

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

StemUp Model Solution

Forename(s)

Candidate signature

A-level PSYCHOLOGY

Paper 2 Psychology in context

Friday 7 June 2019

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.
- 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 1 9 7 1 8 2 2 0 1

Section A

Approaches in psychology

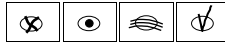
Answer **all** questions in this section.Only **one** answer per question is allowed.

For each answer 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 According to the biological approach, which of the following statements is **TRUE**?Shade **one** circle only.**[1 mark]**

- A** Environment may influence the expression of the genotype.
- B** Genotype is just the expression of the environment.
- C** Outside influences cannot affect the expression of the genotype.
- D** Phenotype is only the expression of the genotype.

0 2 According to operant conditioning, which of the following statements is **TRUE**?Shade **one** circle only.**[1 mark]**

- A** Negative reinforcement and positive reinforcement decrease the likelihood that a behaviour will be repeated.
- B** Negative reinforcement and positive reinforcement increase the likelihood that a behaviour will be repeated.
- C** Negative reinforcement and punishment decrease the likelihood that a behaviour will be repeated.
- D** Negative reinforcement and punishment increase the likelihood that a behaviour will be repeated.



0 3

Briefly describe **one** role of the unconscious according to the psychodynamic approach.**[2 marks]**

The unconscious protects the conscious self from anxiety: ego defence mechanisms such as repression work unconsciously, pushing traumatic memories out of awareness. However, these repressed memories still drive our behaviour, e.g. causing irrational fears in adulthood.

A television advert for a new cleaning spray, called 'Tiger', shows an England rugby player vigorously scrubbing a stain on the carpet.

The rugby player gets exhausted and gives up. A small boy says, 'Only Tiger power will get that out' and hands the rugby player a bottle of Tiger. The rugby player draws tiger stripes on his own face, roars and the little boy laughs. The rugby player easily wipes the stain from the carpet using Tiger.

The boy claps and the advert ends with the text, 'Anyone can battle stains with a Tiger on their side.'

0 4

Explain how the Tiger advert might influence viewers' mediational processes.

[6 marks]

Attention: viewers notice the advert because it stars a recognisable celebrity, an England rugby player, and the unusual, funny moment when he draws tiger stripes on his face and roars captures attention.

Retention: this humour and novelty make the advert memorable, so it is more likely to be encoded into LTM, and the simple slogan 'Anyone can battle stains with a Tiger on their side' is easy to store and recall in the shop.

Motor reproduction: spraying Tiger on a stain and wiping it off is a simple behaviour any viewer can physically reproduce.

Motivation: the model is rewarded, as he easily wipes off the stain and the boy claps (vicarious reinforcement), so viewers expect the same reward and are motivated to buy Tiger.

Turn over ►

0 5

The company paid the rugby player a lot of money to be in the advert.

Use your knowledge of social learning theory to explain why the company wanted to use a famous rugby player in the advert.

[2 marks]

People are more likely to identify with a high-status, admired celebrity role model such as a famous rugby player, so viewers are more likely to imitate his behaviour by buying and using Tiger, increasing sales.

There was an overall increase in sales of Tiger following the advertisement campaign. Interestingly, the increase in sales was greater for male customers than for female customers. See **Table 1** below.

Table 1 Sales figures before and after the Tiger advert

	Females	Males
Before the advert	3882	2522
After the advert	3395	4688

0 6

Calculate the percentage increase in sales of Tiger to male customers. Give your answer to **two** significant figures.

Show your workings.

[3 marks]

$$\text{Increase in male sales} = 4688 - 2522 = 2166$$

$$\text{Percentage increase} = (2166 \div 2522) \times 100 = 85.884\ldots\%$$

$$\text{Answer} = 86\% \text{ (to 2 significant figures)}$$



0 7

Using your knowledge of social learning theory, suggest how the advert could be modified to increase the sales of Tiger to female customers.

[1 mark]

Use a famous female role model, e.g. a top sportswoman, so female viewers identify with her and imitate her.

0 8

Outline **and** evaluate Wundt's role in the emergence of psychology as a science.

[8 marks]

Wilhelm Wundt opened the first laboratory dedicated to psychology, the Institute for Experimental Psychology in Leipzig, in 1879, and published Principles of Physiological Psychology (1874), helping to establish psychology as a discipline separate from philosophy and physiology.

