

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

I declare this is my own work.

A-level PSYCHOLOGY

Paper 2 Psychology in context

Friday 5 June 2020

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 0 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**

What is the correct arrangement of Maslow's hierarchy of needs from bottom to top of the hierarchy?

Shade **one** circle only.**[1 mark]****A** Physiological, Safety, Love/belongingness, Esteem, Self-actualisation.**B** Physiological, Safety, Love/belongingness, Self-actualisation, Esteem.**C** Safety, Physiological, Love/belongingness, Esteem, Self-actualisation.**D** Safety, Physiological, Love/belongingness, Self-actualisation, Esteem.**0 2**

Which of the following shows the correct order of the psychosexual stages of development as proposed by the psychodynamic approach?

Shade **one** circle only.**[1 mark]****A** Oral, Anal, Genital, Latency, Phallic.**B** Oral, Anal, Phallic, Genital, Latency.**C** Oral, Anal, Phallic, Latency, Genital.**D** Oral, Genital, Anal, Phallic, Latency.

0 3

Describe the role of defence mechanisms according to the psychodynamic approach.

[2 marks]

Defence mechanisms are unconscious strategies used by the ego to manage the conflict between the selfish demands of the id and the moral demands of the superego. They reduce the anxiety this conflict creates and protect the ego, usually by distorting reality. For example, in repression a traumatic memory is forced into the unconscious, and in displacement feelings are redirected onto a substitute target.

0 4

Briefly explain **one** strength and **one** limitation of the psychodynamic approach.**[4 marks]**

Strength: the approach led to psychoanalysis, a practical therapy for mental health problems in which unconscious conflicts are brought into conscious awareness. De Maat et al. (2009) reviewed studies of long-term psychoanalytic therapy and found significant improvements in symptoms that were maintained at follow-up, showing the approach has real-world value.

Limitation: key concepts such as the id, the Oedipus complex and repression operate unconsciously, so they cannot be directly observed or tested and can

Extra space *only be inferred, subjectively, from behaviour or patients' reports. Popper argued this makes the approach unfalsifiable and a pseudoscience, so it lacks scientific rigour.*

Turn over for the next question**Turn over ►**

Alison is a Psychology teacher who is keen to reduce plastic waste in her school. She puts a sticker showing an ocean full of plastic waste on each plastic bottle of water sold in the canteen.

Alison asks canteen staff to increase the price of bottled water by 20 pence and offer free refills of water to any student taking in their own bottle.

Finally, Alison sets up a bottle return desk, where students can get 20 pence back for any plastic bottle they hand in for recycling.

0 5

Describe **and** evaluate operant conditioning as a way of explaining people's behaviour. Refer to Alison's approach to reducing plastic waste in your answer.

[16 marks]

You may use this space to plan your answer.

Operant conditioning, proposed by Skinner, explains behaviour as learning through the consequences of our actions. Behaviour that is followed by a pleasant consequence is likely to be repeated, while behaviour followed by an unpleasant consequence is less likely to be repeated. Skinner demonstrated this using rats and pigeons in a Skinner box: a rat that accidentally pressed a lever and received a food pellet learned to press the lever more often.

Positive reinforcement is receiving something pleasant for a behaviour, which increases its frequency. Negative reinforcement is when a behaviour removes or avoids something unpleasant, which also strengthens the behaviour, e.g. the rat pressing the lever to switch off an electric shock. Punishment decreases a behaviour: positive punishment adds an unpleasant consequence, while negative punishment removes something pleasant. Reinforcers can be



primary (such as food or water) or secondary (such as money).

Alison's approach applies these principles. Students who bring their own bottle receive free refills, a positive reinforcement that increases the likelihood of them bringing a bottle again. The 20 pence return desk positively reinforces handing in plastic bottles using money as a secondary reinforcer. The 20 pence price rise is a negative punishment: buying bottled water now costs students more money, which should decrease that behaviour. The sticker of the ocean full of plastic acts as a positive punishment, since an unpleasant image is added each time a bottle is bought. It may also negatively reinforce not buying bottled water, because by choosing a refill instead students avoid seeing the upsetting image.

A strength of operant conditioning is that it is supported by well-controlled laboratory research. Skinner manipulated consequences precisely and measured observable behaviour objectively, such as the rate of lever pressing, which makes the explanation scientific and replicable. It also has real-world applications: token economies in psychiatric wards (Ayllon and Azrin, 1968) increased desirable behaviours by rewarding patients with tokens, and bottle deposit return schemes in many countries have greatly increased recycling, which suggests Alison's return desk should be effective.

