

Please write clearly in block capitals.

Centre number

--	--	--	--	--

Candidate number

--	--	--	--

Surname

StemUp Model Solution

Forename(s)

Candidate signature

I declare this is my own work.

A-level PSYCHOLOGY

Paper 2 Psychology in context

Thursday 25 May 2023

Afternoon

Time allowed: 2 hours

Materials

For this paper you may use:

- a calculator.

Instructions

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do **not** write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 96.
- Questions should be answered in continuous prose. You will be assessed on your ability to:
 - use good English
 - organise information clearly
 - use specialist vocabulary where appropriate.

For Examiner's Use

Section

Mark

A

B

C

TOTAL



J U N 2 3 7 1 8 2 2 0 1

Section A

Approaches in psychology

Answer **all** questions in this section.Only **one** answer per question is allowed.

For each question completely fill in the circle alongside the appropriate answer.

CORRECT METHOD



WRONG METHODS



If you want to change your answer you must cross out your original answer as shown.



If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown.

**0 1** Which of the following statements is correct according to the psychodynamic approach?Shade **one** circle only.**[1 mark]****A** The ego is present at birth.**B** The id is based on the morality principle.**C** The id is part of the unconscious mind.**D** The superego mediates between the demands of the id and ego.**0 2** State **one** assumption of the cognitive approach.**[1 mark]**

Internal mental processes such as memory and perception can be studied scientifically by making inferences from behaviour.



Steph and Georgie are both working mothers.

Steph enjoys being challenged at work. Steph's daughter listens to her mother's colleagues praising and admiring Steph's work and sees the awards she has been presented with in recognition of her effort. Steph's daughter is an enthusiastic student who is keen to be challenged at school.

Georgie hates her job. Her daughter has heard her boss shout at her down the phone for missing deadlines and sees how tired Georgie is after staying up late working. Georgie's daughter feels anxious when she is given difficult work and does not want to go to school.

0 3

How might vicarious reinforcement explain the different attitudes of Steph's and Georgie's daughters to their schoolwork?

[4 marks]

Steph's daughter observes her mother, a role model she identifies with, being praised, admired and given awards for challenging work. She experiences this positive reinforcement indirectly (vicarious reinforcement), so she expects that working hard at challenging tasks will also be rewarded for her, and she is enthusiastic about being challenged at school.

Georgie's daughter observes her mother being shouted at by her boss for missing deadlines and seeing how tired and unhappy hard work makes her. She experiences this punishment vicariously, so she expects difficult work to

Extra space *lead to negative consequences, which is why she feels anxious about difficult work and does not want to go to school.*

Turn over for the next question

Turn over ►



0 4

Explain **one** strength **and** **one** limitation of using social learning theory to explain the different attitudes of Steph's and Georgie's daughters.

[6 marks]

A strength is that SLT is supported by research evidence. Bandura (1961) showed that children imitated aggression after observing an adult model, showing children learn by observing adults. This suggests Steph's and Georgie's daughters could have learned their different attitudes to schoolwork by observing their mothers, who are powerful role models, and the consequences of their work.

A limitation is that SLT is too simplistic as it focuses on nurture and ignores biological influences such as genes and hormones. Georgie's daughter may have inherited a more anxious temperament, so giving her positive role models such as enthusiastic teachers may not change her attitude, and Georgie may be wrongly blamed and made to feel guilty.

0 5

In what ways might the biological approach explain the different attitudes of Steph's and Georgie's daughters to their schoolwork?

[4 marks]

The biological approach suggests the daughters' attitudes may be due to their different genotypes. Steph's daughter may have inherited genes from her mother that make her more resilient to stress, whereas Georgie's daughter may have inherited genes that make her more vulnerable to anxiety.

Neurochemistry may also differ: Steph's daughter may release more dopamine when she succeeds, so challenge feels rewarding, whereas Georgie's daughter may have lower serotonin, causing anxiety.



0 6

Outline and briefly discuss cognitive neuroscience.

[8 marks]

Cognitive neuroscience is the scientific study of the influence of brain structures and neurochemistry on mental processes such as memory, perception and emotion. It aims to identify the neurobiological basis of thought processes and mental disorders. The term was coined by George Miller and Michael Gazzaniga in the 1970s, and the field has grown with improvements in brain scanning technology such as fMRI and PET scans, which show which areas of the brain are active during particular cognitive tasks.

A strength is that cognitive neuroscience is scientific and objective. Scans give measurable, replicable data rather than relying on inferences from behaviour. For example, Tulving (1994) used PET scans to show that episodic memories were associated with activity in the prefrontal cortex, and Burnett et al. (2009) identified a neural network associated with guilt. This gives the cognitive approach greater credibility.