His approach, structuralism, aimed to break conscious experience down into its basic elements: sensations, images and feelings. He used introspection, where trained observers reported their thoughts and sensations in response to standardised stimuli, such as a ticking metronome, under controlled laboratory conditions, so that general laws of mental processes could be established. He accepted that higher mental processes such as language could not be studied this way, and developed cultural psychology to study them.

A strength is that Wundt's standardised procedures and controlled environments anticipated the scientific method, and his focus on mental processes can be seen as a forerunner of the cognitive approach.

However, introspection is subjective: it relies on private reports that cannot be observed or verified, so his findings were not reliably replicated, which goes against the objectivity and replicability required of a science.

Its validity is also questionable, as Nisbett and Wilson (1977) showed that people often have no conscious access to the causes of their own behaviour.

Nevertheless, introspective self-report is still used in modern research, e.g. Csikszentmihalyi and Hunter's (2003) experience sampling study of happiness.

Turn over ►



Finally, behaviourists such as Pavlov arguably contributed more to scientific psychology, as they produced reliable, generalisable findings from observable behaviour. Wundt's role was therefore historically important, but methodologically limited.

Extra space



Section B**Biopsychology**

Answer **all** questions in this section.

0 9

Which method of studying the brain would most accurately identify specific brain areas activated during a cognitive task?

Shade **one** circle only.

[1 mark]

A Electroencephalogram (EEGs)

☐

B Event-related potentials (ERPs)

☐

C Functional magnetic resonance imaging (fMRI)

☒

D Post-mortem examinations

☐

Turn over for the next question

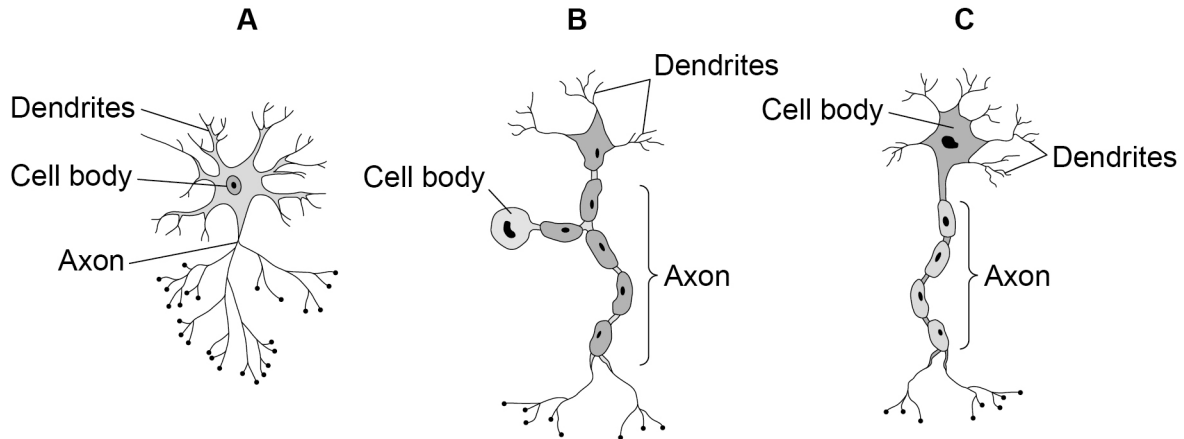
Turn over ►



1 0

Figure 1 shows three different types of neuron. Use the letters from **Figure 1** to answer the following questions.

Figure 1 Types of neuron



1 0 . 1

Which neuron is only found in the brain/visual system/spinal cord?

[1 mark]

A



B



C



1 0 . 2

Which neuron carries nerve impulses from the brain/spinal cord to muscles/glands?

[1 mark]

A



B



C



1 0 . 3 Which neuron carries nerve impulses between neurons?

[1 mark]

A



B



C



The adrenal gland is part of the endocrine system that produces adrenaline to help the body prepare for the fight or flight response.

1 1 Using an example of a gland and hormone, outline the function of the endocrine system. Do **not** use the adrenal gland/adrenaline as your example.

[4 marks]

The endocrine system is a network of glands that secrete hormones directly into the bloodstream. Hormones travel to target organs with matching receptors and regulate their activity, acting more slowly than the nervous system but with longer-lasting effects.

For example, the thyroid gland produces thyroxine, which acts on cells throughout the body, including the heart, increasing heart rate and metabolic rate, so it regulates growth and energy use.