However, much of the supporting research used animals, and it may not be valid to generalise from rats and pigeons to humans, whose behaviour is also influenced by thoughts, values and emotions. Operant conditioning ignores these mediational processes. For example, some students may stop buying bottled water because the sticker informs them about ocean pollution and changes their attitudes, a cognitive explanation rather than punishment. Social learning theory also argues that behaviour can be learned indirectly

Turn over ►



through vicarious reinforcement: students may bring their own bottles after seeing respected peers being rewarded with free refills, without being reinforced themselves.

Operant conditioning can also be criticised as environmentally reductionist, as it reduces complex behaviour such as environmental concern to simple stimulus and response links. It is also deterministic, suggesting behaviour is entirely controlled by past reinforcement and denying free will, yet some students may choose to carry on buying bottled water despite the punishments, or recycle for moral reasons with no reward.

Finally, behaviour learned through reinforcement may undergo extinction once the reinforcement stops. If the free refills or the 20 pence refunds were withdrawn, students might return to buying bottled water, so Alison's scheme may only change behaviour while the consequences remain in place.

Overall, operant conditioning provides a useful and practical explanation of behaviour, but it is incomplete without considering cognitive and social factors.

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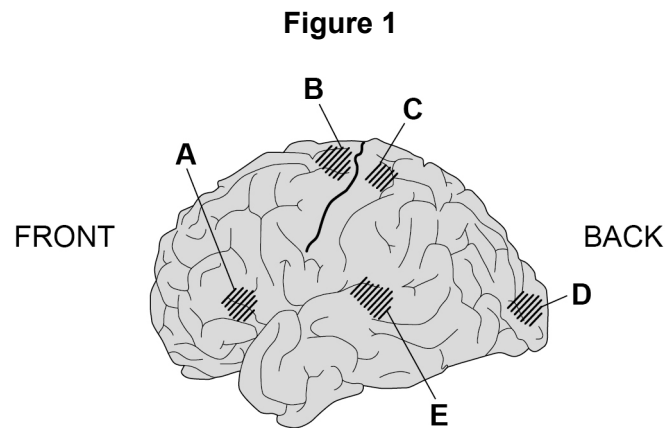
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24

Section B**Biopsychology**

Answer **all** questions in this section.

Figure 1 shows the left hemisphere of the human brain. Five areas of the brain are labelled A, B, C, D and E.



0	6
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Using the letters given in **Figure 1**, correctly identify the areas of the brain to complete the table below.

[4 marks]

	Area of brain
Which area is responsible for processing sensations such as pain and pressure?	C
Which area processes information such as colour and shape?	D
Which area processes information such as pitch and volume?	E
Which area is responsible for voluntary movements?	B



0 7

Explain the difference between infradian rhythms and ultradian rhythms.

[2 marks]

The rhythms differ in duration. Infradian rhythms have a cycle that lasts longer than 24 hours, such as the menstrual cycle (about 28 days), whereas ultradian rhythms have cycles that last less than 24 hours, such as the stages of sleep, which repeat about every 90 minutes.

0 8

A survey of hospital patients has found that a new drug, Zapurpain, is as effective as other pain medication.

Explain **one** limitation of asking hospital patients to self-report the effectiveness of Zapurpain.

[2 marks]

Patients may show social desirability bias: they may feel obliged to tell hospital staff that Zapurpain reduced their pain, to please the doctors. Also pain is subjective, so the reported effectiveness may be exaggerated and lack validity.

0 9

Zapurpain acts like an inhibitory neurotransmitter at the synapse.

Explain how Zapurpain might affect the process of synaptic transmission through inhibition.

[4 marks]

Zapurpain would cross the synaptic cleft and bind to receptors on the postsynaptic membrane, just as an inhibitory neurotransmitter does. This makes the inside of the postsynaptic neuron more negatively charged (hyperpolarisation), creating an inhibitory postsynaptic potential (IPSP), so the postsynaptic neuron is less likely to fire an action potential. Through summation, if the inhibitory inputs (IPSPs) outweigh the excitatory inputs (EPSPs), the action potential is prevented. As transmission only travels from presynaptic to postsynaptic neuron, Zapurpain would reduce activity in pain pathways, so fewer pain signals reach the brain and pain is reduced.

Turn over ►

1 0

Explain **one** difference and **one** similarity between Functional Magnetic Resonance Imaging (fMRI) and Event-Related Potentials (ERPs) as ways of studying the brain.

