared for each music condition. This means repetition could not affect customers, so spending is more likely to be due to the style of music (the IV), increasing validity. A second strength is that the music was played at a constant background volume on the restaurant's usual CD system, so loudness could not attract more attention in one condition than another. The DV (amount spent) is therefore more likely to be due to musical style.
4(a)	Primacy is when items at the beginning of a list are more likely to be recalled and chosen. On a menu, people order an item simply because it is the first thing they see, e.g. the first dish listed in a category.
4(b)	The use of bold print or highlighting. A dish printed in bold or in a highlighted box would stand out compared with the other items, so the customer's eye is drawn to it and it is more likely to be chosen.
4(c)	Strength: variables can be controlled, so every participant sees exactly the same menu items in the same order and position, and only the variable being tested (e.g. item position) is changed. This means differences in choice are due to the IV. Weakness: the environment is artificial. The participant is not choosing from a menu in a restaurant because they are hungry, and there is no sight or smell of food, so their choices may not reflect real ordering.

Question number	
	Section A: Health Psychology
5a(i)	Confounding may have resulted if individual children had been targeted, because children in the same family could have received different mail prompts emphasising different things, so the effect of one prompt could not be separated from another.
5a(ii)	Instead of individual children, whole families were targeted and randomly assigned to one of the six conditions, which meant that only one type of prompt was sent to each family.
5(b)	Fear arousal could be used, as in the study by Janis and Feshbach, by showing parents the serious illnesses that can result if children are not immunised, so they are scared into adhering to the vaccination programme.
5(c)	One strength is that the setting is natural, so there is high ecological validity. Families receive the mailing about immunisation in their own home, just like any other mail, so their response reflects real life. A second strength is that participants behave naturally because they do not know they are taking part in a study. Parents decide whether to take their children for immunisation according to their own beliefs, so there are fewer demand characteristics.
6(a)	A mirror (mirror box) is placed so that the patient sees the reflection of their intact limb where the missing limb would be. When they move the good limb, it looks as if the phantom limb is moving too, and as the good limb is not in pain the phantom limb feels less pain, e.g. the case of Alan (MacLachlan et al., 2004).
6(b)	TENS (transcutaneous electrical nerve stimulation): low-voltage electric currents

Question number	
	are applied to the skin near the stump, which is thought to stimulate the release of endorphins that help to manage the pain.
6(c)	One strength is that it has no side effects or risk of addiction, unlike biochemical treatments such as painkilling drugs, which a person with chronic phantom limb pain might otherwise need to take for years. A second strength is that it can be done by the person at home, so they can actively use the mirror whenever they need relief from their phantom limb pain, without needing a clinic or a therapist.
	Section A: Organisational Psychology
7(a)	In the electronic presence condition there were two forms of electronic presence, a webcam and a video recorder. The webcam was placed on top of the computer screen, and participants were told it was used to monitor their performance and engagement while they completed the task. The video recorder was placed on a tripod about 110 cm tall, one metre behind the participant at a 45-degree angle, to record the participant's performance so that it could be evaluated later.
7(b)	A covert observation, e.g. a trained observer hidden among the workers records how many tasks each worker completes per hour, so a record is taken of natural worker behaviour.
7(c)	Strength: students are readily available and the sample is standardised, so different types of monitoring can be changed and trialled without affecting real workers or organisations.

Question number	
	Weakness: students may have little or no experience of real work environments, so the results on the effects of electronic monitoring may not generalise to real workers in different organisations.
8(a)	Oldham and Brass (1979) used a longitudinal design: employees of a newspaper office completed closed questionnaires with 7-point scales, once before the move to an open plan office (baseline) and twice after the move, to assess changes in job characteristics such as autonomy and friendship opportunities.
8(b)	Autonomy could be reduced by a move to an open plan office, because supervisors can see every worker at all times, so workers feel they have less freedom to decide how and when to do their tasks.
8(c)	Strength: the same participants were measured over time, before the move and at two points after it, so changes can be linked to the move rather than to differences between people (participant variables). Weakness: participants may drop out. A worker might complete the baseline questionnaire but leave the company before the later measures because they dislike the open plan office, which could bias the results.
	Section B: Clinical Psychology
9(a)	Aim: to investigate whether covert sensitisation is effective in treating kleptomania. Hypothesis: participants will show fewer stealing-related behaviours in a shop after covert sensitisation than before it. Participants: 20 adults diagnosed with kleptomania who are about to start covert sensitisation at a clinic; opportunity sample. Repeated measures: each is observed before treatment and one month after it ends.