Release is controlled by the pituitary 'master gland' and hypothalamus

Extra space *through negative feedback.*

Turn over for the next question

Turn over ►



Kieran completes a quiz in his magazine and announces that he is 'left brained'. "That's just silly", Sam says. "You cannot just be 'left brained', the whole brain works together to carry out functions." "It's not silly!" Kieran replies. "It says here that the left brain is responsible for speech and language."

1 2

Discuss research into localisation of function in the brain and/or hemispheric lateralisation. Refer to Kieran and Sam's discussion in your answer.

[16 marks]

You may use this space to plan your answer.

Localisation of function is the theory that specific areas of the brain are responsible for specific functions. For example, the motor cortex in the frontal lobe controls voluntary movement, the somatosensory cortex in the parietal lobe processes touch, the visual cortex is in the occipital lobe and the auditory cortex in the temporal lobe. Language is localised to Broca's area in the left frontal lobe, responsible for speech production, and Wernicke's area in the left temporal lobe, responsible for language comprehension.

Hemispheric lateralisation is the idea that the two hemispheres are functionally different, with some functions principally governed by one hemisphere. Kieran is partly correct: in most people language is lateralised to the left hemisphere, because both Broca's and Wernicke's areas are usually found there. Broca's patient Leborgne ('Tan') understood speech but could only say 'Tan', and a post-mortem revealed a lesion in his left frontal lobe, supporting Kieran's claim that the left brain is responsible for speech.



Sperry (1968) studied split-brain patients whose corpus callosum had been cut to treat epilepsy. When an image was shown to the right visual field (processed by the left hemisphere) they could describe it, but when it was shown to the left visual field (right hemisphere) they could not name it, although they could select a matching object with their left hand. This shows that language is lateralised to the left hemisphere, while the right hemisphere is superior at visuo-spatial tasks.

However, Sam is right that the brain normally works as an integrated whole. In an intact brain the corpus callosum constantly transfers information between the hemispheres, so a healthy person like Kieran cannot be purely 'left brained'; Sperry's effects only appeared once this connection was severed. Nielsen et al. (2013) scanned over 1000 people and found no evidence that individuals are 'left brained' or 'right brained'.

A strength of localisation is support from neuroimaging; Petersen et al. (1988) used PET scans to show Wernicke's area was active during a listening task and Broca's area during a reading task, giving objective, scientific evidence that language is localised.

However, Lashley's (1930) equipotentiality theory, based on removing areas of rats' cortex, argued that learning is distributed across the cortex, and complex functions such as language are now thought to depend on networks of regions rather than single areas, supporting Sam's holistic view.

Generalising from rats to humans is also questionable.

Plasticity also challenges strict lateralisation: Danelli et al. (2013) described a boy who had most of his left hemisphere removed yet developed near-normal language, as his right hemisphere took over, so language is not fixed to one side. Lateralisation also changes with age: Szaflarski et al.

(2006) found language became more left-lateralised up to about 25, but less

Turn over ►



lateralised with each decade after, so Kieran's claim may apply less as he ages.

Finally, case studies and split-brain research use small, unusual samples, e.g. Sperry's patients had a history of epilepsy that may have altered brain organisation, so findings may not generalise to neurotypical people. Turk et al. (2002) found split-brain patient J.W. developed the ability to speak about information presented to his right hemisphere, again showing more flexibility than Kieran's quiz suggests.

Overall, functions such as speech are localised and lateralised, as Kieran claims, but the hemispheres normally work together, so Sam's view is more accurate.

Extra space



[illegible]

Turn over ►



Section C

Research methods

Answer **all** questions in this section.**1 3** Which of the following does reliability refer to?Shade **one** circle only.**[1 mark]****A** The accuracy of the data☐**B** The consistency of the data☒**C** The levels of the data☐**D** The validity of the data☐**1 4** Which of the following is **not** a role of peer review in the scientific process?Shade **one** circle only.**[1 mark]****A** To determine whether to award research funding☐**B** To ensure only significant results are published☒**C** To make sure research has high validity and reliability☐**D** To retain the integrity of psychological research☐**1 5** Give **one** reason why it is important for scientific reports to include a referencing section?**[1 mark]**

It lets readers locate and check the original sources used, and gives credit to other researchers, avoiding plagiarism.



It was recently reported in a newspaper that time spent playing team sports increases happiness levels. A researcher was keen to find out whether this was due to participating in a team activity or due to participating in physical activity, as he could not find any published research on this.