[4 marks]

Difference *fMRI has good spatial resolution (about 1 to 2 mm), so it shows precisely which brain area is active, whereas ERPs have poor spatial resolution because scalp electrodes cannot pinpoint where in the brain the electrical activity comes from.*

Similarity *Both are non-invasive and do not use radiation, so they are risk free for participants. Both also measure brain activity while a person performs a task, so specific events or tasks can be linked to activity in the brain.*

1 1

Outline and evaluate split-brain research.

[8 marks]

Sperry (1968) studied 11 split-brain patients whose corpus callosum had been surgically cut to treat severe epilepsy, so information could not pass between the two hemispheres. An image or word was flashed to one visual field for about a tenth of a second, so it was processed only by the opposite hemisphere. When an image was shown to the right visual field (left hemisphere) patients could name it, but when it was shown to the left visual field (right hemisphere) they said they saw nothing, as language is processed in the left hemisphere. However, they could select the matching object by touch with their left hand, and the right hemisphere was superior at drawing, showing it specialises in visuospatial tasks.

A strength is that this research provided key evidence for hemispheric lateralisation of function, showing that the left hemisphere is dominant for language and the right for visuospatial processing. Sperry's highly standardised procedures also made the research scientific and replicable. However, the findings may not generalise. The sample was small and



atypical: the patients had a long history of epilepsy and drug therapy, which may have changed their brains, and the extent of disconnection varied, so there was no truly valid control group.

The tasks were also artificial. In everyday life split-brain patients can compensate by moving their eyes, so information reaches both hemispheres and the deficits seen in the laboratory rarely appear, which lowers ecological validity.

Later research has also challenged a strict view of lateralisation. Turk et al. (2002) found that patient JW developed the ability to speak about information presented to his right hemisphere, suggesting that language is not confined to the left hemisphere and that plasticity allows functions to be taken over. Split-brain research may therefore oversimplify lateralisation, as normal hemispheres communicate constantly.



Section C

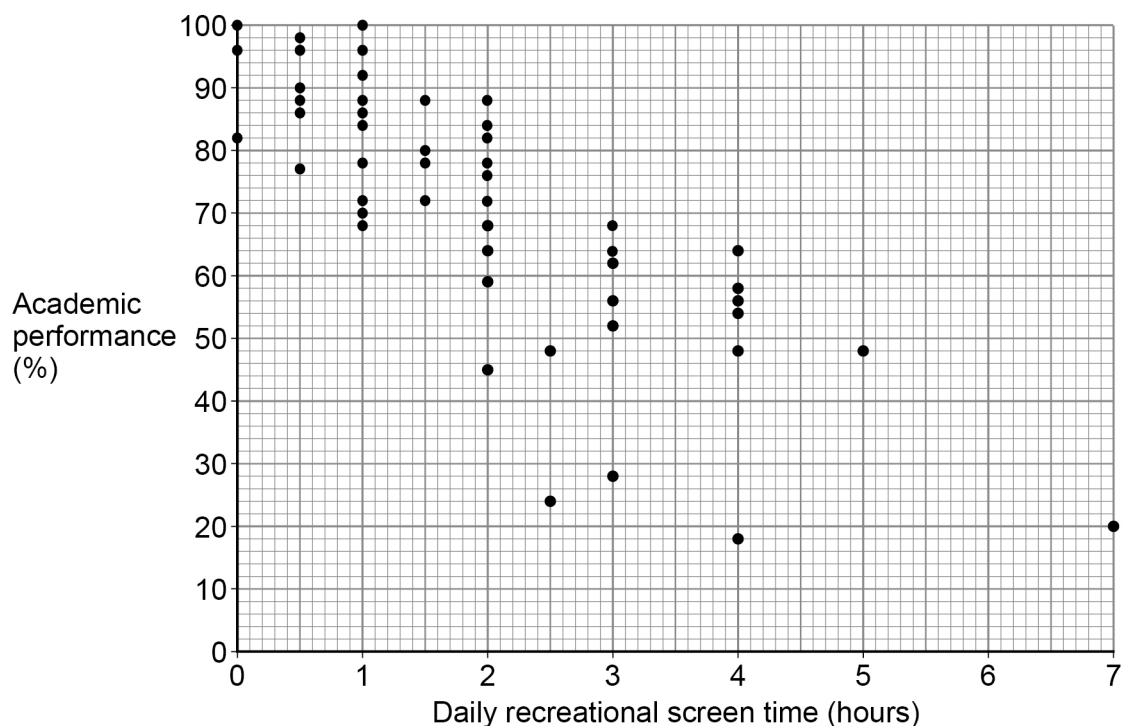
Research methods

Answer **all** questions in this section.