Question number	
	Procedure: a controlled, covert, non-participant observation. Each participant is asked to visit a mock shop set up at the clinic, with real items on shelves, to "help evaluate the clinic's new waiting area". Hidden cameras record a 15-minute visit. All items are clinic property, so no real theft can occur. Structured observation using behavioural categories in a checklist, with event sampling (tally each time): picks up an item; puts an item in a pocket or bag; looks around to check if watched; replaces an item on the shelf; leaves without taking anything. Steps for reliability: the same mock shop, items, time and standardised instructions for everyone; two trained observers watch the recordings independently, and inter-rater reliability is checked with a correlation (above +0.8). Observers practise the categories in a pilot study first. Ethics: informed consent is gained for "being observed during treatment" before the study, with a full debrief afterwards and the right to withdraw their recordings; confidentiality, with numbers not names; footage is deleted after coding; participants are not punished for anything they take. Data: quantitative tallies; mean number of times each behaviour occurs before and after treatment, shown in a bar chart.
9b(i)	Covert sensitisation is a form of behaviour therapy in which an undesirable behaviour is paired with an unpleasant image in order to eliminate the behaviour. Kleptomania is the repetitive, uncontrollable stealing of items that are not needed for personal use. Glover (1985) treated a woman with kleptomania. She was taught muscle relaxation, then asked to imagine approaching an item in a shop she intended to steal while feeling increasingly nauseous, and vomiting as she took it. The nausea stopped when she imagined replacing the item and leaving. Her stealing stopped.

Question number	
9b(ii)	Feature 1: in Glover's therapy the patient imagined stealing an item in a shop. I used this to set the observation in a mock shop with real items, so the situation matches the one the therapy targets. Feature 2: the imagery stopped when she imagined replacing the item and leaving the shop. I used this to make "replaces an item on the shelf" and "leaves without taking anything" behavioural categories, so success of the treatment can be counted.
9c(i)	I chose a structured observation because the checklist of behavioural categories means both observers record the same behaviours, e.g. "puts an item in a pocket", so the before and after tallies can be compared reliably.
9c(ii)	Because the cameras are hidden, participants do not know they are being watched in the mock shop, so they will not hide their urge to steal because of social desirability, giving a true picture of their behaviour.
9c(iii)	I used two independent observers so that inter-rater reliability can be assessed. If their tallies for each participant correlate strongly, the categories are being applied consistently and not just as one person sees them.
	Section B: Consumer Psychology
10(a)	Aim: to investigate whether signs are more effective than "you are here" maps for wayfinding in a shopping mall. Hypothesis: shoppers will rate signs as more helpful for finding their way than "you are here" maps. Sampling: opportunity sample of 100 adult shoppers (18+) approached at the main exits of one large mall on different days and times (weekday and weekend, morning and evening).

Question number	
	Technique: paper and pencil questionnaire, 12 questions, completed on a clipboard in a quiet seating area, with standardised instructions; it takes about 5 minutes. Question format: mostly closed questions with a 5-point scale (1 = strongly disagree, 5 = strongly agree), e.g. "The signs helped me find the store I wanted", "The 'you are here' map helped me find the store I wanted". Also forced choice: "Which helped you most today? signs / map / neither", and "Every time I turn a corner, I know which direction I am facing: always / sometimes / never". One open question: "Describe any place you found hard to find and why." Scoring: ratings for the 5 sign items and 5 map items are totalled separately (5 to 25 each) and compared; the open answers are coded into themes, e.g. "sign missing". Ethics: informed consent, right to withdraw, anonymous questionnaires, debrief. Reliability and validity: pilot study; questions about signs and maps are mixed in order; same instructions for all. Analysis: mean and median score for signs versus maps, percentages for the forced choice, bar chart.
10b(i)	Dogu and Erkip (2000) carried out a case study in a shopping mall in Turkey on the factors affecting wayfinding, such as building configuration, visual accessibility, circulation systems and signage, including "you are here" maps. Shoppers completed questionnaires with closed questions, e.g. "Every time I turn a corner, I know which direction I am facing" with answers always/sometimes/never. People did not find the signage sufficient; although the mall was easy overall, they needed better ways to find places such as restrooms that were not visually accessible.
10b(ii)	Feature 1: Dogu and Erkip used closed questions answered by shoppers in the mall. I used the same approach and included their question about knowing which direction you face, but added 5-point rating items for signs and maps so the two

Question number	
	could be compared directly.
	Feature 2: they found people struggled to find places that were not visually accessible. I used this to add an open question asking which places were hard to find and why, so I can see whether signs or maps helped there.
10c(i)	I chose an opportunity sample because a large number of shoppers (100) can be obtained easily by approaching people as they leave the mall, when they have just used the signs and maps.
10c(ii)	There may be researcher bias, as the researcher may approach shoppers who "look appropriate" or friendly, e.g. not those in a hurry, so the sample may not represent all mall shoppers.
10c(iii)	I used closed rating questions because the answers are in the same format for all 100 shoppers, so they are easy to score and the total for signs can be compared statistically with the total for maps.
	Section B: Health Psychology
11(a)	Aim: to investigate which psychological treatment is most effective for managing pain. Non-directional hypothesis: there will be a difference in pain ratings between patients using attention diversion, non-pain imagery, cognitive redefinition and no psychological treatment.
	Field experiment in a hospital physiotherapy department, during patients' usual 30-minute knee exercise sessions after knee surgery. Participants: 80 adult patients, volunteer sample from a poster on the ward.
	Design: independent measures; participants are randomly allocated (numbers drawn from a hat) to one of four groups of 20. IV: type of treatment. Attention