The researcher used a matched-pairs design. He went into the student café and selected the first 20 students he met. Each student was assigned to one of two groups.

Participants in **Group A** were requested to carry out 3 hours of team sports per week. Participants in **Group B** were requested to carry out 3 hours of exercise independently in a gym each week. All participants were told not to take part in any other type of exercise for the 4-week duration of the study.

All participants completed a happiness questionnaire at the start and end of the study. The researcher then calculated the improvement in happiness score for each participant.

1 6 Which of the following is correct?

Shade **one** circle only.

[1 mark]

- A** Groups A and B are conditions of the dependent variable and happiness is the independent variable.
- B** Groups A and B are conditions of the independent variable and happiness is the dependent variable.
- C** Groups A and B are the controls and happiness is the experimental condition.
- D** Groups A and B are the experimental conditions and happiness is the control.

☐
☒
☐
☐

1 7 Would a directional or non-directional hypothesis be more suitable for the researcher to use? Explain your answer.

[2 marks]

Non-directional (two-tailed), because the researcher could not find any published research on whether team activity or physical activity increases happiness more, so there is no previous evidence on which to predict the direction of the difference.

Extra space

Turn over ►



1 8

Write a suitable hypothesis for this experiment.

[3 marks]

There will be a difference in the improvement in happiness score (end of study minus start of study questionnaire score) between students who do 3 hours of team sports per week for 4 weeks and students who do 3 hours of independent exercise in a gym per week for 4 weeks.

Extra space

1 9

Identify the type of sampling method used in this experiment. Explain **one** limitation of using this sampling method in this study.**[3 marks]**

Opportunity sampling: he selected the first 20 students he happened to meet in the student café.

This sample is likely to be biased and unrepresentative. Students who spend time in a busy café may be more sociable and outgoing, and so enjoy team sports more, which could exaggerate the effect of team sports on happiness.

So the findings cannot be generalised to all students, especially shy,

Extra space *introverted ones.*

2 0

Identify **one** variable on which participants should be matched in this matched-pairs design. Explain how the researcher could assign matched participants to either **Group A** or **Group B**.

[4 marks]

Participants could be matched on their initial level of happiness.

Each participant completes the happiness questionnaire before the study begins, giving a baseline happiness score.

The researcher ranks the 20 scores, pairs the two highest scorers, then the next two highest, and so on, until there are 10 pairs.

One member of each pair is then randomly allocated (e.g. by tossing a coin) to Group A and the other to Group B, so each group has 10 participants.

Extra space

2 1

Explain **one** strength of using a matched-pairs design rather than a repeated-measures design.

[2 marks]

In a matched-pairs design each participant only takes part in one condition, so there are no order effects such as practice or fatigue, e.g. 4 weeks of team sports cannot affect happiness in a later gym condition. Participants are also less likely to guess the aim, reducing demand characteristics, so

Extra space *validity improves.*

Turn over for the next question

Turn over ►



The results of the study are given in **Table 2**, below.

Table 2 Improvement in happiness scores

	Team sports Group A	Independent sport Group B
Pair 1	0	2
Pair 2	14	8
Pair 3	4	4
Pair 4	-1	1
Pair 5	3	3
Pair 6	12	5
Pair 7	8	7
Pair 8	15	8
Pair 9	7	8
Pair 10	3	2

The researcher decided to use the Sign Test to see whether there was a significant difference in the improvement in the scores between the two groups at the 5% level of significance.

2 2

Calculate the value of **S** in this study. Show your workings.

[2 marks]

Differences (A - B): -2, +6, 0, -2, 0, +7, +1, +7, -1, +1

Number of + = 5, number of - = 3, two ties (0) are ignored, so N = 8

S = the less frequent sign, so S = 3



Table 3 Table of critical values of the sign test (S)

N	Level of significance for a two-tailed test		
	0.10	0.05	0.01
7	0	0	
8	1	0	0
9	1	1	0
10	1	1	0
11	2	1	0
12	2	2	1

Significance is shown if the calculated value of S is **equal to or less than** the critical value.

2	3
---	---

Explain whether or not there was a significant difference in the improvement in the scores between the two groups. Use your answer to **Question 22** and **Table 3**.

[2 marks]

From Table 3, for $N = 8$ (two-tailed, 0.05 level) the critical value is 0. The calculated value $S = 3$ is greater than 0, so the difference is not significant at the 5% level and the null hypothesis is retained.