A study into the relationship between recreational screen time and academic achievement was conducted. Students were asked to self-report the number of hours spent watching TV, playing on their mobile phones or video games (daily recreational screen time) and their end-of-year test performances (academic performance).

The results of the study are shown in **Figure 2**.

Figure 2 The relationship between daily recreational screen time and academic performance



1 2

In which section(s) of a scientific report would you expect to find reference to the results/findings of the investigation?

Shade **one** circle only.

[1 mark]

A The abstract and the results sections only

☐

B The abstract, the discussion and the results sections only

☒

C The results and the discussion sections only

☐

D The results section only

☐


1 3

Which of the following correlation co-efficients best describes the data represented in **Figure 2**?

Shade **one** circle only.

[1 mark]

A -0.80 B -0.25 C $+0.25$ D $+0.80$ **1 4**

Identify the type of graph shown in **Figure 2** and explain why this is an appropriate graph to use for the data collected.

[3 marks]

Scattergram.

This is appropriate because the study is correlational: it looks for a relationship between two co-variables, daily recreational screen time and academic performance. A scattergram plots each student's two scores as a single point, so the direction and strength of the relationship (here a strong negative correlation) can be clearly seen.

1 5

Explain why it would not be appropriate for the researchers to conclude that increased recreational screen time reduces academic performance.

[2 marks]

This is a correlation, so it only shows a relationship between the co-variables and cannot establish cause and effect. A third variable, such as hours spent studying, might explain both lower screen time and higher performance.

Turn over for the next question

Turn over ►



A psychologist reads a review of a meta-analysis confirming the relationship between recreational screen time and academic performance.

1 6

What is meant by the term meta-analysis?

[2 marks]

A meta-analysis is when a researcher collects and combines the findings of many previously conducted studies on the same topic. The data are reviewed together and an overall effect size is calculated and statistically tested to reach an overall conclusion.

The psychologist decided to design an experiment to test the effects of recreational screen time on children's academic performance.

The psychologist randomly selected four schools from all the primary schools in her county to take part in the experiment involving Year 5 pupils. Three of the four schools agreed to take part. In total, there were 58 pupils whose parents consented for them to participate. The 58 pupils were then randomly allocated to **Group A** or **Group B**.

For the two-week period of the experiment, pupils in **Group A** had no recreational screen time. Pupils in **Group B** were allowed unrestricted recreational screen time. At the end of the experiment all pupils completed a 45-minute class test, to achieve a test score.

1 7

Complete **Table 1** by ticking the statement that best describes the population and the sample in the psychologist's experiment.

Place **one** tick in each column.

[2 marks]

Table 1

	Population	Sample
All the pupils in the selected four schools.		
All the Year 5 pupils across the world.		
All the Year 5 pupils in the county.	✓	
All the Year 5 pupils in the selected three schools.		
All the 58 Year 5 pupils with parental consent in the selected three schools.		✓



1 8

Briefly explain why a directional hypothesis would be most suitable for this experiment.

[1 mark]

Previous research, such as the correlational study and the meta-analysis, shows that recreational screen time is linked to lower academic performance, so the direction of the effect can be predicted.

1 9

Write an appropriate hypothesis for this experiment.

[3 marks]

Year 5 pupils who have no recreational screen time for two weeks (Group A) will achieve higher scores on a 45-minute class test than Year 5 pupils who have unrestricted recreational screen time for two weeks (Group B).

The results obtained from the experiment are summarised in **Table 2**.

Table 2 Descriptive statistics for the test performance scores for Group A and Group B

	Group A (no screen time)	Group B (unrestricted screen time)
Mean	73.6	66.3
Median	74.0	58.0
Mode	74.0	44.0
Standard deviation	13.2	25.1

2 0Using the data in **Table 2**, explain how the distribution of scores in **Group A** differs from the distribution of scores in **Group B**.**[4 marks]**

Group A's scores are symmetrical (normally distributed), because the mean (73.6) is approximately equal to the median and mode (both 74.0).

Group B's scores are positively skewed, because the mean (66.3) is greater than the median (58.0), which is greater than the mode (44.0). Most pupils scored low, with a few high scores pulling the mean up. Group B's scores are also more spread out (SD 25.1 compared with 13.2).