Question number	
	diversion: watching a comedy programme on a tablet during the session. Non-pain imagery: imagining a relaxing beach scene, led by a recorded script. Cognitive redefinition: repeating prepared positive statements, e.g. "This pain means my knee is getting stronger". Control: usual session only. DV: pain rating on a 0 to 10 scale (0 = no pain, 10 = worst pain imaginable) given straight after the session. Controls: same exercises, length of session, time of day and physiotherapist; usual pain medication kept the same for all; single-blind, as the person recording ratings does not know the group. Ethics: informed consent, right to withdraw, no extra pain is caused, confidentiality, debrief; the control group is offered the most effective technique afterwards. Analysis: mean and median pain rating for each group, shown in a bar chart.
11b(i)	Psychological treatments for pain are cognitive strategies. In attention diversion a person focuses on a non-related stimulus to be distracted from the discomfort; it can be passive (e.g. watching television) or active (e.g. singing a song). In non-pain imagery a person tries to reduce discomfort by imagining a mental scene that is unrelated to or incompatible with the pain. In cognitive redefinition a person replaces negative thoughts about the pain with positive ones, e.g. "it's not the worst thing that could happen to me".
11b(ii)	Feature 1: attention diversion can be passive, such as watching television. I used this as one level of the IV, with patients watching a comedy programme on a tablet during their exercise session. Feature 2: cognitive redefinition replaces negative thoughts with constructive ones. I used this by giving the patients written positive statements about their knee to repeat during the exercises.

Question number	
11c(i)	I chose independent measures because each patient only learns one technique, so one treatment group can be compared directly with another and with the control, without learning one strategy affecting another.
11c(ii)	There is no control over participant variables, e.g. one group might by chance contain more patients with a high pain tolerance or less serious surgery, which would lower that group's pain ratings.
11c(iii)	I chose a non-directional hypothesis because there is no clear evidence about which of the three techniques is best for pain after knee surgery, so I could only predict that there would be a difference between groups.
	Section B: Organisational Psychology
12(a)	Aim: to investigate whether workers on 9 am to 5 pm hours (Office A) or flexitime (Office B) have more job satisfaction. Hypothesis: workers on flexitime will have higher job satisfaction scores than 9 am to 5 pm workers. Sample: 30 workers from each office (60 in total) doing the same type of job, chosen by random sampling from staff lists (names drawn from a hat). Independent groups. Interview technique: face-to-face, semi-structured interview in a private room at work, lasting about 20 minutes, by one trained interviewer using a standardised script. Questions: 8 closed questions on a 5-point scale (1 = very dissatisfied to 5 = very satisfied), e.g. "How satisfied are you with your working hours?", "How satisfied are you with the balance between work and home?", "How satisfied are you with your control over when you work?" Then 3 open questions, e.g. "What do you like

Question number	
	most about your work pattern?", with follow-up questions if needed.
	Scoring/interpretation: closed scores are added (8 to 40); a higher score means more job satisfaction. Open answers are recorded, transcribed and coded by two raters into themes such as "freedom" or "fatigue", and each theme is counted.
	Ethics: informed consent; right to withdraw; confidentiality, managers will not see individual answers; debrief.
	Reliability and validity: pilot interviews; same script for all; inter-rater reliability for coding. Analysis: mean and median score for each office, bar chart.
12b(i)	Many people work 9 am to 5 pm because of convention: it is the way it has always been, everyone travels at the same time, and it fits with school hours, making society organised.
	Flexitime means people work the same number of hours per week but can choose when they work, e.g. 7 am to 3 pm or 11 am to 7 pm, so they can organise their own time. Job satisfaction can result if workers choose their own hours, linked to Herzberg's motivator of responsibility.
12b(ii)	Feature 1: flexitime lets people choose when to work and organise their own time. I used this to write the question "How satisfied are you with your control over when you work?" so this can be compared across offices.
	Feature 2: responsibility as a motivator. I used this in the open question about what workers like most about their work pattern, and coded answers mentioning freedom or responsibility as a theme.
12c(i)	I chose face-to-face interviews so that the interviewer can note non-verbal responses, e.g. a worker frowning when asked about their hours, and use follow-up questions to explore this.

Question number	
12c(ii)	Answers may not be truthful because the interviewer can see the worker, so a worker may give socially desirable answers, e.g. saying they are satisfied with 9 am to 5 pm hours in case managers find out.
12c(iii)	I used a 5-point scale so that the answer choice is simple for workers and each worker gets a total score, so scores of Office A and Office B can be compared to see which work pattern gives more job satisfaction.