Turn over for the next question

Turn over ►



The validity of the data was questioned when the researcher presented his results. The researcher explained that he chose to use the happiness questionnaire because it had high concurrent validity.

2	4
---	---

Explain what it means for a test to have high concurrent validity.

[2 marks]

Concurrent validity is the extent to which a new test's results agree with those of an established, valid test of the same thing taken at the same time. A test has high concurrent validity if the correlation between scores on the two tests is strong, exceeding +0.8.

Extra space

2	5
---	---

The questionnaire had high concurrent validity.

Validity was still a concern because the researcher knew which participants were in each experimental group.

Explain how this could have affected the validity of the study.

[4 marks]

Because the researcher knew which group each participant was in, his expectations could have led to investigator effects (researcher bias). For example, if he expected team sports to increase happiness more, he may have consciously or unconsciously behaved differently towards Group A while they completed the happiness questionnaire, such as smiling more or using a warmer tone.

This could make Group A participants rate themselves as happier. So any greater improvement in happiness in the team sports group may be due to

Extra space *investigator effects rather than the IV (team sports versus independent exercise), reducing the internal validity of the study.*



2 6

Using your answer to **Question 25**, suggest **one** way in which the researcher could modify the study to improve the internal validity of the study? Justify your answer.

[4 marks]

He could use a double-blind procedure: an assistant who does not know which condition each participant is in, or the aim of the study, would give out and collect the happiness questionnaires, and participants would not be told the hypothesis.

This is justified because if the person collecting the data does not know which group a participant is in, they cannot consciously or unconsciously give cues, such as smiling, to one group. Any difference in happiness improvement is then more likely to be caused by the IV than by

Extra space *investigator effects, improving internal validity.*

A psychology teacher read the researcher's study on sport and happiness. She considered whether setting group tasks could improve her students' level of happiness. She decided to conduct an independent groups experiment with 30 students taking A-level Psychology using the same happiness questionnaire.

2 7

Suggest an appropriate statistical test the psychology teacher could use to analyse the data. Justify your choice of test.

[4 marks]

A Mann-Whitney U test. It is a test of difference, as she is looking for a difference in happiness between students who do group tasks and those who do not. It suits an independent groups design, as different students are in each condition. The questionnaire gives ordinal data, as happiness ratings are subjective and the gaps between scores are not necessarily equal.

Turn over ►

2 8

Design an independent groups experiment that the psychology teacher could conduct.

In your answer you should provide details of:

- the aim of the experiment
- identification and manipulation of variables including details of the task
- controls to minimise the effects of extraneous variables
- data handling and analysis – use of descriptive statistics and/or data presentation.

Justify your design choices.

[12 marks]

You may use this space to plan your answer.

Aim: to investigate whether working on group tasks in lessons improves A-level Psychology students' level of happiness compared with working on the same tasks individually.

Variables: the IV is the type of task. In the experimental condition, 15 students complete their Psychology class tasks in small groups of five (e.g. researching and producing a poster and presentation on memory) in three one-hour lessons per week for four weeks; in the control condition, 15 students complete exactly the same tasks individually. This keeps the content identical, so only the social element of group work differs. The DV is the improvement in happiness, operationalised as the score on the happiness questionnaire at the end minus the score at the start; this questionnaire is used because it has high concurrent validity. Possible extraneous variables include the teacher, workload and baseline happiness.

Controls: the 30 students would be randomly allocated to conditions by



putting their names in a hat and drawing out 15 for each group, so participant variables such as personality and baseline happiness are spread evenly and do not become confounding variables. The procedure would be standardised: both groups would have the same teacher, topics, lesson times, room and task length, and receive the same written instructions, so any difference in happiness can be attributed to the IV. The questionnaire would be given by someone unaware of each student's condition (double blind), reducing investigator effects and demand characteristics.

Data handling and analysis: as the questionnaire produces ordinal data, the median improvement score would be calculated for each group, as it is not distorted by extreme scores, with the range as the measure of dispersion to show the spread of improvement in each condition. Results would be shown in a table of medians and ranges and in a bar chart, with the two conditions (group tasks, individual tasks) on the x-axis and median improvement in happiness score on the y-axis, as the IV is categorical, making the difference easy to compare. A Mann-Whitney U test would then show whether the difference is significant at $p \leq 0.05$.

Turn over ►



Extra space

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END OF QUESTIONS**Copyright information**

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