It also has useful applications. It has identified the neurobiological basis of disorders, for example the parahippocampal gyrus in OCD, leading to new therapies and reducing blame and stigma, and it allows early identification of cognitive problems before behavioural symptoms appear, so early intervention is possible.

However, there are ethical concerns, such as the controversial use of brain scans for lie detection in court. Also, findings are correlational: activity in an area during a task does not prove that area causes the process, and scanning tasks are artificial. Finally, it may be reductionist, explaining complex experience in terms of brain activity, although it also shows brain plasticity, supporting the role of experience and showing biology is not

Turn over ►



destiny.

Do not write
outside the
box

Extra space



Section B**Biopsychology**

Answer **all** questions in this section.

Biological rhythms are influenced by endogenous pacemakers and exogenous zeitgebers.

0 7

Outline the difference between endogenous pacemakers and exogenous zeitgebers. Use examples in your answer.

[2 marks]

Endogenous pacemakers are internal body clocks that regulate biological rhythms, e.g. the SCN controls the sleep/wake cycle. Exogenous zeitgebers are external cues that reset (entrain) these rhythms, e.g. light.

Xavier was cycling to school when he fell off his bike into the road. A teacher saw a car swerve, narrowly missing Xavier. The teacher checked Xavier was safe and asked him what had happened.

Xavier could hardly speak; his heart was pounding, and his mouth was dry. He felt sick and his hands were shaking. It took Xavier 20 minutes to feel calm again.

0 8

Outline the fight or flight response and use this to explain what Xavier was experiencing.

[6 marks]

The fight or flight response is triggered when the hypothalamus detects a threat and activates the sympathetic branch of the autonomic nervous system. The sympathetic nervous system stimulates the adrenal medulla, which releases adrenaline (and noradrenaline) into the bloodstream.

Adrenaline increases heart rate, breathing rate and blood flow to the muscles, releases glucose for energy, inhibits salivation and digestion, and prepares the body to fight or flee.

When the car swerved, Xavier's sympathetic nervous system was aroused. Adrenaline increased his heart rate, so his heart was pounding, and inhibited saliva production, so his mouth was dry. Digestion was inhibited, which explains why he felt sick, and increased muscle tension and blood flow to

Turn over ►



the muscles made his hands shake. Once the threat had passed, his

Extra space *parasympathetic nervous system dampened the response (rest and digest), returning his heart rate to normal, which is why he felt calm after 20 minutes.*

Xavier was not wearing a helmet. The teacher told him how lucky he was not to have suffered brain damage. She told him about a man who had been cycling without a helmet. He had fallen off his bicycle and now found it difficult to produce speech.

Xavier laughed and said, "I am young. If I had an accident, my brain would just recover on its own and get me back to normal."

0 9

Discuss research into plasticity and functional recovery of the brain after trauma. Refer to the views of the teacher and Xavier in your answer.

[16 marks]

You may use this space to plan your answer.

Brain plasticity is the brain's ability to change its structure and function as a result of experience. Functional recovery is a form of plasticity in which, after trauma such as a head injury or stroke, the brain recovers abilities that were lost. Undamaged areas can take over functions of damaged areas through neuronal unmasking, where dormant synapses are activated to open connections to regions that are not normally active. Structural changes support this, including axonal sprouting (new nerve endings grow to connect with undamaged neurons), reformation of blood vessels, denervation super-sensitivity, and recruitment of homologous areas on the opposite



hemisphere to do specific tasks.

The teacher is right that brain damage can have lasting effects. The man probably has damage to Broca's area in the left frontal lobe, causing Broca's aphasia, slow and effortful speech production. Recovery is not always complete and depends on the location and extent of the damage and the level of rehabilitation, such as speech therapy. Xavier is partly right: research shows neural reorganisation is greater in children than adults, so young brains are more plastic. However, he is wrong that his brain would recover "on its own": recovery is not passive and depends on internal and external factors over time.

Support for Xavier's view comes from the case of E.B. (Danelli et al., 2013), a boy who had most of his left hemisphere removed at the age of two and a half because of a tumour. By 17 his language ability was almost normal, as his right hemisphere had taken over language functions, showing the young brain's remarkable plasticity. Elbert et al. (2001) also concluded that the capacity for neural reorganisation is much greater in children than adults. However, E.B. is a single case study, so the findings may not generalise, and recovery after surgery may differ from recovery after a traumatic accident.