Turn over ►

2 1

What do the mean and standard deviation values in **Table 2** suggest about the effect of the recreational screen time on test performance? Justify your answer.

[4 marks]

The means suggest that recreational screen time has a negative effect on test performance, because the mean test score was higher for pupils with no screen time (Group A, 73.6) than for pupils with unrestricted screen time (Group B, 66.3).

The standard deviations suggest that the effect of screen time on test performance is not consistent, because there was much wider variation in scores in Group B (SD 25.1) than in Group A (SD 13.2), so some pupils with unrestricted screen time still did well while others did very poorly.

2 2

The psychologist wanted to test the statistical significance of the data.

Identify the most appropriate choice of statistical test for analysing the data collected and explain **three** reasons for your choice in the context of this study.

[7 marks]

Mann-Whitney U test.

Firstly, the psychologist is testing for a difference between two conditions: the test scores of pupils with no recreational screen time compared with pupils with unrestricted recreational screen time.

Secondly, an independent groups (unrelated) design was used, because the 58 pupils were randomly allocated to either Group A or Group B, so each pupil took part in only one condition.

Thirdly, the data are treated as ordinal: the difference between each test mark is not necessarily equal, and the Group B scores are positively skewed rather than normally distributed, so a non-parametric test is needed.



2 3

One criticism of the study is that the pupils were not matched on their typical recreational screen time.

Explain how the psychologist could have matched pupils on their typical recreational screen time across the experimental conditions.

[4 marks]

Before the experiment, the psychologist could ask parents to complete a questionnaire about their child's typical recreational screen time, e.g. 'On an average day, how many hours does your child spend watching TV, using a mobile phone or playing video games?', giving an average daily figure in hours.

The pupils would be ranked by their daily screen time, and pupils with the most similar screen time would be put into pairs. One pupil from each pair would then be randomly allocated to Group A and the other to Group B, so

Extra space *both conditions are matched on typical screen time.*

2 4

Identify **one** other variable for which the psychologist could have matched the pupils. Explain how this might have affected the test performance if it was not controlled.

[2 marks]

Prior academic ability (e.g. previous test results). If not controlled, Group A might by chance contain more able pupils, so their higher scores could be due to ability rather than having no screen time.

Turn over for the next question

Turn over ►



The feedback from one of the schools was that recreational screen time affected pupils' social interactions. The psychologist decided to investigate this further by using an observation of social interaction during playtime at the school.

2 | 5

Design the observation to investigate pupils' social interaction in the playground.

In your answer you will be awarded credit for providing appropriate details of:

- type of observation, with justification
- choice of time sampling **or** event sampling, with justification
- dealing with **one** relevant ethical issue
- assessing reliability of the data through inter-observer reliability.

[12 marks]

You may use this space to plan your answer.

I would carry out a naturalistic, non-participant, covert observation of Year 5 pupils during playtime. A naturalistic setting is justified because social interaction in the real playground will be spontaneous and high in ecological validity. The observers would watch from a classroom window overlooking the playground, so pupils would not know they were being observed. This avoids participant reactivity, as pupils who knew they were being watched might change their behaviour, for example by playing with others more than usual, which would reduce validity. Being non-participant allows the observers to record behaviour objectively without influencing the children's play.

Before the study, the observers would agree clear, operationalised behavioural categories, such as talking to another pupil, playing cooperatively with others, physical contact (e.g. hugging, play fighting), playing alone, and



using a mobile device or game.

I would use time sampling. Each observer would focus on one target pupil for five minutes, and every 30 seconds would tick on a checklist which behavioural category the pupil is showing. This is justified because a busy playground contains many pupils and continuous recording or event sampling would be impractical, as many interactions would be missed. Time sampling makes recording manageable and allows a representative sample of each pupil's behaviour to be collected across several playtimes.

The main ethical issue is informed consent, as the pupils are under 16 and the observation is covert. I would obtain permission from the headteacher and fully informed consent from parents through a letter explaining the aims, without telling the pupils which playtimes would be observed. Pupils would be identified only by code numbers, so data remain confidential, and parents would be debriefed afterwards and told they can withdraw their child's data at any time.

To assess reliability, two observers would be trained to use the same behavioural categories, ideally in a pilot study. They would observe the same target pupils at the same time but record independently. Their tallies for each category would then be compared using a correlation, such as Spearman's rho. A correlation coefficient of +0.80 or higher would indicate good inter-observer reliability. If it were lower, the observers would discuss differences, clarify the categories and retrain before repeating the observation.

Turn over ►



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48



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