Plasticity is not only for the young. Bezzola et al. (2012) found that 40 hours of golf training produced changes in the motor cortex of adults aged 40 to 60, which suggests that the man could still regain some speech with practice. Recovery also depends on individual differences. Schneider et al. (2014) found that patients with more years of education, and so more cognitive reserve, were far more likely to achieve disability-free recovery after traumatic brain injury (around 40% of those with 16 or more years of education, compared with about 10% of those with fewer than 12). This

Turn over ►



means Xavier cannot assume recovery, since factors such as education and age both matter.

Research into plasticity has practical applications. It has contributed to neurorehabilitation, such as physiotherapy, speech therapy and constraint-induced movement therapy, which shows that recovery needs active intervention rather than happening by itself, supporting the teacher. However, much early evidence comes from animal studies, such as Hubel and Wiesel (1963), who sewed one eye of kittens shut and found the visual cortex for that eye was taken over by the other eye. Human brains are more complex, so generalising is questionable. In addition, case studies often lack measures of ability before the injury, so the true extent of recovery is hard to judge. Overall, research suggests Xavier is right that youth helps recovery, but the teacher is right that recovery is not guaranteed, so wearing a helmet is sensible.

Extra space



[illegible]

Turn over ►



Section C

Research methods

Answer **all** questions in this section.

A psychologist wanted to investigate whether exercise would affect stress levels in 15-year-olds. Previous research into the effects of exercise on stress in teenagers had shown that exercise decreased stress levels.

The psychologist decided to use a repeated measures design to investigate the effects of exercise on stress levels in 20 15-year-old students. All the students were approaching their end-of-year exams.

For **Condition A**, students were required to complete a 2 km run during their morning breaktime each school day for one week.

In **Condition B**, students continued their normal activities in the playground during their morning breaktime each school day for one week.

At the end of each week of the investigation, for both **Condition A** and **Condition B**, each student was asked to rate their levels of stress on a rating scale of 1–10, where the higher the self-reported rating the greater the stress levels.

1 0

Which of the following types of hypothesis is **not** appropriate for the psychologist to use in their study?

Shade **one** circle only.

[1 mark]

A Directional hypothesis

☐

B Non-directional hypothesis

☒

C Null hypothesis

☐

D One-tailed hypothesis

☐


1 1

Explain why a repeated measures design was more appropriate than an independent groups design in this study.

[2 marks]

A repeated measures design controls participant variables such as individual differences in baseline stress, fitness or attitude to sport, so the psychologist can be more certain any difference in stress is due to the 2 km run.

To improve the validity of the findings, the psychologist counterbalanced the students across the experimental conditions.

1 2

Describe how the psychologist could have counterbalanced the students across the experimental conditions.

[3 marks]

*Divide the 20 students into two groups of 10.
Group 1 does Condition A (the daily 2 km breaktime run) for one week, then Condition B (normal breaktime activities) the next week.
Group 2 does Condition B first, followed by Condition A.*

Students self-reported their stress levels on a scale of 1–10.

1 3

Explain how this might have affected the validity of the data collected.

[4 marks]

Students may not rate their stress truthfully because of social desirability bias or demand characteristics, e.g. reporting lower stress after the run because they guess the aim, which reduces the validity of the stress ratings.

Also, stress is subjective, so one student may rate a slight level of stress as 8 while another with similar stress gives 6, so ratings are not comparable. However, self-report may be more valid than observation, as only the students know how stressed they really feel.

Turn over ►

1 4Explain **one** strength **and one** limitation of collecting quantitative data in this study.**[4 marks]**

Strength: quantitative data, such as the 1 to 10 stress ratings, is objective and easy to analyse statistically, so the effect of the 2 km breaktime run on stress levels can be compared and assessed easily.

Limitation: a single number is too restrictive, as it does not show the type, context or causes of each student's stress (e.g. exam worry), so it lacks depth and may reduce the validity of the data.

The psychologist calculated the median and range of stress ratings after each condition. This data is presented in **Table 1**.

Table 1 Median and range of stress ratings reported in each experimental condition

	Condition A (2 km breaktime run)	Condition B (normal breaktime activities)
Median stress levels	5	6.5
Range	6	3

1 5

What do the median and range values presented in **Table 1** suggest about the students' stress ratings after each condition? Justify your answer.

[4 marks]

The median suggests that students were less stressed after the 2 km breaktime run, because the median stress rating was lower in Condition A (5) than in Condition B (6.5).

The ranges suggest that stress ratings were less consistent after the run, because the range was larger in Condition A (6) than in Condition B (3), so the run affected students' stress more variably.



1 6

Explain **one** limitation of using the range to represent the spread of stress ratings.

[4 marks]

The range only takes the two most extreme stress ratings into account and is not calculated using every student's rating, so it can be distorted by an outlier. For example, most students in Condition A may have rated their stress as about 4, but one student who hated running may have rated 10, giving a range of 6 which does not represent the spread of most of the data.

A Wilcoxon test was used to determine whether differences in stress ratings were significant. The psychologist used a 0.01 level of significance.

1 7

Explain what it would mean if the results in the above study were significant at the 0.01 level.

[2 marks]

There would be a 1% ($p \leq 0.01$) probability or less that the difference in stress ratings between the run and no-run conditions occurred due to chance, so the null hypothesis could be rejected.

The psychologist found that the difference was **not** significant at the 0.01 level.

The psychologist was concerned that there might have been a type II error.

1 8

Explain what is meant by a type II error in the context of this study.

[2 marks]

A false negative: the null hypothesis is wrongly accepted, concluding there is no significant difference in stress after the 2 km run when there really is one.

Turn over ►

1 9

Suggest **one** way the psychologist could reduce the chance of a type II error.

[1 mark]

Use a less stringent significance level, such as 0.05 (5%), or increase the sample size.

Your psychology teacher has read about the beneficial effects of exercise.

She asks you to design a study to see if there is a correlation between time spent swimming and anxiety levels in A-level psychology students.

You need to select a sample of 20 participants using random or stratified sampling.

2 0

Explain how a sample of 20 participants could be selected for your study using either random or stratified sampling.

Outline **one** strength of the sampling method you have selected.

[4 marks]

Obtain a list of all the A-level psychology students in the school and give each a number. Use a random number generator to select 20 numbers; these students form the sample (replacing anyone who declines with the next random number).

Strength: every student has an equal chance of being selected, so the sample is free from researcher bias and is more likely to be representative of A-level psychology students.



Your teacher tells you **not** to use self-report to measure anxiety levels and tells you to use a different way of measuring anxiety.

2 1

Suggest how you could measure the co-variables, time spent swimming and anxiety levels, for your study.

[4 marks]

Co-variable 1 *Ask students to keep a swimming log for 4 weeks, checked against pool entry records, recording the total minutes they swim each week.*

Co-variable 2 *Two trained observers watch each student during a timed class test and rate behavioural signs of anxiety (e.g. fidgeting, nail biting) on a 0 to 10 scale, checking inter-observer reliability.*

2 2

Suggest an appropriate statistical test that could be used to analyse the data in your study and explain **two** reasons for your choice in the context of your study.

[5 marks]

Spearman's rho.

Firstly, the study is looking for a correlation (relationship) between two co-variables, time spent swimming and anxiety levels, rather than a difference between conditions.

Secondly, at least one variable is ordinal level data: the anxiety scores are observers' ratings on a 0 to 10 scale, which are subjective, so the intervals between points are not equal. Spearman's rho is suitable for ordinal data, whereas Pearson's r needs both variables to be interval.

Extra space

Turn over ►



2 3Briefly explain **one** reason why research should be peer reviewed.**[2 marks]**

Peer review by independent experts reduces the chance of flawed or unscientific research being published and treated as fact, which could misinform the public.

2 4Identify **two** ethical issues in the design and conduct of psychological research. In **each** case, explain how the issue you have identified could be dealt with.**[6 marks]**

Informed consent: participants should know the aims and procedures of the study before agreeing to take part. This can be dealt with by giving participants a consent form with full details of the aims, procedures and their right to withdraw, so they can make an informed decision about taking part. For participants under 16, a parent or guardian must also sign on their behalf. If full disclosure would affect the results, presumptive consent from a similar group can be used instead.

Deception: participants may be misled about the true aims, which prevents fully informed consent. This can be dealt with by a full debrief at the end of the study, in which participants are told the true aims and why deception was necessary, are reassured about their behaviour, and are given the right to withdraw their data. Deception should only be used if approved

Extra space *by an ethics committee and it causes no distress.*

END OF QUESTIONS**48**

There are no questions printed on this page

*Do not write
outside the
box*

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**



[illegible]

Do not write
outside the
box

Question number	Additional page, if required. Write the question numbers in the left-hand margin.



There are no questions printed on this page

*Do not write
outside the
box*

**DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED**

Copyright information

For confidentiality purposes, all acknowledgements of third-party copyright material are published in a separate booklet. This booklet is published after each live examination series and is available for free download from www.aqa.org.uk.

Permission to reproduce all copyright material has been applied for. In some cases, efforts to contact copyright-holders may have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements. If you have any queries please contact the Copyright Team.

Copyright © 2023 AQA and its licensors. All rights reserved.



2 4



2 3 6 A 7 1 8 2 / 2